DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY
AURANGABAD.

A Project On

"Institute Management System"

Submitted By

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Guided By

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CERTIFICATE

This is to certify that the seminar report entitled

"Institute Management System"

Submitted by. MR.GANESH A. MUNDHE as per the requirement of Dr. BABASAHEB AMBEDKAR MARATHWADA University ,in the partial

fulfillment of Bachelor of computer Application, Thired year for the

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seat No:- 601189

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ACKNOWLEDGEMENT

With our great pleasure, we wish to express our knowledge under the great guidance of Propfsir D.E.Suralkar who help us with her greatful support and Other infrastructre with personal attention.

We are also thankful to our project guide Propfsir D.E.Suralkar who herself a knowledgeable person with a great brilliance. we thanking her for her immense interest, valuable guidence, kindly suggestion and co-operation thought out the period ofundertaken which have been instrumemted in the success ofour project.

It is matter of honor to express our special thanks to all the staff members who supported us in completion of our project and provide us their own interest.

We also thankful to all our Friends who have directly or indirectly supported us by morally.

MR.GANESH A. MUNDHE

B.C.A (third year)

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DECLARATION

I Have undersing that I have completed the [redacted] work on the

topic SOFTWARE DEVELOPMENT FORM INSTITUTE MANAGEMENT SYSTEM

Inpartial fulfillment of BCA course as related to the Dr.BABASAHEB

AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD [redacted] the

syllabus of BCA degree.

I hereby declare that this project is genuine and [redacted]

never been submitted previously by me for the award of [redacted] other

degree Or Any other university.

MR.GANESH A. MUNDHE

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INTRODUCTION TO PROJECT

The aim of this software is to manage the Institute of Management System events. This software is developed using VISUAL BASICS 6.0 as the front end tool and MS-Access 2000 as the back end tool.

In the Jetking all the process was carried out with the help of the registers and files to store. All the calculations and information related to Customers are done and there is no possibility of miscalculation and misplacements of files or the information. To keep records with reference to Customers. its purchasing details, types of vehicles bill amounts. etc. So to solve the problem we have developed this software, which reduce the large extent of problems to store information related to Customers details and other details.

INTRODUCTION TO VISUAL BASIC

We know that computer involves writing coded Character sequence that contains combination of language element. These lines of code taken in the entity, as referred to as some program. In order to execute a source program we must put in under the control of an interpreter computer program such as VB as to convert to an executable program.

Language element: The VB language consist of large number of language element such as command button, text box, label box etc. these languages elements causes the computer to perform action. VB provides value we can write lines of code that causes an object property.

The GUI (Graphical User Interface) is a device employed by VB to make it easy for us to install and define the visual object form the frame works for us program.

It also provides us with code window and extends that make our programming codes easier.

Data access in VB consists of performing operation on physical database. We are making tables in Ms-Access and reports forms with view coding in MS VB.

INTRODUCTION TO MS-ACCESS

As we know that all relational DB is a collection of database Ms-Access from Microsoft Corporation is also a RDBMS and it has got the following qualities

Relational Data Base Management

Ms-Access is a relational to manage the stood in its uses only capabilities information database.

Information Representation

All the information is stored in Access is represented by only data item. Values which are stored in the table that makes up a database. Associations between data items are not logically represented in any other way.

Logical Accessibility

Every data item values stood in Access is accessible from the table in which it is stored, the name of the column of the same table and the valve of primary key that defines the row in which it is stood.

FEASIBILITY STUDY

Feasibility is the determination of whether or not a project is worth doing. The process followed in making this determination is called Feasibility Study. This type of study determines if project can and should be taken.

Once it has been determined that the project is flexible, the analyst can go ahead and prepare the project specification which finalize project requirements.

Generally, feasibility studies are taken within tight time constraints and normally culminate in a written MS ACCESS feasibility report. The content and recommendation of such study will be used as sound basis for deciding whether to proceed or to cancel the project.

Thus the feasibility study may lead to commitment to large resources it becomes necessary that it should be conducted completely and that no fundamental errors of judgments are made

SYSTEM REQUIREMENTS

Hardware:-

- Processor — Minimum Intel Pentium II
- RAM — 64MB
- Hard disk — 10GB

Softwares:- (Minimum Requirements)

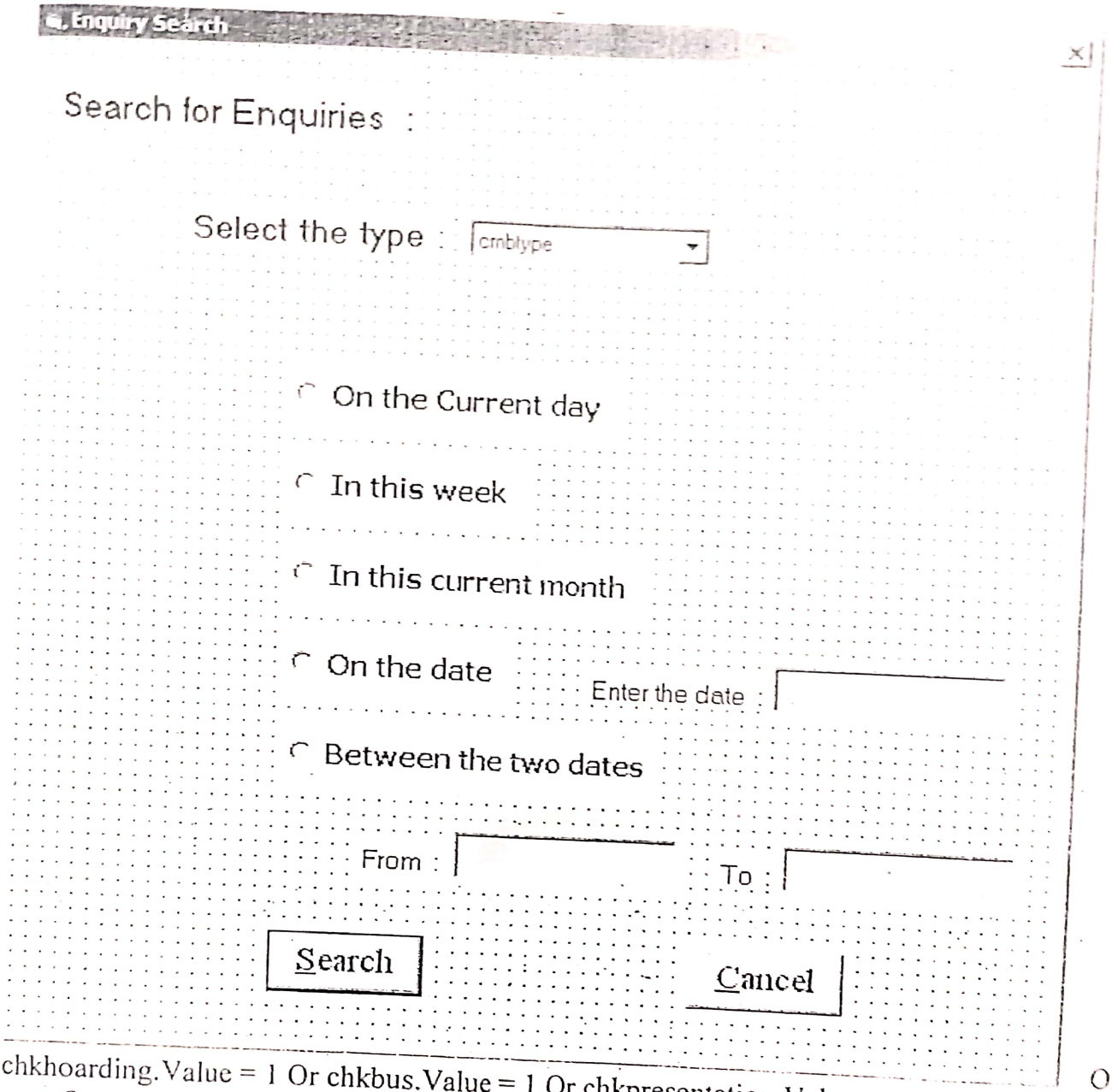
- Windows 98 Operating System
- Visual Basics 6.0
- MS-Access 2000

FORMS ADMISSION:-

```
Dim rsadm As New ADODB.Recordset
Dim rsreg As New ADODB.Recordset
Dim rsenq As New ADODB.Recordset
Dim rsint As New ADODB.Recordset
Dim rsatd As New ADODB.Recordset
Dim rslca As New ADODB.Recordset
Dim rsts As New ADODB.Recordset
Dim rsfp As New ADODB.Recordset
Dim rspla As New ADODB.Recordset

Dim cn As New ADODB.Connection
Dim edit As Integer
Dim add As Integer

Private Sub chkother_Click(Index As Integer)
If chkother(1).Value = 1 Then
   txtother.Visible = True
ElseIf chkother(1).Value = 0 Then
   txtother.Visible = False
End If
End Sub

Private Sub cmdadd_Click()
Call clear
rsadm.Close
rsadm.Open "select * from admission", cn, adOpenDynamic, adLockOptimistic
txtrollno.Enabled = True
dtstartdate.Enabled = True
txtmodule.Enabled = True
txtbatch.Enabled = True
txtcentre.Enabled = True
txtcentre1.Enabled = True
txtcourse.Enabled = True
txtfrom.Enabled = True
txtto.Enabled = True
frapersonal.Enabled = True
fraeducation.Enabled = True

If rsadm.BOF = True Then
   txtserial.Text = "1"
Else
   While rsadm.EOF = False
      rsadm.MoveNext
```

```
Private Sub cmdedit_Click()
edfname = InputBox("Enter the Student's First Name ", "First Name")
edsurname = InputBox("Enter the Student's Last Name ", "Last Name")
rsadm.Close
rsadm.Open "select * from admission where fname='" &UCase(edfname) & "'and surname='"
& UCase(edsurname) & "'", cn, adOpenDynamic, adLockOptimistic

If rsadm.BOF = True And rsadm.EOF = True Then
  MsgBox "No such person has taken Admission"
  rsadm.Close
  rsadm.Open "select * from admission", cn, adOpenDynamic, adLockOptimistic
  rsadm.Requery
  Exit Sub
Else
  Call display
  txtrollno.Enabled = True
  dtstartdate.Enabled = True
  txtmodule.Enabled = True
  txtbatch.Enabled = True
  txtcentre.Enabled = True
  txtcentre1.Enabled = True
  txtcourse.Enabled = True
  txtfrom.Enabled = True
  txtto.Enabled = True
  frapersonal.Enabled = True
  fraeducation.Enabled = True
  cmdsave.Enabled = True
  cmddel.Enabled = False
  cmdedit.Enabled = False
  cmdadd.Enabled = False
  cmdnext.Enabled = True
  cmdcancel.Visible = True
  cmddel.Visible = False
edit = 1
End If
End Sub

Private Sub cmdnext_Click()
If frapersonal.Visible = True And fraeducation.Visible = True Then
  frapersonal.Visible = False
  fraeducation.Visible = False
  frasports.Visible = True
  cmdback.Enabled = True
```

```
    cmdnext.Enabled = True
    cmdsave.Enabled = True
    txtgames.SetFocus
ElseIf frasports.Visible = True Then
    frasports.Visible = False
    frareg.Visible = True
    cmdback.Enabled = True
    cmdsave.Enabled = True
    cmdnext.Enabled = False
    txtfeetype.SetFocus
End If
End Sub

Private Sub cmdsave_Click()
If optyes.Value = True Or optno.Value = True Then
    GoTo b
Else
msg = MsgBox("Please select the option from the Money Back ", vbCritical, "Selection
Error")
    Exit Sub
End If
b:
If txtmodule.Text = "" Or txtcourse.Text = "" Or txtbatch.Text = "" _
    Or txtrollno.Text = "" Or txtfrom.Text = "" Or txtto.Text = "" _
    Or txtcentre1.Text = "" Or dtstartdate.Value = "" _
    Or txtsurname.Text = "" Or txtfname.Text = "" Or txtmname.Text = "" _
    Or txtaddress.Text = "" Or txtarea.Text = "" Or txtcity.Text = "" _
    Or txtpin.Text = "" Or txtresphone.Text = "" Or txtoffphone.Text = "" _
    Or txtdob.Text = "" Or txtdegree.Text = "" Or txtschool.Text = "" _
    Or txtboard.Text = "" Or txtyear.Text = "" Or txtdivision.Text = "" _
    Or txtgames.Text = "" Or txtsocialact.Text = "" Or txthobbies.Text = "" _
    Or txtspeak.Text = "" Or txtread.Text = "" Or txtwrite.Text = "" _
    Or txtplace.Text = "" Or txtdate.Text = "" Or txtserial.Text = "" _
    Or txtrollno.Text = "" Or txtfeecode.Text = "" Or txtfeetype.Text = "" Or txttotalfee.Text =
""
    _
    Or txtdp.Text = "" Or txtdprec.Text = "" Or txtdpdate.Text = "" _
    Or txtinstamt.Text = "" Or txtinstno.Text = "" Or txt1stinstdate.Text = "" _
    Or txtlib.Text = "" Or txtlibdate.Text = "" _
    Or txtcaution.Text = "" Or txtcautionrec.Text = "" Or txtcautiondate.Text = "" _
    Or txtmb.Text = "" Or txtmbdate.Text = "" _
    Or txtscheme.Text = "" Or txtaccepted.Text = "" Or txtapproved.Text = "" _
    Or txtcounsellor.Text = "" Or txtregdate.Text = "" Or txtenqno.Text = "" Then
msg = MsgBox("You forgot to enter one of the required fields.", vbCritical + vbOKOnly,
"Input Error")
    Exit Sub
```




```
chkhoarding.Value = 1 Or chkbus.Value = 1 Or chkpresentation.Value = 1 Or
    Or chkinq.Value = 1 Or chkdirect.Value = 1 Or chkother(1).Value = 1 Then
  Else
msg = MsgBox("Please select only one option" + vbCrLf + "from the Source options", vbCritical,
"Selection Error")
    Exit Sub
  End If
  If edit = 1 Then
    GoTo a
  End If
  While rsadm.EOF = False
    rsadm.MoveNext
  Wend
  If rsadm.EOF = True Then
    'rsadm.MoveLast
    rsadm.addnew
```

```
        'rsadm.MoveLast
        'rsadm.addnew
      End If
    While rsreg.EOF = False
      rsreg.MoveNext
    Wend
    If rsreg.EOF = True Then
      'rsreg.MoveLast
      rsreg.addnew
    End If
a:
rsadm!rollno = txtrollno.Text
rsadm!moduleno = txtmodule.Text
rsadm!course = txtcourse.Text
rsadm!batch = txtbatch.Text
  'rsadm!rollno = txtrollno.Text
rsadm!timingfrom = txtfrom.Text
rsadm!timingto = txtto.Text
rsadm!centre = txtcentre1.Text
rsadm!batchstartdate = dtstartdate.Value
rsadm!surname = Trim(txtsurname.Text)
rsadm!fname = Trim(txtfname.Text)
rsadm!mname = Trim(txtmname.Text)
rsadm!address = txtaddress.Text
rsadm!area = txtarea.Text
rsadm!city = txtcity.Text
rsadm!pincode = txtpin.Text
rsadm!rescontactno = txtresphone.Text
rsadm!offcontactno = txtoffphone.Text
rsadm!dob = txtdob.Text
rsadm!degree = txtdegree.Text
rsadm!school = txtschool.Text
rsadm!board = txtboard.Text
rsadm!yearofpassing = txtyear.Text
rsadm!marks = txtdivision.Text
rsadm!games = txtgames.Text
rsadm!socialactivities = txtsocialact.Text
rsadm!hobbies = txthobbies.Text
rsadm!langspeak = txtspeak.Text
rsadm!langread = txtread.Text
rsadm!langwrite = txtwrite.Text
End If
If chklocalnews.Value = 1 Then
rsadm!Source = "Local Newspaper"
ElseIf chknationalnews.Value = 1 Then
rsadm!Source = "National Newspaper"
```

```
ElseIf chkword.Value = 1 Then
rsadm!Source = "Word of Mouth"
ElseIf chkbanner.Value = 1 Then
rsadm!Source = "Banner"
ElseIf chkhoarding.Value = 1 Then
rsadm!Source = "Hoardings"
ElseIf chkpresentation.Value = 1
rsadm!Source = "Presentation"
ElseIf chkposter.Value = 1 Then
rsadm!Source = "Poster"
ElseIf chkbus.Value = 1 Then
rsadm!Source = "Bus Shelter"
ElseIf chkinq.Value = 1 Then
rsadm!Source = "Inquiry Lab"
ElseIf chkdirect.Value = 1 Then
rsadm!Source = "Direct Mail"
ElseIf chkjetking.Value = 1 Then
rsadm!Source = "Jetking Student"
ElseIf chkother(1).Value = 1 Then
  If txtother.Text = "" Then
    MsgBox "Please write the information of the Source."
    rsadm.Requery
    rsreg.Requery
    Exit Sub
  Else
rsadm!Source = txtother.Text
  End If
Else
msg = MsgBox("Please select only one option from the + vbcrlf + Source options given",
vbCritical, "Selection Error")
  Exit Sub
End If

If optyes.Value = True Then
rsadm!moneyback = "Yes"
Else
rsadm!moneyback = "No"
End If

rsadm!place = txtplace.Text
rsadm!Date = txtdate.Text

rsreg!srno = txtserial.Text
rsreg!rollno = txtrollno.Text
rsreg!feecode = txtfeecode.Text
rsreg!feetype = txtfeetype.Text
```

```
rsreg!totalfee = txttotalfee.Text
rsreg!dp = txtdp.Text
rsreg!dprec = txtdprec.Text
rsreg!dpdate = txtdpdate.Text
rsreg!instamount = txtinstamt.Text
rsreg!instno = txtinstno.Text
rsreg!instdate = txtinstdate.Text
If txtlibrec.Text = "" Then
rsreg!libdeposit = "0"
rsreg!librec = "0"
rsreg!libdate = Date
Else
rsreg!libdeposit = txtlib.Text
rsreg!librec = txtlibrec.Text
rsreg!libdate = txtlibdate.Text
End If
rsreg!caution = txtcaution.Text
rsreg!cautionrec = txtcautionrec.Text
rsreg!cautiondate = txtcautiondate.Text
If txtmbrec.Text = "" Then
rsreg!mb = "0"
rsreg!mbrec = "0"
rsreg!mbdate = Date
Else
rsreg!mb = txtmb.Text
rsreg!mbrec = txtmbrec.Text
rsreg!mbdate = txtmbdate.Text
End If
rsreg!scheme = txtscheme.Text
rsreg!acceptedby = txtaccepted.Text
rsreg!approvedby = txtapproved.Text
rsreg!counsellor = txtcounsellor.Text
rsreg!regdate = txtregdate.Text
rsreg!centre = txtcentre.Text
rsreg!enquiryno = txtenqno.Text

rsadmit.update
rsreg.Update
MsgBox "Your record has been saved."
frareg.Visible = False
frasports.Visible = False
frapersonal.Visible = True
fraeducation.Visible = True

cmdnext.Enabled = False
cmdsave.Enabled = False
```

```
cmdback.Enabled = False
cmdedit.Enabled = True
cmdadd.Enabled = True
cmddel.Enabled = True
If cmdcancel.Visible = True Then
   cmdcancel.Visible = False
   cmddel.Visible = True
   cmddel.Enabled = True
End If

'rsenq.Close
'rsenq.Open "select * from enquiry", cn, adOpenDynamic, adLockOptimistic
'rsadm.Close
'rsadm.Open "select * from admission", cn, adOpenDynamic, adLockOptimistic
'rsadm.Close
'rsadm.Open "select * from admission_reg", cn, adOpenDynamic, adLockOptimistic

rsenq.Requery
rsadm.Requery
rsreg.Requery

rsadm.MoveFirst
rsreg.MoveFirst
Call display
Call Form_Activate
End Sub

Private Sub Form_Activate()
txtrollno.Enabled = False
dtstartdate.Enabled = False
txtmodule.Enabled = False
txtbatch.Enabled = False
txtcentre.Enabled = False
txtcentre1.Enabled = False
txtcourse.Enabled = False
txtfrom.Enabled = False
txtto.Enabled = False
fraepersonal.Enabled = False
fraeducation.Enabled = False
End Sub

Private Sub Form_Load()
jetking.Enabled = False

Set cn = New ADODB.Connection
```

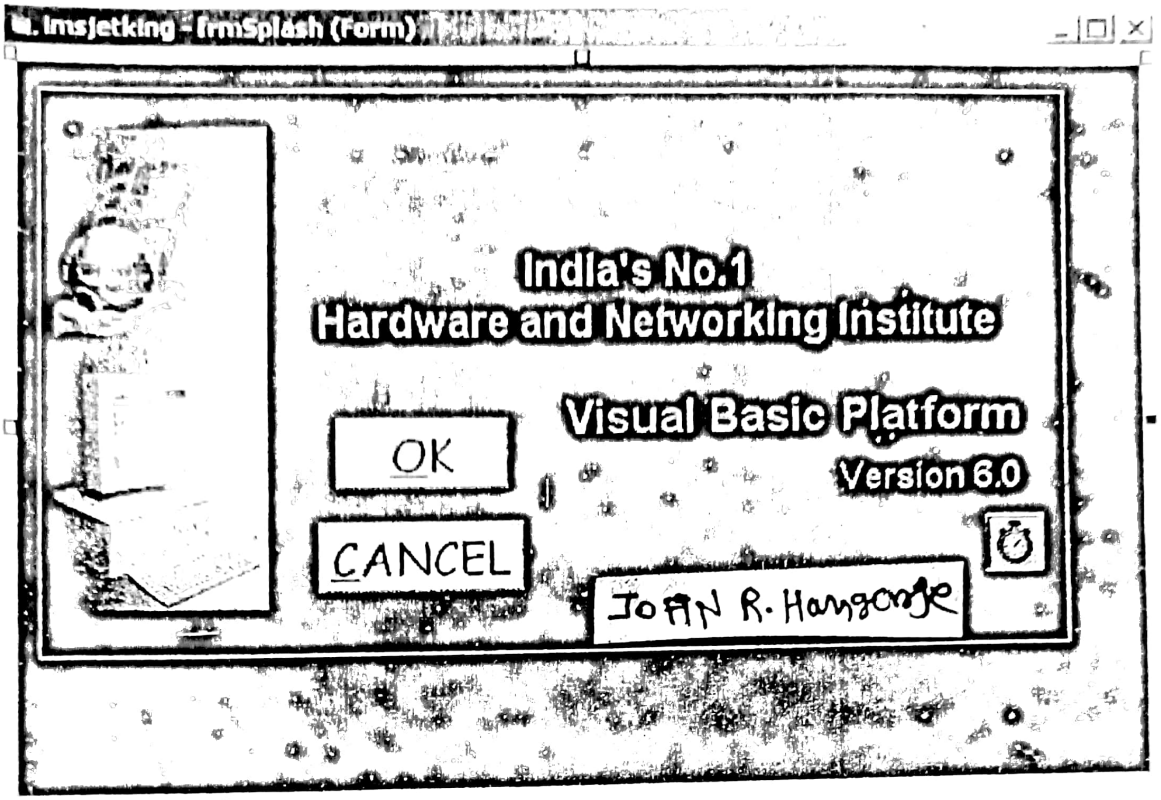
```
cn.ConnectionString = "Provider=Microsoft.Jet.OLEDB.4.0;Data
Source=C:\institute\ems1.mdb;Persist Security Info=False"
cn.CursorLocation = adUseClient
cn.Open
Set rsadm = New ADODB.Recordset
Set rsint = New ADODB.Recordset
Set rsatd = New ADODB.Recordset
Set rslea = New ADODB.Recordset
Set rsfs = New ADODB.Recordset
Set rsfp = New ADODB.Recordset
Set rspla = New ADODB.Recordset

rspla.Open "select * from placement", cn, adOpenDynamic, adLockOptimistic
rsfs.Open "select * from fee_schedule", cn, adOpenDynamic, adLockOptimistic
rsfp.Open "select * from fee_paid", cn, adOpenDynamic, adLockOptimistic
rsint.Open "select * from interview", cn, adOpenDynamic, adLockOptimistic
rsatd.Open "select * from attendence", cn, adOpenDynamic, adLockOptimistic
rslea.Open "select * from leave", cn, adOpenKeyset, adLockOptimistic
rsadm.Open "select * from admission", cn, adOpenKeyset, adLockOptimistic
rsreg.Open "select * from admission_reg", cn, adOpenKeyset, adLockOptimistic
rsenq.Open "select * from enquiry", cn, adOpenKeyset, adLockOptimistic

txtserial.Enabled = False
frasports.Visible = False
frareg.Visible = False
frapersonal.Visible = True
fraeducation.Visible = True

cmdnext.Enabled = False
cmdback.Enabled = False
cmdsave.Enabled = False
cmdedit.Enabled = True
cmdadd.Enabled = True
txtbatch.Text = rsadm!batch
txtfrom.Text = rsadm!timingfrom
txtto.Text = rsadm!timingto
txtcentre1.Text = rsadm!centre
dtstartdate.Value = rsadm!batchstartdate
txtsurname.Text = rsadm!surname
txtfname.Text = rsadm!fname
txtmname.Text = rsadm!mname
txtaddress.Text = rsadm!address
txtarea.Text = rsadm!area
txtcity.Text = rsadm!city
txtpin.Text = rsadm!pincode
txtresphone.Text = rsadm!rescontactno
```

```
txtOffphone.Text = rsadm!offcontactno
txtdob.Text = rsadm!dob
txtdegree.Text = rsadm!degree
txtschool.Text = rsadm!school
txtboard.Text = rsadm!board
txtyear.Text = rsadm!yearofpassing
txtdivision.Text = rsadm!marks
txtgames.Text = rsadm!games
txtsocialact.Text = rsadm!socialactivities
txthobbies.Text = rsadm!hobbies
txtspeak.Text = rsadm!langspeak
txtread.Text = rsadm!langread
txtwrite.Text = rsadm!langwrite

If rsadm!Source = "Local Newspaper" Then
   chklocalnews.Value = 1
ElseIf rsadm!Source = "National Newspaper" Then
   chknationalnews.Value = 1
ElseIf rsadm!Source = "Word of Mouth" Then
   chkword.Value = 1
ElseIf rsadm!Source = "Banner" Then
   chkbanner.Value = 1
ElseIf rsadm!Source = "Hoarding" Then
   chkhoarding.Value = 1
ElseIf rsadm!Source = "Presentation" Then
   chkpresentation.Value = 1
ElseIf rsadm!Source = "Poster" Then
   chkposter.Value = 1
ElseIf rsadm!Source = "Bus Shelter" Then
   chkbus.Value = 1
ElseIf rsadm!Source = "Inquiry Lab" Then
   chkinq.Value = 1
ElseIf rsadm!Source = "Direct Mail" Then
   chkdirect.Value = 1
ElseIf rsadm!Source = "Jetking Student" Then
   chkjetking.Value = 1
Else
chkother(1).Value = 1
   txtother.Text = rsadm!Source
End If

If rsadm!moneyback = "Yes" Then
   optyes.Value = True
Else
   optno.Value = True
End If
```

```
txtplace.Text = rsadm!place
txtdate.Text = rsadm!Date

rsreg.Requery
While Not rsreg.EOF = True
   If rsreg!rollno = rsadm!rollno Then
      txtfeecode.Text = rsreg!feecode
      txtfeetype.Text = rsreg!feetype
      txttotalfee.Text = rsreg!totalfee
      txtdp.Text = rsreg!dp
      txtdprec.Text = rsreg!dprec
      txtdpdate.Text = rsreg!dpdate
      txtinstamt.Text = rsreg!instamount
      txtinstno.Text = rsreg!instno
      txtlstinstdate.Text = rsreg!instdate
      txtlib.Text = rsreg!libdeposit
      txtlibrec.Text = rsreg!librec
      txtlibdate.Text = rsreg!libdate
      txtcaution.Text = rsreg!caution
      txtcautionrec.Text = rsreg!cautionrec
      txtcautiondate.Text = rsreg!cautiondate
      txtmb.Text = rsreg!mb
      txtmbrec.Text = rsreg!mbrec
      txtmbdate.Text = rsreg!mbdate
      txtscheme.Text = rsreg!scheme
      txtaccepted.Text = rsreg!acceptedby
      txtapproved.Text = rsreg!approvedby
      txtcounsellor.Text = rsreg!counsellor
      txtregdate.Text = rsreg!regdate
      txtcentre.Text = rsreg!centre
      txtenqno.Text = rsreg!enquiryno
      Exit Sub
   End If
   rsreg.MoveNext
Wend
End Sub
txtcaution = ""
txtcautionrec = ""
'txtcautiondate = ""
txtmb = ""
txtmbrec = ""
'txtmbdate = ""
txtscheme = ""
txtaccepted = ""
txtapproved = ""
```

```
txtregdate
txtenqno
End Sub

Private Sub Form_QueryUnload(Cancel As Integer, UnloadMode As Integer)
rsreg.Close
rsenq.Close
Unload Me
jetking.Enabled = True
jetking.Visible = True
End Sub

Private Sub txtarea_KeyPress(KeyAscii As Integer)
If KeyAscii >= 65 And KeyAscii <= 90 Then
   KeyAscii = KeyAscii
   Exit Sub
End If
If KeyAscii >= 97 And KeyAscii <= 122 Or KeyAscii = 13 _
   Or KeyAscii = 8 Or KeyAscii = 27 Or KeyAscii = 32 Then
   If KeyAscii = 13 Then
      txtcity.SetFocus
      Exit Sub
   ElseIf KeyAscii = 27 Then
      End
      Exit Sub
   ElseIf KeyAscii = 8 Or KeyAscii = 32 Then
      KeyAscii = KeyAscii
      Exit Sub
   End If
   KeyAscii = KeyAscii - 32
Else
   KeyAscii = 0
End If
End Sub

      Exit Sub
   End If
   KeyAscii = KeyAscii - 32
Else
   KeyAscii = 0
End If
End Sub

Private Sub txtmname_KeyPress(KeyAscii As Integer)
If KeyAscii >= 65 And KeyAscii <= 90 Then
```

```
    KeyAscii = KeyAscii
    Exit Sub
End If
    If KeyAscii = 13 Or KeyAscii = 8 Or KeyAscii = 27 Or KeyAscii = 32 Then
    If KeyAscii = 13 Then
        txtaddress.SetFocus
        Exit Sub
    ElseIf KeyAscii = 27 Then
        End
        Exit Sub
    ElseIf KeyAscii = 8 Or KeyAscii = 32 Then
        KeyAscii = KeyAscii
        Exit Sub
    End If
    KeyAscii = KeyAscii - 32
Else
    KeyAscii = 0
End If
End Sub

Private Sub txtmname_LostFocus()
If txtrollno.Text = "" Then
msg = MsgBox("Please enter the correct Roll No.", vbCritical, "Input Error")
    Exit Sub
End If
rsenq.Requery
rsadm.Requery
While Not rsadm.EOF = True
    If txtsurname.Text = rsenq!surname And txtfname.Text = rsenq!fname And txtmname.Text
= rsenq!mname Then
        MsgBox "Admission form of the student has already been filled up."
        Exit Sub
    End If
```



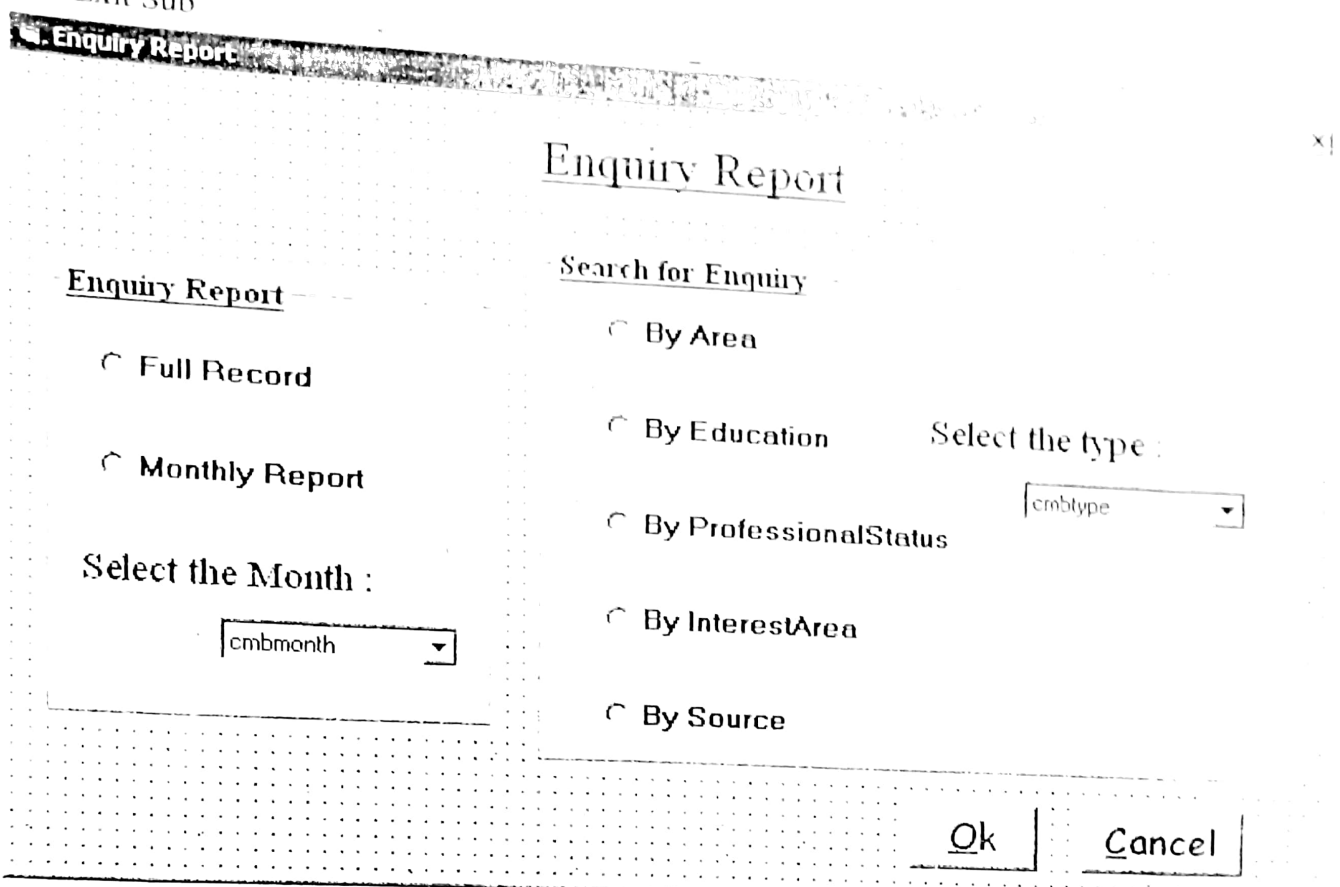

```
    rsadm.MoveNext
Wend
While Not rsenq.EOF = True
    If txtsurname.Text = rsenq!surname And txtfname.Text = rsenq!fname And txtmname.Text =
rsenq!mname Then
txtenqno = rsenq!enquiryno
        txtenqno.Enabled = False
        txtcentre.Text = "Ashram Road"
        cmdnext.Enabled = True
        Exit Sub
    End If
    rsenq.MoveNext
Wend
If rsenq.EOF = True Then
msg = MsgBox("The student cannot be registered because it's name" + vbCrLf + "is not found in
the enquiry list.", vbCritical, "Not Found")
    txtsurname.Text = ""
    txtfname.Text = ""
    txtmname.Text = ""
    txtsurname.SetFocus
End If
End Sub

Private Sub txtoffphone_KeyPress(KeyAscii As Integer)
If KeyAscii >= 48 And KeyAscii <= 57 Or KeyAscii = 13 Or KeyAscii = 8 Or KeyAscii = 27
Then
    KeyAscii = KeyAscii
```

```
    If KeyAscii = 13 Then
       txtdob.SetFocus
    ElseIf KeyAscii = 8 Then
       KeyAscii = KeyAscii
    ElseIf KeyAscii = 27 Then
       Unload Me
    End If
  Else
    KeyAscii = 0
    MsgBox "Please enter only numbers."
  End If
  End Sub


  Private Sub txtpin_KeyPress(KeyAscii As Integer)
  If KeyAscii >= 48 And KeyAscii <= 57 Or KeyAscii = 13 Or KeyAscii = 8 Or KeyAscii = 27
  Then
    KeyAscii = KeyAscii
    If KeyAscii = 13 Then
       txtresphone.SetFocus
    ElseIf KeyAscii = 8 Then
       KeyAscii = KeyAscii
    ElseIf KeyAscii = 27 Then
       Unload Me
    End If
  Else
    KeyAscii = 0
    MsgBox "Please enter only numbers."
  End If
  End Sub

  Private Sub txtresphone_KeyPress(KeyAscii As Integer)
  If KeyAscii >= 48 And KeyAscii <= 57 Or KeyAscii = 13 Or KeyAscii = 8 Or KeyAscii = 27
  Then
    KeyAscii = KeyAscii
    If KeyAscii = 13 Then
       txtoffphone.SetFocus
    ElseIf KeyAscii = 8 Then
       KeyAscii = KeyAscii
    ElseIf KeyAscii = 27 Then
       Unload Me
    End If
  Else
    KeyAscii = 0
    MsgBox "Please enter only numbers."
  End If
```

```
End Sub

Private Sub txtrollno_KeyPress(KeyAscii As Integer)
If KeyAscii >= 48 And KeyAscii <= 57 Or KeyAscii = 13 Or KeyAscii = 8 Or KeyAscii = 27
Then
  KeyAscii = KeyAscii
  If KeyAscii = 13 Then
    txtdstartdate.SetFocus
    SendKeys "{F4}"
    KeyAscii = KeyAscii
  ElseIf KeyAscii = 27 Then
    Unload Me
  End If
Else
  KeyAscii = 0
  MsgBox "Please enter only numbers."
End If
End Sub

Private Sub txtrollno_LostFocus()
If add = 1 Then
  If txtrollno.Text = "" Then
msg = MsgBox("Please enter the correct Roll No.", vbCritical, "Input Error")
    txtrollno.SetFocus
  End If
  While Not rsadm.EOF = True
    If txtrollno.Text = rsadm!rollno Then
      MsgBox ("This Roll No. is already assigned.")
      rsadm.MoveLast
      txtrollno.Text = rsadm!rollno + 1
      dtstartdate.SetFocus
      Exit Sub
    End If
    rsadm.MoveNext
  Wend
End If
End Sub

Private Sub txtstudname_KeyPress(KeyAscii As Integer)
If KeyAscii >= 65 And KeyAscii <= 90 Then
  KeyAscii = KeyAscii
  Exit Sub
End If
If KeyAscii >= 97 And KeyAscii <= 122 Or KeyAscii = 13
  Or KeyAscii = 8 Or KeyAscii = 27 Or KeyAscii = 32 Then
  If KeyAscii = 13 Then
```

```
        txtfname.SetFocus
        Exit Sub
    ElseIf KeyAscii = 27 Then
        End
        Exit Sub
    ElseIf KeyAscii = 8 Or KeyAscii = 32 Then
        KeyAscii = KeyAscii
        Exit Sub
    End If
    KeyAscii = KeyAscii - 32
Else
    KeyAscii = 0
End If
End Sub
Private Sub txtaccepted_KeyPress(KeyAscii As Integer)
If KeyAscii >= 65 And KeyAscii <= 90 Then
    KeyAscii = KeyAscii
    Exit Sub
End If
If KeyAscii >= 97 And KeyAscii <= 122 Or KeyAscii = 13 _
    Or KeyAscii = 8 Or KeyAscii = 27 Or KeyAscii = 32 Then
    If KeyAscii = 13 Then
        txtcounsellor.SetFocus
        Exit Sub
    ElseIf KeyAscii = 27 Then
        End
        Exit Sub
    ElseIf KeyAscii = 8 Or KeyAscii = 32 Then
        KeyAscii = KeyAscii
        Exit Sub
    End If
    KeyAscii = KeyAscii - 32
Else
    KeyAscii = 0
End If
End Sub

Private Sub txtapproved_KeyPress(KeyAscii As Integer)
If KeyAscii >= 65 And KeyAscii <= 90 Then
    KeyAscii = KeyAscii
    Exit Sub
End If
If KeyAscii >= 97 And KeyAscii <= 122 Or KeyAscii = 13
    Or KeyAscii = 8 Or KeyAscii = 27 Or KeyAscii = 32 Then
    If KeyAscii = 13 Then
        cmdsave.SetFocus
```

Exit Sub

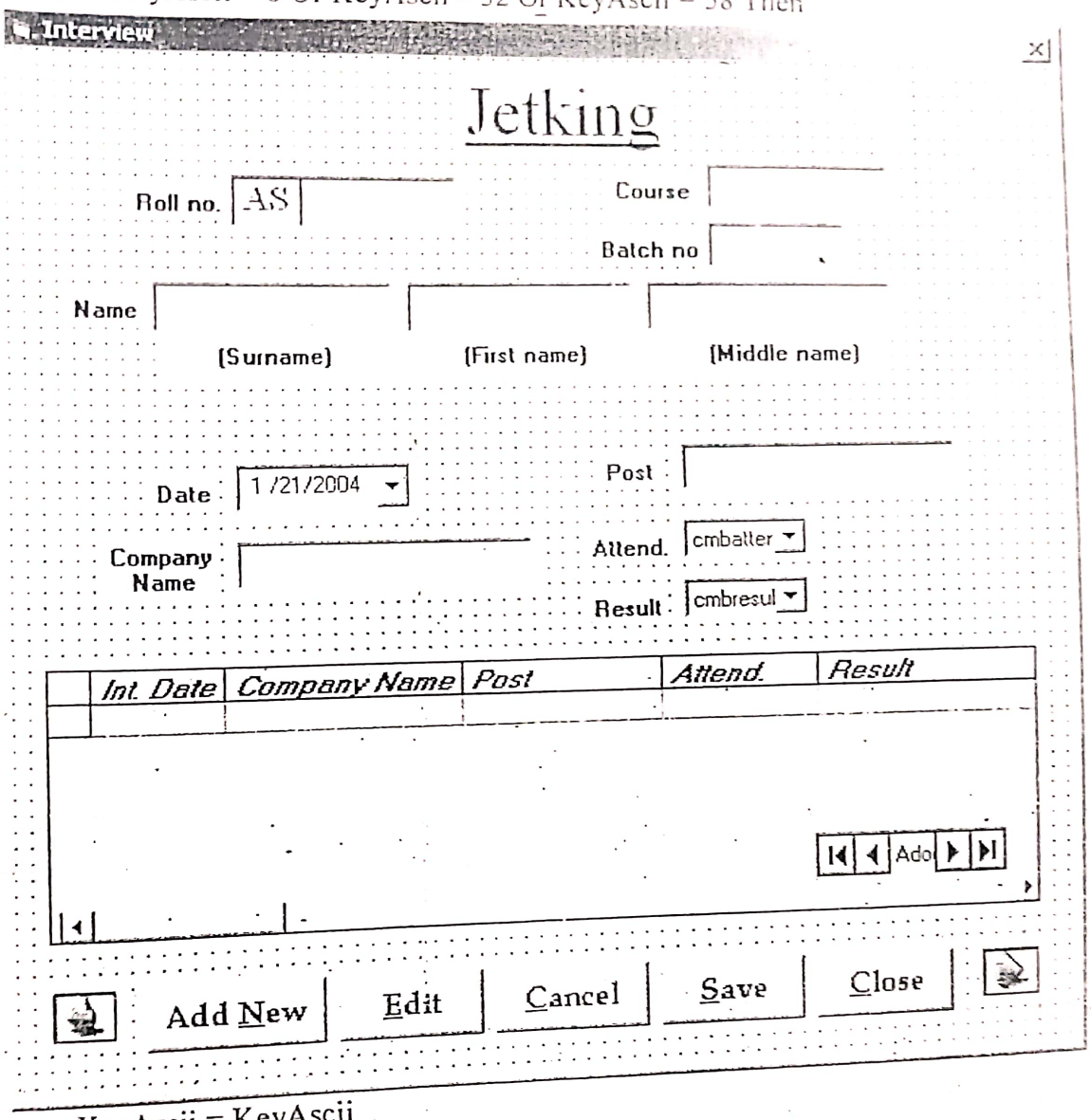



```
    ElseIf KeyAscii = 8 Or KeyAscii = 32 Then
        KeyAscii = KeyAscii
        Exit Sub
    End If
    KeyAscii = KeyAscii-- 32
Else
    KeyAscii = 0
End If
End Sub

Private Sub txtcautionrec_KeyPress(KeyAscii As Integer)
If KeyAscii >= 48 And KeyAscii <= 57 Or KeyAscii = 13 Or KeyAscii = 8 Or KeyAscii = 27
Then
    KeyAscii = KeyAscii
    If KeyAscii = 13 Then
        txtcautiondate.SetFocus
    ElseIf KeyAscii = 8 Then
        KeyAscii = KeyAscii
    ElseIf KeyAscii = 27 Then
        Unload Me
    End If
Else
    KeyAscii = 0
```

```
    End If
End If
    KeyAscii = 0
    MsgBox "Please enter only numbers."
End If
End Sub


Private Sub txtcounsellor_KeyPress(KeyAscii As Integer)
If KeyAscii >= 65 And KeyAscii <= 90 Then
    KeyAscii = KeyAscii
    Exit Sub
End If
If KeyAscii >= 97 And KeyAscii <= 122 Or KeyAscii = 13
    Or KeyAscii = 8 Or KeyAscii = 27 Or KeyAscii = 32 Then
    If KeyAscii = 13 Then
        txtregdate.SetFocus
        Exit Sub
    ElseIf KeyAscii = 27 Then
        End
        Exit Sub
    ElseIf KeyAscii = 8 Or KeyAscii = 32 Then
        KeyAscii = KeyAscii
        Exit Sub
    End If
    KeyAscii = KeyAscii - 32
Else
    KeyAscii = 0
End If
End Sub

Private Sub txtdp_KeyPress(KeyAscii As Integer)
If KeyAscii >= 48 And KeyAscii <= 57 Or KeyAscii = 13 Or KeyAscii = 8 Or KeyAscii = 27
Then
    KeyAscii = KeyAscii
    If KeyAscii = 13 Then
        txtdprec.SetFocus
    ElseIf KeyAscii = 8 Then
        KeyAscii = KeyAscii
    ElseIf KeyAscii = 27 Then
        Unload Me
    End If
Else
    KeyAscii = 0
    MsgBox "Please enter only numbers."
End If
```

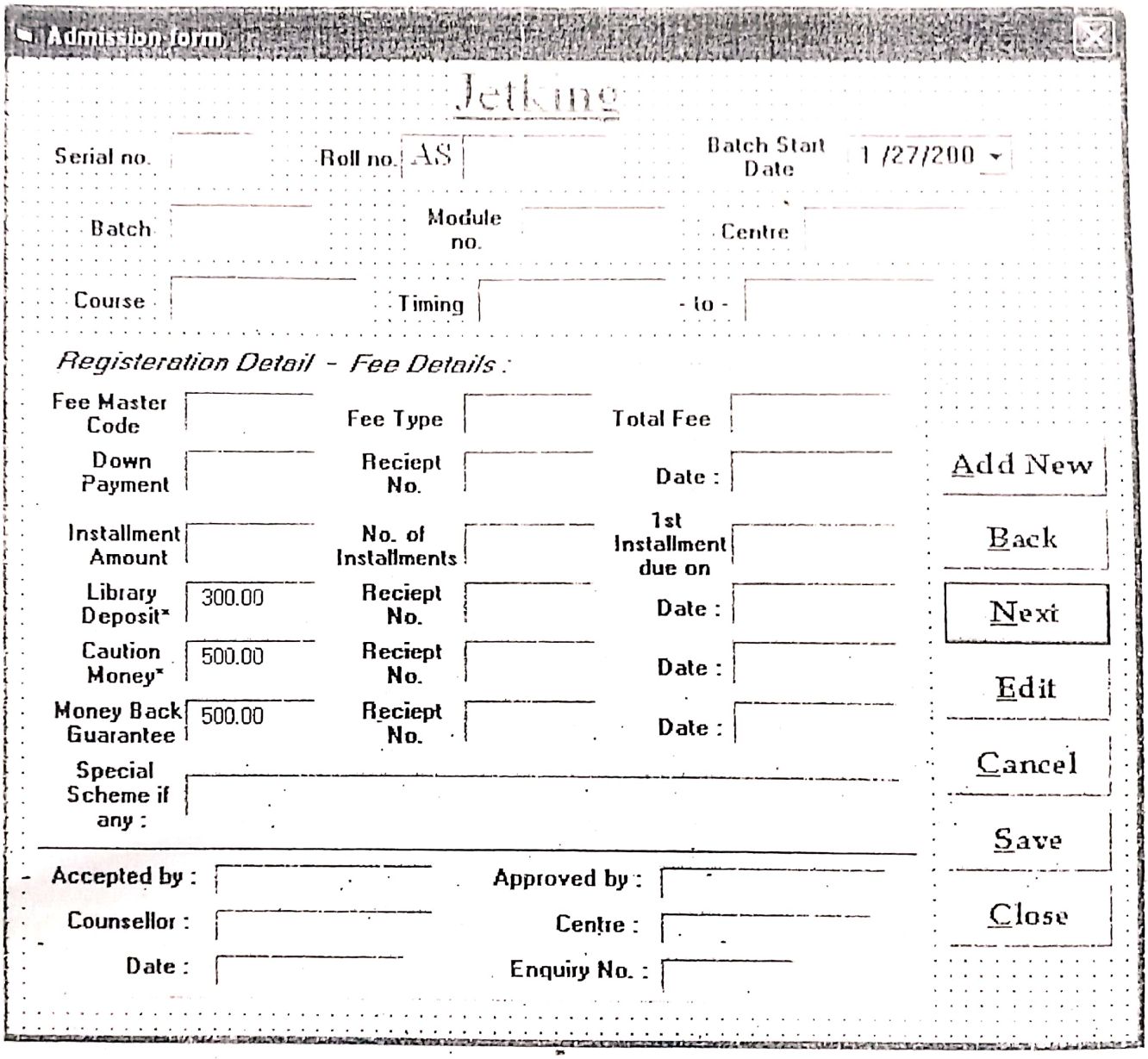
```
End Sub


Private Sub txtlibrec_KeyPress(KeyAscii As Integer)
If KeyAscii >= 48 And KeyAscii <= 57 Or KeyAscii = 13 Or KeyAscii = 8 Or KeyAscii = 27
Then
  KeyAscii = KeyAscii
  If KeyAscii = 13 Then
    txtlibdate.SetFocus
  ElseIf KeyAscii = 8 Then
    KeyAscii = KeyAscii
  ElseIf KeyAscii = 27 Then
    Unload Me
  End If
Else
  KeyAscii = 0
  MsgBox "Please enter only numbers."
End If
End Sub


Private Sub txtmbrec_KeyPress(KeyAscii As Integer)
If KeyAscii >= 48 And KeyAscii <= 57 Or KeyAscii = 13 Or KeyAscii = 8 Or KeyAscii = 27
Then
  KeyAscii = KeyAscii
  If KeyAscii = 13 Then
    txtmbdate.SetFocus
  ElseIf KeyAscii = 8 Then
    KeyAscii = KeyAscii
  ElseIf KeyAscii = 27 Then
    Unload Me
  End If
Else
  KeyAscii = 0
  MsgBox "Please enter only numbers."
End If
End Sub

Private Sub txtto_KeyPress(KeyAscii As Integer)
If KeyAscii >= 65 And KeyAscii <= 90 Then
  KeyAscii = KeyAscii
  Exit Sub
End If
If KeyAscii >= 97 And KeyAscii <= 122 Or KeyAscii = 13 _
  Or KeyAscii = 8 Or KeyAscii = 27 Or KeyAscii = 32 _
```

```
    Exit Sub
ElseIf KeyAscii = 8 Or KeyAscii = 32 Or KeyAscii = 58 Then
```




```
    KeyAscii = KeyAscii
    Exit Sub
  ElseIf KeyAscii >= 48 And KeyAscii <= 57 Then
    KeyAscii = KeyAscii
    Exit Sub
  End If
  KeyAscii = KeyAscii - 32
Else
  KeyAscii = 0
End If
End Sub

Private Sub txttotalfee_KeyPress(KeyAscii As Integer)
```

```
    KeyAscii = 0
End If
End Sub

Private Sub txttotalfee_KeyPress(KeyAscii As Integer)
If KeyAscii >= 48 And KeyAscii <= 57 Or KeyAscii = 13 Or KeyAscii = 8 Or KeyAscii = 27
Then
    KeyAscii = KeyAscii
    If KeyAscii = 13 Then
        txtdp.SetFocus
    ElseIf KeyAscii = 8 Then
        KeyAscii = KeyAscii
    ElseIf KeyAscii = 27 Then
        Unload Me
    End If
Else
    KeyAscii = 0
    MsgBox "Please enter only numbers."
End If
End Sub

Private Sub txtyear_KeyPress(KeyAscii As Integer)
If KeyAscii >= 48 And KeyAscii <= 57 Or KeyAscii = 13 Or KeyAscii = 8 Or KeyAscii = 27
Then
    KeyAscii = KeyAscii
    If KeyAscii = 13 Then
        txtmarks.SetFocus
    ElseIf KeyAscii = 8 Then
        KeyAscii = KeyAscii
    ElseIf KeyAscii = 27 Then
        Unload Me
    End If
Else
    KeyAscii = 0
    MsgBox "Please enter only numbers."
End If
End Sub
```

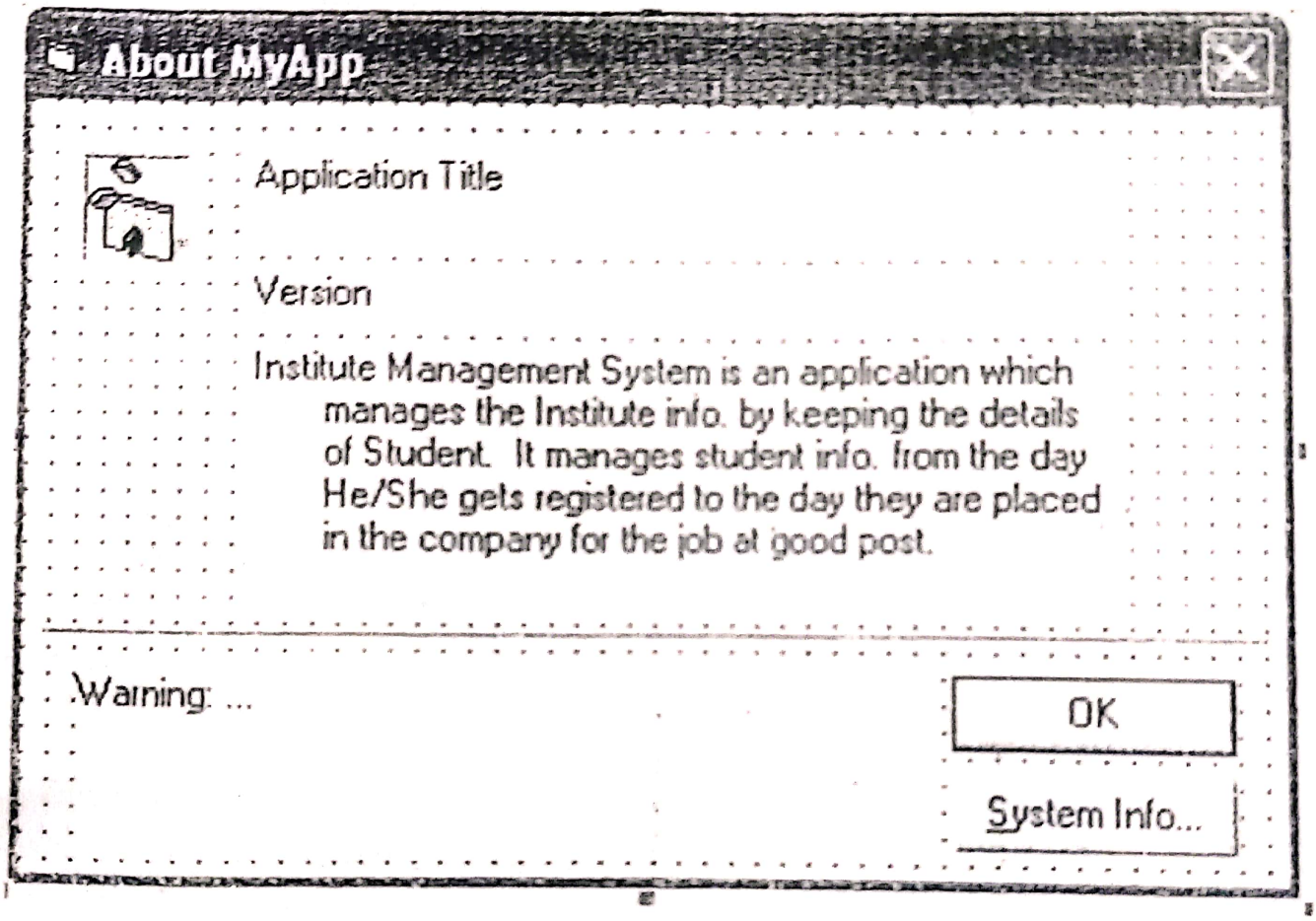


FORMS ABOUT:-

```
Option Explicit

' Reg Key Security Options...
Const READ_CONTROL = &H20000
Const KEY_QUERY_VALUE = &H1
Const KEY_SET_VALUE = &H2
Const KEY_CREATE_SUB_KEY = &H4
Const KEY_ENUMERATE_SUB_KEYS = &H8
Const KEY_NOTIFY = &H10
Const KEY_CREATE_LINK = &H20
Const KEY_ALL_ACCESS = KEY_QUERY_VALUE + KEY_SET_VALUE + _
                       KEY_CREATE_SUB_KEY + KEY_ENUMERATE_SUB_KEYS + _
                       KEY_NOTIFY + KEY_CREATE_LINK + READ_CONTROL

' Reg Key ROOT Types...
Const HKEY_LOCAL_MACHINE = &H80000002
Const ERROR_SUCCESS = 0
Const REG_SZ = 1                    ' Unicode nul terminated string
Const REG_DWORD = 4                 ' 32-bit number

Const gREGKEYSYSINFOLOC = "SOFTWARE\Microsoft\Shared Tools Location"
Const gREGVALSYSINFOLOC = "MSINFO"
Const gREGKEYSYSINFO = "SOFTWARE\Microsoft\Shared Tools\MSINFO"
Const gREGVALSYSINFO = "PATH"

Private Declare Function RegOpenKeyEx Lib "advapi32" Alias "RegOpenKeyExA" (ByVal
hKey As Long, ByVal lpSubKey As String, ByVal ulOptions As Long, ByVal samDesired As
Long, ByRef phkResult As Long) As Long
Private Declare Function RegQueryValueEx Lib "advapi32" Alias "RegQueryValueExA"
(ByVal hKey As Long, ByVal lpValueName As String, ByVal lpReserved As Long, ByRef
lpType As Long, ByVal lpData As String, ByRef lpcbData As Long) As Long
Private Declare Function RegCloseKey Lib "advapi32" (ByVal hKey As Long) As Long


Private Sub cmdSysInfo_Click()
  Call StartSysInfo
End Sub

Private Sub cmdOK_Click()
  Unload Me
End Sub

Private Sub Form_Load()
```

```
    Me.caption = "About "& App.Title
    lblVersion.caption = "Version "& App.Major & "." & App.Minor & " " & App.Revision
    lblTitle.caption = App.Title
End Sub

Public Sub StartSysInfo()
    On Error GoTo SysInfoErr

    Dim rc As Long
    Dim SysInfoPath As String

' Try To Get System Info Program Path\Name From Registry...
    If GetKeyValue(HKEY_LOCAL_MACHINE, gREGKEYSYSINFO,
gREGVALSYSINFO, SysInfoPath) Then
' Try To Get System Info Program Path Only From Registry...
    ElseIf GetKeyValue(HKEY_LOCAL_MACHINE, gREGKEYSYSINFOLOC,
gREGVALSYSINFOLOC, SysInfoPath) Then
' Validate Existance Of Known 32 Bit File Version
        If (Dir(SysInfoPath & "\MSINFO32.EXE") <> "") Then
            SysInfoPath = SysInfoPath & "\MSINFO32.EXE"

' Error - File Can Not Be Found...
        Else
            GoTo SysInfoErr
        End If
' Error - Registry Entry Can Not Be Found...
    Else
        GoTo SysInfoErr
    End If

    Call Shell(SysInfoPath, vbNormalFocus)

    Exit Sub
SysInfoErr:
    MsgBox "System Information Is Unavailable At This Time", vbOKOnly
End Sub

Public Function GetKeyValue(KeyRoot As Long, KeyName As String, SubKeyRef As
String, ByRef KeyVal As String) As Boolean
    Dim i As Long                           ' Loop Counter
    Dim rc As Long                          ' Return Code
    Dim hKey As Long                        ' Handle To An Open Registry Key
    Dim hDepth As Long                      '
    Dim KeyValType As Long                  ' Data Type Of A Registry Key
    Dim tmpVal As String                    ' Tempory Storage For A Registry Key Value
    Dim KeyValSize As Long                  ' Size Of Registry Key Variable
```

```
'------------------------------------------------------------
' Open RegKey Under KeyRoot {HKEY_LOCAL_MACHINE, ...}
'------------------------------------------------------------
rc = RegOpenKeyEx(KeyRoot, KeyName, 0, KEY_ALL_ACCESS, hKey) ' Open Registry
Key

  If (rc <> ERROR_SUCCESS) Then GoTo GetKeyError          ' Handle Error...

tmpVal = String$(1024, 0)                    ' Allocate Variable Space
  KeyValSize = 1024                          ' Mark Variable Size

'------------------------------------------------------------
' Retrieve Registry Key Value...
'------------------------------------------------------------
rc = RegQueryValueEx(hKey, SubKeyRef, 0, _
                KeyValType, tmpVal, KeyValSize)    ' Get/Create Key Value

  If (rc <> ERROR_SUCCESS) Then GoTo GetKeyError          ' Handle Errors

  If (Asc(Mid(tmpVal, KeyValSize, 1)) = 0) Then          ' Win95 Adds Null Terminated
String...
tmpVal = Left(tmpVal, KeyValSize - 1)              ' Null Found, Extract From String
  Else                                             ' WinNT Does NOT Null Terminate String...
tmpVal = Left(tmpVal, KeyValSize)                  ' Null Not Found, Extract String Only
  End If
  '------------------------------------------------------------
' Determine Key Value Type For Conversion...
  '------------------------------------------------------------
  Select Case KeyValType                           ' Search Data Types...
  Case REG_SZ                                      ' String Registry Key Data Type
    KeyVal = tmpVal                                ' Copy String Value
  Case REG_DWORD                                   ' Double Word Registry Key Data Type
    For i = Len(tmpVal) To 1 Step -1               ' Convert Each Bit
      KeyVal = KeyVal + Hex(Asc(Mid(tmpVal, i, 1)))  ' Build Value Char. By Char.
    Next
    KeyVal = Format$("&h" + KeyVal)                ' Convert Double Word To String
  End Select

  GetKeyValue = True                               ' Return Success
rc = RegCloseKey(hKey)                             ' Close Registry Key
  Exit Function                                    ' Exit

GetKeyError:      ' Cleanup After An Error Has Occured...
  KeyVal = ""                                      ' Set Return Val To Empty String
  GetKeyValue = False                              ' Return Failure
rc = RegCloseKey(hKey)                             ' Close Registry Key
```



FORMS FOR ADMISSION REPORT

```
Dim cn As New ADODB.Connection
Dim rsadm As New ADODB.Recordset

Private Sub formatlabel(lblx As RptLabel, caption)
With lblx
   .caption = caption
   .CanGrow = True
End With
End Sub

Private Sub cmdcancel_Click()
Unload Me
jetking.Enabled = True
jetking.Visible = True
End Sub

Private Sub cmdOK_Click()
If cmbtype.Text = "" Then
   MsgBox "Please select the type from the list."
   cmbtype.SetFocus
   Exit Sub
End If

admissionreport.Show

If opt = 1 Then
   rsadm.Close
   rsadm.Open "select * from admission where area='" & cmbtype.Text & "'", cn,
adOpenDynamic, adLockOptimistic
   While Not rsadm.EOF = True
cnt = cnt + 1
      rsadm.MoveNext
   Wend
formatlabel admissionreport.Sections(5).Controls(1), _
   "Total Admissions " + optarea.caption + vbCrLf + "(" + cmbtype.Text + ")"
End If
If opt = 2 Then
   rsadm.Close
   rsadm.Open "select * from admission where degree='" & cmbtype.Text & "'", cn,
adOpenDynamic, adLockOptimistic
```

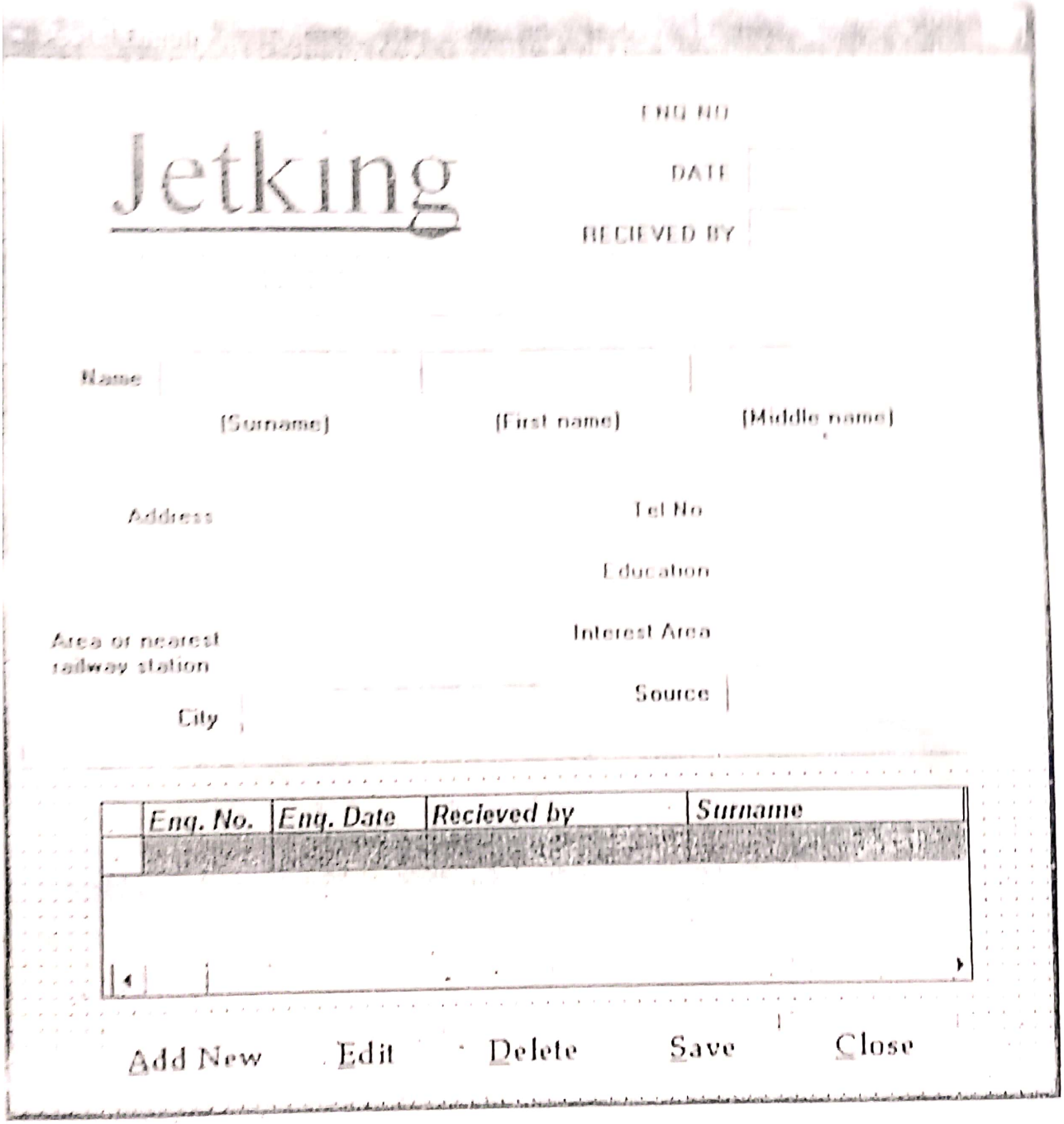
```
cnt = cnt + 1
      rsadm.MoveNext
   Wend
formatlabel admissionreport.Sections(5).Controls(1), _
   "Total Admissions " + optedu.caption + vbCrLf + "(" + cmbtype.Text + ")"
End If
If opt = 3 Then
   rsadm.Close
   rsadm.Open "select * from admission where moneyback='" & cmbtype.Text & "'", cn,
adOpenDynamic, adLockOptimistic
   While Not rsadm.EOF = True
cnt = cnt + 1
      rsadm.MoveNext
   Wend
formatlabel admissionreport.Sections(5).Controls(1), _
   "Total Admissions " + optmb.caption + vbCrLf + "(" + cmbtype.Text + ")"
End If
If opt = 4 Then
   rsadm.Close
   rsadm.Open "select * from admission where source='" & cmbtype.Text & "'", cn,
adOpenDynamic, adLockOptimistic
   While Not rsadm.EOF = True
cnt = cnt + 1
      rsadm.MoveNext
   Wend
formatlabel admissionreport.Sections(5).Controls(1), _
   "Total Admissions " + optsource.caption + vbCrLf + "(" + cmbtype.Text + ")"
End If

formatlabel admissionreport.Sections(5).Controls(2), _
cnt
End Sub

Private Sub Form_Load()
opt = 0
cnt = 0
jetking.Enabled = False
Set cn = New ADODB.Connection


cn.ConnectionString = "Provider=Microsoft.Jet.OLEDB.4.0;Data
Source=C:\institute\cms1.mdb;Persist Security Info=False"
cn.CursorLocation = adUseClient
cn.Open
Set rsadm = New ADODB.Recordset
```

```
Else
  rsadm.Requery
End If
End Sub

Private Sub optmb_Click()
opt = 3
If optmb.Value = True Then
  rsadm.Close
  rsadm.Open "select distinct moneyback from admission", cn, adOpenDynamic,
adLockOptimistic
  cmbtype.clear
  While Not rsadm.EOF = True
cmbtype.AddItem rsadm!moneyback
    rsadm.MoveNext
  Wend
  'formatlabel admissionreport.Sections(2).Controls(1), _
  ""Total Admissions " + optint.caption
  cmbtype.SetFocus
Else
  rsadm.Requery
End If
End Sub

Private Sub optsource_Click()
opt = 4
If optsource.Value = True Then
  rsadm.Close
  rsadm.Open "select distinct source from admission", cn, adOpenDynamic,
adLockOptimistic
  cmbtype.clear
  While Not rsadm.EOF = True
cmbtype.AddItem rsadm!Source
    rsadm.MoveNext
  Wend
  'formatlabel admissionreport.Sections(2).Controls(1), _
  ""Total Admissions" + optsource.caption
  cmbtype.SetFocus
Else
  rsadm.Requery
End If
End Sub
```

FORMS FOR ATTENDANCE

```
Dim cn As New ADODB.Connection
Dim rsadm As New ADODB.Recordset
Dim rsatd As New ADODB.Recordset
Dim rslea As New ADODB.Recordset

Private Sub cmdadd_Click()
Call clear
txtrollno.Enabled = True
If frmattend.caption = "Leave" Then
   fraattend.Visible = False
   fraleave.Visible = True
   fraleave.Enabled = True
Else
   fraattend.Visible = True
   fraleave.Visible = False
   fraattend.Enabled = True
End If

txtrollno.SetFocus
cmddel.Enabled = False
cmdedit.Enabled = False
cmdadd.Enabled = False
cmdsave.Enabled = True
addnew = 1
End Sub

Private Sub cmdcancel_Click()
If frmattend.caption = "Leave" Then
   rslea.MoveFirst
   Call display
   Call Form_Activate
Else
   rsatd.MoveFirst
   Call display
   Call Form_Activate
End If
cmdcancel.Visible = False
cmddel.Visible = True
End Sub

Private Sub cmdclose_Click()
Unload Me
jetking.Enabled = True
jetking.Visible = True
```

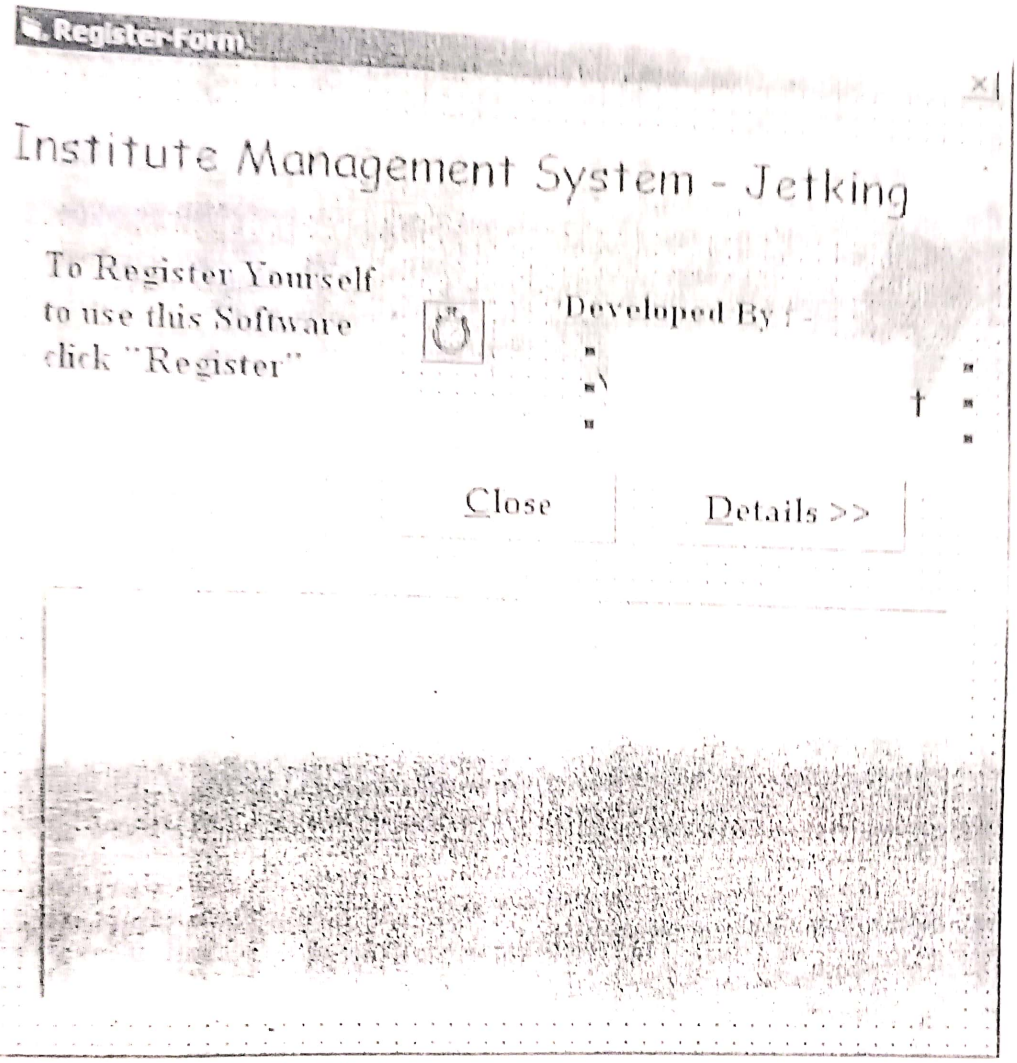
```
End Sub
Private Sub clear()
txtrollno.Text = ""
txtcourse.Text = ""
txtbatchno.Text = ""
txtsurname.Text = ""
txtfname.Text = ""
txtmname.Text = ""

If frmattend.caption = "Leave" Then
   txtlmodule.Text = ""
   dtfrom.Value = Date
   dtto.Value = Date
   txtdays.Text = ""
   txtreason.Text = ""
   txtupdation.Text = ""
Else
   txtmodule.Text = ""
   dtstdate.Value = Date
   txtfaculty.Text = ""
   dtenddate.Value = Date
   txtattend.Text = ""
   txttotaldays.Text = ""
   txtperformance.Text = ""
   txtremarks.Text = ""
End If
End Sub

Private Sub display()
txtrollno.Text = rsadm!rollno
txtcourse.Text = rsadm!course
txtbatchno.Text = rsadm!batch
txtsurname.Text = rsadm!surname
txtfname.Text = rsadm!fname
txtmname.Text = rsadm!mname
```




```
If frmattend.caption = "Leave" Then
   txtlmodule.Text = rslea!module
   dtfrom.Value = rslea!From
   dtto.Value = rslea!To
   txtdays.Text = rslea!days
   txtreason.Text = rslea!reason
   txtupdation.Text = rslea!updation
Else
   txtmodule.Text = rsatd!module
   dtstdate.Value = rsatd!stdate
   txtfaculty.Text = rsatd!faculty
   dtenddate.Value = rsatd!enddate
   txtattend.Text = rsatd!attend
   txttotaldays.Text = rsatd!totaldays
```

```
    txtperformance.Text = rsatd!performance
    txtremarks.Text = rsatd!remarks
End If
End Sub

'Private Sub cmddel_Click()
'edfname = InputBox("Enter the Student's First Name ", "First Name")
'edsurname = InputBox("Enter the Student's Last Name ", "Last Name")
'rsadm.Close
'rsadm.Open "select * from admission where fname='" &UCase(edfname) & "'and surname='"
& UCase(edsurname) & "'", cn, adOpenDynamic, adLockOptimistic
'rollno = rsadm!rollno
'If frmattend.caption = "Leave" Then
'    rslea.Close
'    rslea.Open "select * from leave where rolno = " & rollno & "", cn, adOpenDynamic,
adLockOptimistic
'    If rsadm.BOF = True And rsadm.EOF = True Then
'        MsgBox "Search not found."
'        Exit Sub
'    Else
'        Call display
'        cmdsave.Enabled = False
'        cmddel.Enabled = True
'        cmdedit.Enabled = False
'        cmdadd.Enabled = False
'        cmdnext.Enabled = True
'        msg = MsgBox("Are you sure you want to delete the Record of " + vbCrLf + "
'" & txtfname.Text & " " & txtmname.Text & " " & txtsurname.Text & "", vbYesNo +
vbQuestion, "Delete")
'        If msg = vbYes Then
'            msg = MsgBox("If you delete the Record of '" & txtfname.Text & " " &
txtmname.Text & " " & txtsurname.Text & "'," + vbCrLf + "then all the Records of '" &
txtfname.Text & "' will be deleted." + vbCrLf + vbCrLf + "To Delete select 'OK' else select
'CANCEL to Exit.", vbQuestion + vbOKCancel, "Delete")
'            If msg = vbYes Then
'                rollno = rsadm!rollno
'                rsadm.Delete
'                rsreg.Requery
'                While Not rsreg.EOF = True
'                    If rsreg!rollno = rollno Then
'                        rsreg.Delete
'                    End If
'                    rsreg.MoveNext
'                Wend
'                rsatd.Requery
'            While Not rsatd.EOF = True
```

cmdback.Enabled = False
End Sub




```
Private Sub cmdedit_Click()
On Error Resume Next
Dim edrollno As Integer
edrollno = InputBox("Enter the Student's Roll No.", "Roll No.")

cmddel.Visible = False
cmdcancel.Visible = True
If frmattend.caption = "Leave" Then
   rslea.Close
   rslea.Open "select * from leave where rollno = " & edrollno & "", cn, adOpenDynamic,
adLockOptimistic
   If rslea.BOF = True And rslea.EOF = True Then
      MsgBox "Search not found."
      Exit Sub
   Else
      Call display
```

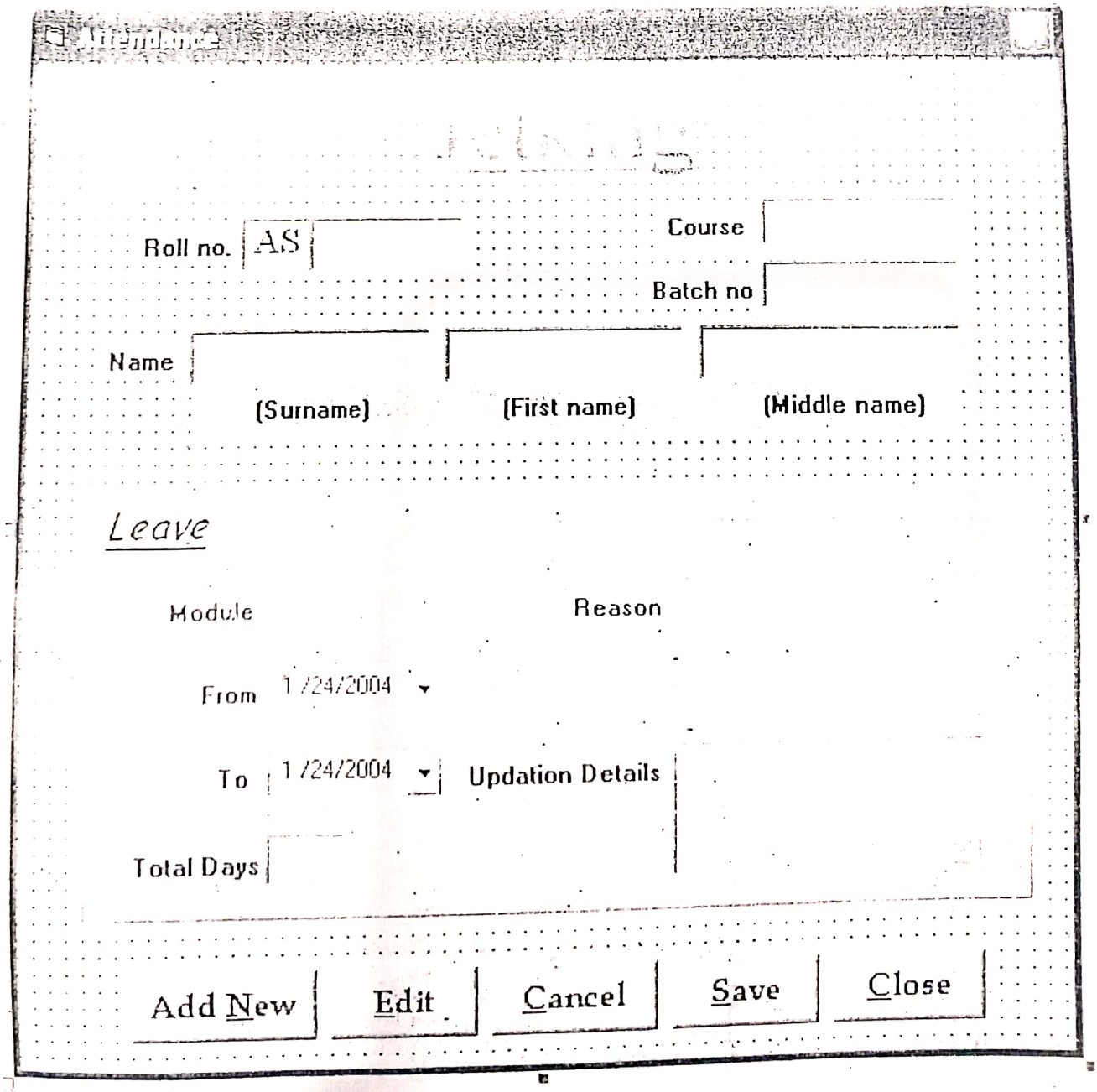
```
            txtrollno.Enabled = True
            fraattend.Visible = False
            fraleave.Enabled = True
            cmddel.Enabled = False
            cmdsave.Enabled = True
            cmdedit.Enabled = False
            cmdadd.Enabled = False
    edit = 1
      End If
    Else
      rsatd.Close
      rsatd.Open "select * from attendence where rollno = " & edrollno & "", cn,
    adOpenDynamic, adLockOptimistic
      If rsatd.BOF = True And rsatd.EOF = True Then
        MsgBox "Search not found."
        Exit Sub
      Else
        Call display
        txtrollno.Enabled = True
        fraleave.Visible = False
        fraattend.Enabled = True
        cmddel.Enabled = False
        cmdsave.Enabled = True
        cmdedit.Enabled = False
        cmdadd.Enabled = False
  edit = 1
    End If
  End If
  End Sub

  Private Sub cmdsave_Click()
  If frmattend.caption = "Leave" Then
    If txtlmodule.Text = "" Or txtdays.Text = "" Or txtreason.Text = "" Or txtupdation.Text =
"" Then
      MsgBox "You forgot to enter one of the required fields."
    Else
      If addnew = 1 Then
addnew = 0
        If rslea.BOF = True And rslea.EOF = True Then
          rslea.addnew
        Else
          rslea.MoveLast
          rslea.addnew
        End If
      ElseIf edit = 1 Then
edit = 0
```

```
        End If
    rslea!rollno = txtrollno.Text
    rslea!module = txtlmodule.Text
    rslea!From = dtfrom.Value
    rslea!To = dtto.Value
    rslea!days = txtdays.Text
    rslea!reason = txtreason.Text
    rslea!updation = txtupdation.Text
        'rslea.Save
        rslea.Update
        MsgBox "Your record is saved."

        cmdadd.Enabled = True
        cmdedit.Enabled = True
        cmddel.Enabled = True
        cmdsave.Enabled = False

        fraleave.Enabled = False
        rslea.MoveFirst
        Call display
        Call Form_Activate
    End If
Else
    If txtmodule.Text = "" Or txtfaculty.Text = "" Or _
      txtattend.Text = "" Or txtperformance.Text = "" Or txtremarks.Text = "" Then
        MsgBox "You forgot to enter one of the required fields."
    Else
      If addnew = 1 Then
addnew = 0
        If rsatd.BOF = True And rsatd.EOF = True Then
          rsatd.addnew
        Else
          rsatd.MoveLast
          rsatd.addnew
        End If
      ElseIf edit = 1 Then
edit = 0
      End If
rsatd!rollno = txtrollno.Text
rsatd!module = txtmodule.Text
rsatd!stdate = dtstdate.Value
rsatd!faculty = txtfaculty.Text
rsatd!enddate = dtenddate.Value
rsatd!attend = txtattend.Text
rsatd!totaldays = txttotaldays.Text
rsatd!performance = txtperformance.Text
```

```
rsatd!remarks = txtremarks.Text
        'rslea.Save
        rsatd.Update
        MsgBox "Your record is saved."

        cmdadd.Enabled = True
        cmdedit.Enabled = True
        cmddel.Enabled = True
        cmdsave.Enabled = False

        fraattend.Enabled = False
        rsatd.MoveFirst
        Call display
        Call Form_Activate
    End If
End If
End Sub

Private Sub dtenddate_LostFocus()
txttotaldays.Text = DateDiff("d", dtstdate.Value, dtenddate.Value)
End Sub

Private Sub dtto_LostFocus()
txtdays.Text = DateDiff("d", dtfrom.Value, dtto.Value)
End Sub

Private Sub Form_Activate()
txtrollno.Enabled = False
fraattend.Enabled = False
fraleave.Enabled = False

txtcourse.Enabled = False
txtbatchno.Enabled = False
txtsurname.Enabled = False
txtfname.Enabled = False
txtmname.Enabled = False

cmdadd.Enabled = True
cmddel.Enabled = True
cmdedit.Enabled = True
cmdsave.Enabled = False
End Sub

Private Sub Form_Load()
jetking.Enabled = False
Set cn = New ADODB.Connection
```

```
cn.ConnectionString = "Provider=Microsoft.Jet.OLEDB.4.0;Data
Source=C:\institute\cms1.mdb;Persist Security Info=False"
cn.CursorLocation = adUseClient
cn.Open

txtrollno.Enabled = False

Set rsadm = New ADODB.Recordset
Set rsatd = New ADODB.Recordset
Set rslea = New ADODB.Recordset

rsatd.Open "select * from attendence", cn, adOpenDynamic, adLockOptimistic
rsadm.Open "select * from admission", cn, adOpenKeyset, adLockOptimistic
rslea.Open "select * from leave", cn, adOpenKeyset, adLockOptimistic

txttotaldays.Enabled = False
txtdays.Enabled = False
End Sub

Private Sub Form_Paint()
If frmattend.caption = "Leave" Then
  If rslea.BOF = True And rslea.EOF = True Then
    GoTo a
  Else
    rslea.MoveFirst
                rsatd.Requery

                cmdedit.Enabled = True
                Exit Sub
              End If
              rsatd.MoveNext
            Wend
            If rsatd.EOF = True Then
              MsgBox "Attendence sheet of '" & txtfname.Text & txtsurname.Text & "' has not
been updated."
              rsatd.Requery
              Exit Sub
            End If
          End If
          Exit Sub
  End If
  rsadm.MoveNext
Wend
If rsadm.EOF = True Then
  MsgBox "Please enter correct Roll No."
  txtcourse.Text = ""
```

```
    txtbatchno.Text = ""
    txtsurname.Text = ""
    txtfname.Text = ""
    txtmname.Text = ""
    txtrollno.SetFocus
    txtrollno.Text = ""
    rsadm.MoveFirst
End If
End Sub
```



FORMS FOR FEE SHEDULE

```
Dim rsadm As New ADODB.Recordset
Dim rsfs As New ADODB.Recordset
Dim rsfp As New ADODB.Recordset
Dim rsreg As New ADODB.Recordset
Dim refs As New ADODB.Recordset
Dim cn As New ADODB.Connection
Dim total As Double
Dim add As Integer
Dim edit As Integer

Private Sub cmdadd_Click()
Call clear
rsfs.Requery
txtrollno.Enabled = True
txtfee.Enabled = True
txtrollno.SetFocus
cmddel.Enabled = False
cmdadd.Enabled = False
cmdedit.Enabled = False
cmdsave.Enabled = True
add = 1
End Sub

Private Sub cmdcancel_Click()
Call display
Call Form_Activate
cmddel.Visible = True
cmdcancel.Visible = False
cmdadd.Enabled = True
cmddel.Enabled = True
cmdedit.Enabled = True
cmdsave.Enabled = False
End Sub

Private Sub cmdclose_Click()
Unload Me
jetking.Enabled = True
jetking.Visible = True
End Sub

Private Sub cmddel_Click()
edrollno = InputBox("Enter the Student's Roll No", "Roll No")
rsfs.Close
rsfs.Open "select * from feeschedule where where rollno='" & (edrollno) & "'", cn,
```

```
    If rsfs.BOF = True And rsfs.EOF = True Then
      MsgBox "Search not found"
      Exit Sub
    Else
      Call display
      txtrollno.Enabled = True
      fiafee.Enabled = True
    msg = MsgBox("Are you sure you want to delete the Record of " + vbCrLf + "          '" &
    txtfname.Text & " " & txtmname.Text & " " & txtsurname.Text & "'", vbYesNo +
    vbQuestion, "Delete")
      If msg = vbYes Then
        rsfs.Delete
        rsfs.Close
        rsfs.Open "select * from feeschedule", cn, adOpenDynamic, adLockOptimistic
        rsfs.Requery
        If rsfs.BOF = True And rsfs.EOF = True Then
          MsgBox "Currently there are no Records."
        ElseIf rsfs.EOF = True Then
          rsfs.MovePrevious
          Call display
        ElseIf rsfs.BOF = True Then
          rsgfs.MoveNext
          Call display
        Else
          rsfs.MoveFirst
          Call display
        End If
        MsgBox "Your Record has been deleted."
      End If
    End If
    Call Form_Activate
    cmdsave.Enabled = False
    cmddel.Enabled = True
    cmdedit.Enabled = True
    cmdadd.Enabled = True
    End Sub

    Private Sub cmdedit_Click()
    Dim edrollno As Integer
    edrollno = InputBox("Enter the Student's Roll No.", "Roll No.")

    rsfs.Close
    rsfs.Open "select * from feeschedule where rollno = " & edrollno & "", cn, adOpenDynamic,
    adLockOptimistic
    If rsfs.BOF = True And rsfs.EOF = True Then
      MsgBox "Search not found."
```

```
    Exit Sub
  Else
    Call Clear
    txtrollno.Enabled = True
    frafee.Enabled = True
    cmddel.Enabled = False
    cmdsave.Enabled = True
    cmdedit.Enabled = False
    cmdadd.Enabled = False
    cmddel.Visible = False
    cmdcancel.Visible = True
  edit = 1
  End If
  End Sub
  Private Sub cmdsave_Click()

  If txtamt1.Text = "" Then
    MsgBox ("Please enter the correct information.")
    Exit Sub
  End If

  total = Val(txtamt1.Text) + Val(txtamt2.Text) + Val(txtamt3.Text) _
    + Val(txtamt4.Text) + Val(txtamt5.Text) + Val(txtamt6.Text) _
    + Val(txtamt7.Text) + Val(txtamt8.Text) + Val(txtamt9.Text) _
    + Val(txtamt10.Text) + Val(txtamt11.Text) + Val(txtamt12.Text) _
    + Val(txtamt13.Text) + Val(txtamt14.Text)
  rsreg.Close
  rsreg.Open "select * from Admission_Reg", cn, adOpenDynamic, adLockOptimistic

  While Not rsreg.EOF = True
    If rsreg!rollno = txtrollno.Text Then
      If rsreg!totalfee> total Then
  msg = MsgBox("The total fee of the Student is given as '" & rsreg!totalfee & "'" + vbCrLf +
  "and the amount you entered differs by '" & Val(rsreg!totalfee - total) & "'." + vbCrLf +
  vbCrLf + "Select 'OK' to correct it and 'CANCEL' to Exit.", vbCritical + vbOKCancel,
  "Logical Error")
        If msg = vbOK Then
          Exit Sub
        Else
          rsfs.MoveFirst
          Call display
          Call Form_Activate
          Exit Sub
        End If
      ElseIf rsreg!totalfee< total Then
```

```
msg = MsgBox("The total fee of the Student is given as '" & rsreg!totalfee & "'" + vbCrLf +
"and the amount you entered is more by '" & Val(total - rsreg!totalfee) & "'." + vbCrLf +
vbCrLf + "Select 'OK' to correct it and 'CANCEL' to Exit", vbCritical + vbOKCancel,
"Logical Error")
        If msg = vbOK Then
           Exit Sub
        Else
           rsfs.MoveFirst
           Call display
           Call Form_Activate
           Exit Sub
        End If
     End If
   End If
   rsreg.MoveNext
Wend
If edit = 1 Then
   GoTo b
End If
rsfs.addnew
b:
rsfs!rollno = txtrollno.Text
rsfs!course = txtcourse.Text
rsfs!batchno = txtbatchno.Text
rsfs!date1 = dtdate1.Value
rsfs!amt1 = txtamt1.Text
If txtamt2.Text = "" Then
rsfs!date2 = Date
rsfs!amt2 = "0"
Else
rsfs!date2 = dtdate2.Value
rsfs!amt2 = txtamt2.Text
End If
If txtamt3.Text = "" Then
rsfs!date3 = Date
rsfs!amt3 = "0"
Else
rsfs!date3 = dtdate3.Value
rsfs!amt3 = txtamt3.Text
End If
If txtamt4.Text = "" Then
rsfs!date4 = Date
rsfs!amt4 = "0"
Else
rsfs!date4 = dtdate4.Value
rsfs!amt4 = txtamt4.Text
```

```
End If
If txtamt5.Text = "" Then
rsfs!date5 = Date
rsfs!amt5 = "0"
Else
rsfs!date5 = dtdate5.Value
rsfs!amt5 = txtamt5.Text
End If
If txtamt6.Text = "" Then
rsfs!date6 = Date
rsfs!amt6 = "0"
Else
rsfs!date6 = dtdate6.Value
rsfs!amt6 = txtamt6.Text
End If
If txtamt7.Text = "" Then
rsfs!date7 = Date
rsfs!amt7 = "0"
Else
rsfs!date7 = dtdate7.Value
rsfs!amt7 = txtamt7.Text
End If
If txtamt8.Text = "" Then
rsfs!date8 = Date
rsfs!amt8 = "0"
Else
rsfs!date8 = dtdate8.Value
rsfs!amt8 = txtamt8.Text
End If
If txtamt9.Text = "" Then
rsfs!date9 = Date
rsfs!amt9 = "0"
Else
rsfs!date9 = dtdate9.Value
rsfs!amt9 = txtamt9.Text
End If
If txtamt10.Text = "" Then
rsfs!date10 = Date
rsfs!amt10 = "0"
Else
rsfs!date10 = dtdate10.Value
rsfs!amt10 = txtamt10.Text
End If
If txtamt11.Text = "" Then
rsfs!date11 = Date
rsfs!amt11 = "0"
```

```
    Else
    rsfs!date11 = dtdate11.Value
    rsfs!amt11 = txtamt11.Text
    End If
    If txtamt12.Text = "" Then
    rsfs!date12 = Date
    rsfs!amt12 = "0"
    Else
    rsfs!date12 = dtdate12.Value
    rsfs!amt12 = txtamt12.Text
    End If
    If txtamt13.Text = "" Then
    rsfs!date13 = Date
    rsfs!amt13 = "0"
    Else
    rsfs!date13 = dtdate13.Value
    rsfs!amt13 = txtamt13.Text
    End If
    If txtamt14.Text = "" Then
    rsfs!date14 = Date
    rsfs!amt14 = "0"
    Else
    rsfs!date14 = dtdate14.Value
    rsfs!amt14 = txtamt14.Text
    End If
    rsfs.Update
    refs.Requery
    If txtamt1.Text <> "" Then
      refs.addnew
refs!rollno = txtrollno.Text
refs!course = txtcourse.Text
refs!batchno = txtbatchno.Text
refs!fshdate = dtdate1.Value
refs!fshamt = txtamt1.Text
refs!fshpaid = txtamt1.Text
refs!fshleft = "0"
End If
If txtamt2.Text <> "" Then
  refs.addnew
refs!rollno = txtrollno.Text
refs!course = txtcourse.Text
refs!batchno = txtbatchno.Text
refs!fshdate = dtdate2.Value
refs!fshamt = txtamt2.Text
refs!fshpaid = "0"
refs!fshleft = txtamt2.Text
```

```
End If
If txtamt3.Text <> "" Then
  refs.addnew
refs!rollno = txtrollno.Text
refs!course = txtcourse.Text
refs!batchno = txtbatchno.Text
refs!fshdate = dtdate3.Value
refs!fshamt = txtamt3.Text
refs!fshpaid = "0"
refs!fshleft = txtamt3.Text
End If
If txtamt4.Text <> "" Then
  refs.addnew
refs!rollno = txtrollno.Text
refs!course = txtcourse.Text
refs!batchno = txtbatchno.Text
refs!fshdate = dtdate4.Value
refs!fshamt = txtamt4.Text
refs!fshpaid = "0"
refs!fshleft = txtamt4.Text
End If
If txtamt5.Text <> "" Then
  refs.addnew
refs!rollno = txtrollno.Text
refs!course = txtcourse.Text
refs!batchno = txtbatchno.Text
refs!fshdate = dtdate5.Value
refs!fshamt = txtamt5.Text
refs!fshpaid = "0"
refs!fshleft = txtamt5.Text
End If
If txtamt6.Text <> "" Then
  refs.addnew
refs!rollno = txtrollno.Text
refs!course = txtcourse.Text
refs!batchno = txtbatchno.Text
refs!fshdate = dtdate6.Value
refs!fshamt = txtamt6.Text
refs!fshpaid = "0"
refs!fshleft = txtamt6.Text
End If
If txtamt7.Text <> "" Then
  refs.addnew
refs!rollno = txtrollno.Text
refs!course = txtcourse.Text
refs!batchno = txtbatchno.Text
```

```
refs!fshdate = dtdate7.Value
refs!fshamt = txtamt7.Text
refs!fshpaid = "0"
refs!fshleft = txtamt7.Text
End If
If txtamt8.Text <> "" Then
  refs.addnew
refs!rollno = txtrollno.Text
refs!course = txtcourse.Text
refs!batchno = txtbatchno.Text
refs!fshdate = dtdate8.Value
refs!fshamt = txtamt8.Text
refs!fshpaid = "0"
refs!fshleft = txtamt8.Text
End If
If txtamt9.Text <> "" Then
  refs.addnew
refs!rollno = txtrollno.Text
refs!course = txtcourse.Text
refs!batchno = txtbatchno.Text
refs!fshdate = dtdate9.Value
refs!fshamt = txtamt9.Text
refs!fshpaid = "0"
refs!fshleft = txtamt9.Text
End If
If txtamt10.Text <> "" Then
  refs.addnew
refs!rollno = txtrollno.Text
refs!course = txtcourse.Text
refs!batchno = txtbatchno.Text
refs!fshdate = dtdate10.Value
refs!fshamt = txtamt10.Text
refs!fshpaid = "0"
refs!fshleft = txtamt10.Text
End If
If txtamt11.Text <> "" Then
  refs.addnew
refs!rollno = txtrollno.Text
refs!course = txtcourse.Text
refs!batchno = txtbatchno.Text
refs!fshdate = dtdate11.Value
refs!fshamt = txtamt11.Text
refs!fshpaid = "0"
refs!fshleft = txtamt11.Text
End If
If txtamt12.Text <> "" Then
```

```
    refs.addnew
  refs!rollno = txtrollno.Text
  refs!course = txtcourse.Text
  refs!batchno = txtbatchno.Text
  refs!fshdate = dtdate12.Value
  refs!fshamt = txtamt12.Text
  refs!fshpaid = "0"
  refs!fshleft = txtamt12.Text
  End If
  If txtamt13.Text <> "" Then
     refs.addnew
  refs!rollno = txtrollno.Text
  refs!course = txtcourse.Text
  refs!batchno = txtbatchno.Text
  refs!fshdate = dtdate13.Value
  refs!fshamt = txtamt13.Text
  refs!fshpaid = "0"
  refs!fshleft = txtamt13.Text
  End If
  If txtamt14.Text <> "" Then
     refs.addnew
  refs!rollno = txtrollno.Text
  refs!course = txtcourse.Text
  refs!batchno = txtbatchno.Text
  refs!fshdate = dtdate14.Value
  refs!fshamt = txtamt14.Text
  refs!fshpaid = "0"
  refs!fshleft = txtamt14.Text
  End If
  refs.Update
  refs.Requery
  MsgBox "Your Record is saved."
  cmdsave.Enabled = False
  cmddel.Enabled = True
  cmdedit.Enabled = True
  cmdadd.Enabled = True
  If cmdcancel.Visible = True Then
     cmdcancel.Visible = False
     cmddel.Visible = True
     cmddel.Enabled = True
  End If
  rsfs.Close
  rsfs.Open "select * from fee_schedule", cn, adOpenDynamic, adLockOptimistic
  rsfs.Requery
  rsfs.MoveFirst
  Call display
```

```
Call Form_Activate
End Sub

Private Sub Form_Activate()
txtrollno.Enabled = False
txtcourse.Enabled = False
txtbatchno.Enabled = False
txtsurname.Enabled = False
txtfname.Enabled = False
txtmname.Enabled = False
fiafee.Enabled = False
cmdsave.Enabled = False
cmdadd.Enabled = True
cmddel.Enabled = True
cmdedit.Enabled = True
End Sub

Private Sub Form_Load()
jetking.Enabled = False

Set cn = New ADODB.Connection
cn.ConnectionString ="Provider=Microsoft.Jet.OLEDB.4.0;Data
Source=C:\institute\cms1.mdb;Persist Security Info=False"
cn.CursorLocation = adUseClient
cn.Open

total = 0
txtrollno.Enabled = False
Set rsadm = New ADODB.Recordset
Set rsfs = New ADODB.Recordset
Set rsfp = New ADODB.Recordset
Set rsreg = New ADODB.Recordset
Set refs = New ADODB.Recordset

refs.Open "select * from fschedule", cn, adOpenDynamic, adLockOptimistic
rsfs.Open "select * from fee_schedule", cn, adOpenDynamic, adLockOptimistic
rsfp.Open "select * from fee_paid", cn, adOpenDynamic, adLockOptimistic
rsadm.Open "select * from admission", cn, adOpenKeyset, adLockOptimistic
rsreg.Open "select * from admission_reg", cn, adOpenKeyset, adLockOptimistic

If rsfs.BOF = True And rsfs.EOF = True Then
  GoTo a
End If
rsfs.MoveFirst
Call display
a:
```

```
End Sub

Private Sub Form_QueryUnload(Cancel As Integer, UnloadMode As Integer)
Unload Me
jatking.Enabled = True
jatking.Visible = True
End Sub
Private Sub display()
txtrollno.Text = rsfs!rollno
txtcourse.Text = rsadm!course
txtbatchno.Text = rsadm!batch
txtsurname.Text = rsadm!surname
txtfname.Text = rsadm!fname
txtmname.Text = rsadm!mname

didate1.Value = rsfs!date1
didate2.Value = rsfs!date2
didate3.Value = rsfs!date3
didate4.Value = rsfs!date4
didate5.Value = rsfs!date5
didate6.Value = rsfs!date6
didate7.Value = rsfs!date7
didate8.Value = rsfs!date8
didate9.Value = rsfs!date9
didate10.Value = rsfs!date10
didate11.Value = rsfs!date11
didate12.Value = rsfs!date12
didate13.Value = rsfs!date13
didate14.Value = rsfs!date14

If rsfs!amt1 = "0" Then
  txtamt1.Text = ""
Else
  txtamt1.Text = rsfs!amt1
End If
If rsfs!amt2 = "0" Then
  txtamt2.Text = ""
Else
  txtamt2.Text = rsfs!amt2
End If
If rsfs!amt3 = "0" Then
  txtamt3.Text = ""
Else
```

```
    txtamt3.Text = rsfs!amt3
'End If
If rsfs!amt4 = "0" Then
    txtamt4.Text = ""
Else
    txtamt4.Text = rsfs!amt4
End If
If rsfs!amt5 = "0" Then
    txtamt5.Text = ""
Else
    txtamt5.Text = rsfs!amt5
End If
If rsfs!amt6 = "0" Then
    txtamt6.Text = ""
Else
    txtamt6.Text = rsfs!amt6
End If
If rsfs!amt7 = "0" Then
    txtamt7.Text = ""
Else
    txtamt7.Text = rsfs!amt7
End If
If rsfs!amt8 = "0" Then
    txtamt8.Text = ""
Else
    txtamt8.Text = rsfs!amt8
End If
If rsfs!amt9 = "0" Then
    txtamt9.Text = ""
Else
    txtamt9.Text = rsfs!amt9
End If
If rsfs!amt10 = "0" Then
    txtamt10.Text = ""
Else
    txtamt10.Text = rsfs!amt10
End If
If rsfs!amt11 = "0" Then
    txtamt11.Text = ""
Else
    txtamt11.Text = rsfs!amt11
End If
If rsfs!amt12 = "0" Then
    txtamt12.Text = ""
Else
    txtamt12.Text = rsfs!amt12
```

```
End If
If rsfs!amt13 = "0" Then
  txtamt13.Text = ""
Else
  txtamt13.Text = rsfs!amt13
End If
If rsfs!amt14 = "0" Then
  txtamt14.Text = ""
Else
  txtamt14.Text = rsfs!amt14
End If
End Sub

Private Sub clear()
txtrollno.Text = ""
txtcourse.Text = ""
txtbatchno.Text = ""
txtsurname.Text = ""
txtfname.Text = ""
txtmname.Text = ""

dtdate1.Value = Date
dtdate2.Value = Date
dtdate3.Value = Date
dtdate4.Value = Date
dtdate5.Value = Date
dtdate6.Value = Date
dtdate7.Value = Date
dtdate8.Value = Date
dtdate9.Value = Date
dtdate10.Value = Date
dtdate11.Value = Date
dtdate12.Value = Date
dtdate13.Value = Date
dtdate14.Value = Date

txtamt1.Text = ""
txtamt2.Text = ""
txtamt3.Text = ""
txtamt4.Text = ""
txtamt5.Text = ""
txtamt6.Text = ""
txtamt7.Text = ""
txtamt8.Text = ""
txtamt9.Text = ""
txtamt10.Text = ""
```

```
txtamt11.Text = ""
    KeyAscii = KeyAscii
    Exit Sub
  ElseIf KeyAscii = 13 Then
    dtdate11.SetFocus
  End If
  MsgBox "Please enter only Numbers."
  KeyAscii = 0
Else
  KeyAscii = KeyAscii
End If
End Sub
Private Sub txtamt11_KeyPress(KeyAscii As Integer)
If KeyAscii < 48 Or KeyAscii > 57 Or KeyAscii = 8 Or KeyAscii = 13 Then
  If KeyAscii = 8 Then
    KeyAscii = KeyAscii
    Exit Sub
  ElseIf KeyAscii = 13 Then
    dtdate12.SetFocus
  End If
  MsgBox "Please enter only Numbers."
  KeyAscii = 0
Else
  KeyAscii = KeyAscii
End If
End Sub

Private Sub txtamt12_KeyPress(KeyAscii As Integer)
If KeyAscii < 48 Or KeyAscii > 57 Or KeyAscii = 8 Or KeyAscii = 13 Then
  If KeyAscii = 8 Then
    KeyAscii = KeyAscii
    Exit Sub
  ElseIf KeyAscii = 13 Then
    dtdate13.SetFocus
  End If
  MsgBox "Please enter only Numbers."
  KeyAscii = 0
Else
  KeyAscii = KeyAscii
End If
End Sub
Private Sub txtamt13_KeyPress(KeyAscii As Integer)
If KeyAscii < 48 Or KeyAscii > 57 Or KeyAscii = 8 Or KeyAscii = 13 Then
  If KeyAscii = 8 Then
    KeyAscii = KeyAscii
    Exit Sub
```

```
    ElseIf KeyAscii = 13 Then
      dtdate14.SetFocus
    End If
    MsgBox "Please enter only Numbers."
    KeyAscii = 0
  Else
    KeyAscii = KeyAscii
  End If
  End Sub
  Private Sub txtamt14_KeyPress(KeyAscii As Integer)
  If KeyAscii < 48 Or KeyAscii > 57 Or KeyAscii = 8 Or KeyAscii = 13 Then
    If KeyAscii = 8 Then
      KeyAscii = KeyAscii
      Exit Sub
    ElseIf KeyAscii = 13 Then
      cmdsave.SetFocus
    End If
    MsgBox "Please enter only Numbers."
    KeyAscii = 0
  Else
    KeyAscii = KeyAscii

  End If
  End Sub

  Private Sub txtrollno_LostFocus()
  rsfs.Requery
  rsfp.Requery
  While Not rsfp.EOF = True
    If rsfp!rollno = txtrollno.Text Then
      If rsfp!totalfee = rsfp!feepaid Then
        rsadm.Requery
        While Not rsadm.EOF = True
          If rsadm!rollno = txtrollno.Text Then
  msg = MsgBox("" & rsadm!fname & " " & rsadm!surname & "' has paid the full fee.",
  vbInformation, "Fees Payment")
          End If
          rsadm.MoveNext
        Wend
        rsadm.Requery
        rsfp.Requery
        rsfs.MoveFirst
        Call display
        Call Form_Activate
        cmdadd.Enabled = True
        cmdedit.Enabled = True
```

```
        cmddel.Enabled = True

            txtamt2.Text = rsreg!instamount
            dtdate2.SetFocus
            GoTo a
          End If
          rsreg.MoveNext
        Wend
a:
        rsadm.Requery
        Exit Sub
      End If
      rsadm.MoveNext
    Wend
    If rsadm.EOF = True Then
      MsgBox "Please enter correct Roll No."
      txtcourse.Text = ""
      txtbatchno.Text = ""
      txtsurname.Text = ""
      txtfname.Text = ""
      txtmname.Text = ""
      txtrollno.SetFocus
      txtrollno.Text = ""
      rsadm.MoveFirst
    End If
    End Sub
```

Jetking

Roll no. AS | Course |

Batch no |

Name

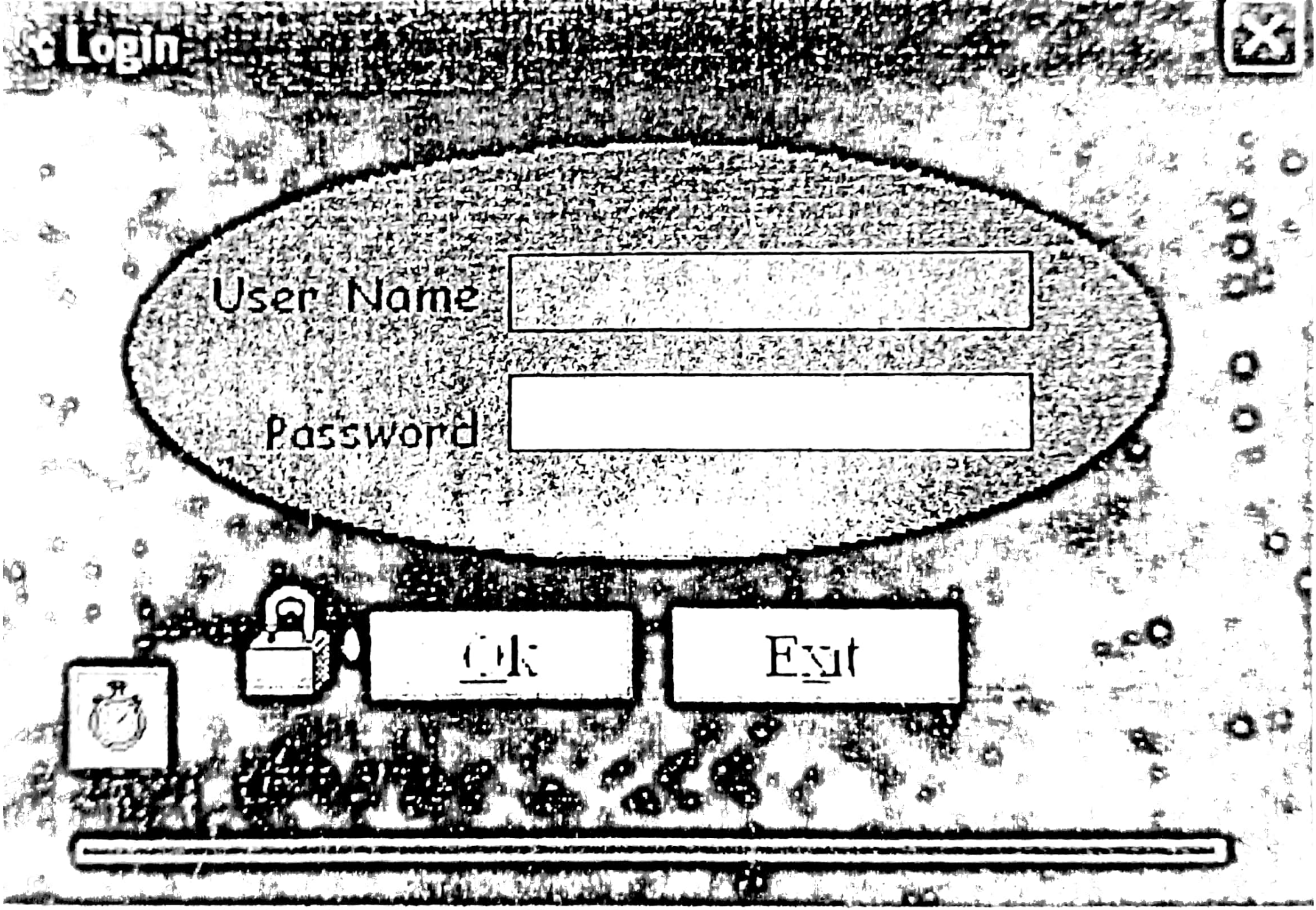
(Surname) (First name) (Middle name)

DATE	AMOUNT PAYBLE	DATE	AMOUNT PAYBLE
1 /19/2004		1 /19/2004	
1 /19/2004		1 /19/2004	
1 /19/2004		1 /19/2004	
1 /19/2004		1 /19/2004	
1 /19/2004		1 /19/2004	
1 /19/2004		1 /19/2004	
1 /19/2004		1 /19/2004	

Add New Cancel Edit Save Close

FORMS FOR LOGIN

```
Dim cn As New ADODB.Connection
Dim rslogin As New ADODB.Recordset

Private Sub cmdcancel_Click()
End
End Sub

Private Sub cmdOK_Click()
cmdOK.SetFocus
If rslogin!UserName = Trim(txtUserName.Text) And rslogin!Password
Trim(txtPassword.Text) Then
    lblload.Visible = False
    splogin.Visible = True
    Timer1.Enabled = True
    'Timer2.Enabled = True
    lclose.Visible = False
    lopen.Visible = True
Else
    'msg = MsgBox("Please enter correct User Name and Password", vbCritical, "Login Error")
    frmLogin.Height = 3840
    lblload.caption = "Invalid Username or password."
    txtUserName.Text = ""
    txtPassword.Text = ""
    txtUserName.SetFocus
End If
End Sub

Private Sub Form_Load()
frmLogin.Height = 3195

Set cn = New ADODB.Connection
cn.ConnectionString = "Provider=Microsoft.Jet.OLEDB.4.0;Data
Source=C:\institute\cms1.mdb;Persist Security Info=False"
cn.CursorLocation = adUseClient
cn.Open
Set rslogin = New ADODB.Recordset
rslogin.Open "select * from login", cn, adOpenKeyset, adLockOptimistic
rslogin.MoveFirst

lclose.Visible = True
lopen.Visible = False

Timer1.Enabled = False
'Timer2.Enabled = False
```



DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
AURANGABAD.

A Project On

"Project Management Process"

Submitted By

Mr. Kapil Bhagwan Kharat

Guided By

Prof. D. E. Surdakar

Sagar College of Management, Jalna.

Sagar College of Management, Jalna.

CERTIFICATE

Sagar College JALNA

This is to certify that the seminar report Entited,

"Project Management Process"

Submitted by Kapil B. Kharat as per the requirement of Dr. BABASAHEB AMBEDKAR MARATHWADA University, in the partial Fulfillment of Bachelor of computer Application, Third year for the Academic year 2017-2018

Seat No:- 601185

Guided by

Prof. D. E. Surdakar

D. E. Surdakar

Principal

PRINCIPAL
SAGAR COLLEGE
JALNA

External Examiner

DECLARATION

I have underusing that I have completed the project work on the topic "Project Management Process"

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD as per the syllabus of BCA degree.

I hereby declare that this project is genuine and origin and never been submitted previously by me for the award of any other degree or Any other university.

Mr. Kapil B. Kharat.

ACKNOWLEDGEMENT

With our great pleasure, we wish to express our knowledge under the great guidance of Prof. D. E. Surdakar who help us with her grateful support and other infrastructure with personal attention.

We are also thankful to our project guide Prof. D. E. Surdakar who herself a knowledgeable person with a great brilliance, we thanking her, for her immense interest, valuable guidance, kindly suggestion and co-operation thought out the period of undertaken which have been instrumented in the success of our project.

It is matter honor to express our special thanks to all the staff members who supported us in completion of our project and provide us their own interest.

We also thankful to all our friends who have directly or indirectly supported us by morally.

Mr. Kapil B. Kharat

B.C.A. (IIIrd Year)
Sagar B.C.A. College, Jalna

A Primer for the Project Management Process
Table of Contents

Description

Overview

This primer for a Project Management Process provides an integrated framework for project organization, planning and control which is designed to:

- ensure the timely and cost-effective production of all the end-products,
- maintain acceptable standards of quality,
- achieve the benefit for which the enterprise investment in the project has been made.

This publication may serve as a guide to understanding one set of formal means to initiate, control and close projects successfully. This process is focused on the information technology project domain, and has been successfully applied in structured software development and system integration projects with firms in multiple industries.

STAGE/STEP/TASK SUMMARY LIST

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Project Initiation

Objective

To

- take the ideas and intentions of a group of people who see the need for a project in their organization and convert them into a formal, planned, resourced and funded project,

in a way that

- clearly and explicitly defines the objectives and scope of the project,
- develops an overall schedule of activities and resources (project plan) required to carry out the whole project,
- develops a detailed schedule of activities and resources (stage plan) required to carry out the next stage of the project,
- defines a project organization structure which can be used to effectively manage and carry out the necessary work,
- establishes a convincing business case for the project,
- gains commitment and approval to the project from the appropriate level of senior management,

so that

- the project is firmly set up for success, and
- the probability of producing a high quality product on budget and on schedule is maximized.

Overview

At the start of any project, there will be a variety of ideas and opinions about the purpose and scope of the project, what the final product of the project will be, and how the project will be carried out. The Project Initiation Stage is concerned with taking these ideas and intentions and developing them into a formal, planned, resourced and funded project.

In order to define a project in this way, it is first necessary to clearly and explicitly define what the project is intended to achieve and what its scope of interest will be. By defining this first, a benchmark is created for assessing the quality of what is actually produced at the end of the project.

It is also necessary to develop a process by which the project objectives can be achieved. This process will typically involve carrying out a number of tasks and producing a number of products during the course of the project. The tasks

produce the products. For clarity of purpose and for control reasons it is useful to arrange these tasks in a top down structure, which progressively specify the required work in more detail.

This is called a work breakdown structure. Our methodology provides a series of standard work breakdown structures for strategic planning and applications development. However, it is important to look for opportunities to customize this for the particular circumstances of the project and its objectives. The work breakdown structure will provide a benchmark by which the quality of the project process can be assessed.

The Project Initiation Stage must also define what resources and associated time commitment are required to carry out the project. The work breakdown structure provides a basis from which this estimation can be carried out. The resource and time commitment can be used to calculate an end date for the project and an estimate of its cost. This information is key input into the establishment of a business case for the intended project.

The overall project schedule is not at a sufficient level of detail to enable the allocation of actual resources to tasks, or to control progress. It is necessary to produce a more detailed plan for these purposes. This detailed plan is only produced for the next stage of the project, usually covering an elapsed time of two to four months.

The way the project is managed and executed is the key to its success. The involvement of the right people for data capture and decision making is also crucial. It is necessary to identify and recruit these people at the start of the project and to define the project organization structure. It is also necessary to establish the procedures that will be used by the people in the Project Organization Structure to carry out and control the project work.

Finally, in order to establish a resourced and funded project, it is necessary to establish a clear and convincing business case for the project. This business case should be reviewed, and hopefully accepted by management. The business case will identify the projected benefits of meeting the objectives of the project, and balance these against the costs and risks associated with realizing these benefits. The business case can also be used as a benchmark to compare against actual results, costs and benefits in order to assess the ultimate success of the project.

The Project Initiation stage is described here as a sequence of steps. In reality, once the objective and scope have been defined, many of these steps occur in parallel, and the step products are developed iteratively, since there are many dependencies between the steps. It is necessary to plan the Project Initiation stage, albeit in an informal manner. Therefore it is important to create a Project Initiation Kick Off Plan scheduling the activities and resources.

At the start of the project it will be necessary to classify the project by size:

- Small (3 to 20 elapsed days)
- Medium (1 to 3 elapsed months)

Projects of greater than 9 months should be organized as a program containing multiple, but discrete, medium and large projects.

Regardless of size, all projects will need to address the factors described above. What will vary is how long it takes to execute, and the detail of the product. Project Initiation should be conducted in a relatively short timeframe when compared to the rest of the project. Small projects should take one or two days, whereas medium to large may take two to four elapsed weeks. Small projects will produce a Project Initiation Checklist. Medium and large projects will produce a Project Initiation Report.

The Project Initiation Report is an overall plan for carrying out the whole project, and a more detailed plan for the next stage of the project. It consists of:

- clearly defined objective,
- clearly defined dimensions of scope,
- overall schedule of activities for the project (project plan),
- project organization,
- clearly defined project control procedures to check and confirm quality, usage of resources, costs and time, manage change and track issues,
- clearly stated business justification for the project,
- project budget.

In addition to the above, the plan for the next stage consists of:

- detailed schedule of activities for the stage (stage plan),
- quality review standards for products to be produced,
- identified resources and associated costs ,
- control tolerances.

By completing the Project Initiation Stage, the chances of a successful conclusion to the project will significantly increase.

Upon completion of the Project Initiation stage the Project Board will make one of two decisions:

- Go / No Go for the whole project.
- Go / No Go for the next stage.

The "go / no go" decision for the whole project generally applies to small and medium projects, where the detailed stage plan will be for the whole project. The "go / no go" decision for the next stage generally applies to large projects. The next stage will usually be a detailed analysis of requirements. At the conclusion

of this stage the project plan will be updated and a detailed stage plan for the next stage created. A recommendation to proceed will then be taken to the Capital Acquisition Committee (CAC) for funding the entire project.

Step 01: Project Kick Off

Description

Objective

To

- produce a plan which defines how to perform the Project Initiation Stage itself,

in a way that

- ensures the involvement and commitment of the key people who see the need for the project and also of those who will fund it,
- takes account of the background to the project and of previous and related initiatives,
- establishes a team to carry out the Project Initiation Stage,

so that

- a clear and explicit plan is available for setting up the project.

Overview

As the Project Initiation Stage is concerned primarily with producing a plan for the overall project, so the Project Kick Off Step is concerned with producing a plan for the Project Initiation Stage.

Project Kick Off is therefore concerned with producing a plan of the work required to produce a plan for the whole project.

The Project Kick Off step is concerned with carrying out a high level review of the background to the project and of related initiatives, recruiting the involvement of those senior people who will be the ultimate customers and sponsors of the project, reviewing and customizing the standard work breakdown structure for the Project Initiation Stage and setting up a small team to carry out the Project Initiation Stage. The manager for the Project Initiation stage may be different to the manager of subsequent stages.

When scheduling the Project Initiation activities, understand that there is great deal of interdependency between the steps. Project Kick Off should be carried out quickly. If Project Initiation Stage takes four weeks, Project Kick Off should take one day. In order to expedite this stage avoid producing a detailed plan based upon estimates for each task. Review the outline of the Project Initiation Report and determine the number and sequence of interviews, workshops and investigations that are required to create the it.

The end result of the this step will be a Project Initiation Kick Off Plan listing deliverables, techniques, committed resources and timescales for the Project Initiation Stage.

A Project Initiation Kick Off Report is not required for small projects.

Task .010 Recruit Project Sponsor

Recruit a Project Sponsor responsible for the commitment of all resources required to successfully conduct the Project Initiation Stage and to facilitate compliance and commitment to all major project decisions.

This Project Sponsor will chair the Project Board which also includes both Technical and Client representatives. Document the responsibilities to be performed by the Project Sponsor.

It may only be possible to identify the Project Sponsor at this time, with other Project Board members being identified later in Project Initiation when the Project Scope is better understood.

Lack of a Project Sponsor of sufficient seniority is a major risk to the project. It is recommended that no work continues until this is achieved.

Task .020 Recruit Project Initiation Stage Manager

Recruit a Stage Manager for the Project Initiation Stage who has experience in the development approach and/or the business area under study and possesses the level of experience and skill to manage the successful completion of the Stage.

It is likely that the Stage Manager will also fulfill the roles of the Project Co-coordinators until later in Project Initiation. Document the responsibilities to be performed by the Stage Manager.

Task .030 Review Related Studies

Review any previous studies addressing the area of interest. Ensure their content reflects the current situation.

Examples include Terms of Reference, strategic level plans (Information Technology and/or Business), and on-going project documentation where there is a possibility of scope overlap.

Task .040 Prepare Project Initiation Kick Off Plan

There is a great deal of interdependency between the Project Initiation steps and tasks. However it is important to define the project objective and scope first before attempting the remaining steps.

Attempts to create a detailed Project Initiation plan with estimates for each and every task will take far too long. The WBS should be considered more of a checklist. It is important to apply JAD to gather high quality information in a reduced time frame.

Review the activities in the Project Initiation stage and the outline of the Project Initiation Report. The steps equate to the sections of the report. It is recommended that the work be organized around producing the sections of the report. Determine what information is needed and assess the best means of gathering it. This may be in the form of research, interviews and workshops.

Identify the number of workshops. For each one, specify the objective, deliverables and participants.

Identify and recruit additional resources to perform the Project Initiation stage. Business Analysts will be involved in defining objective and scope, determining organization, requirements, approach and costs, coordinating other resources, preparing the recommendation and ensuring the successful completion of the Project Initiation stage. Clients will be primarily involved in determining requirements and preparing the business justification. Systems Analysts may be involved in determining the project approach and selecting the appropriate template.

Identify resources who will be required to review and approve the Project Initiation Report.

Estimate the effort and elapsed time for the remaining activities.

Create the Project Initiation Kick Off Plan listing deliverables, technique, committed resources, start and end dates.

Ensure that each team member knows their project commitments.

Document any assumptions made while producing the Kick Off Plan.

Task .050 Brief The Team

Brief the project team on all aspects of the Kick Off Plan. Publish a summary for absent team members and staff who will be assigned later in the stage.

Task .060 Initiate Stage Control Procedures

Initiate the control procedures that will be used during the stage and ensure that all members of the Project Organization understand the procedures and know their individual responsibilities.

Initiate logs for:

- quality reviews and follow-up,
- change control;
- issues.

Create any files that are needed for the stage. These may be in paper or electronic form.

Task .070 Review Project Kick Off

Review the Project Initiation Kick Off with the Project Sponsor and gain agreement to execute the Project Initiation stage.

Task .080 Kick Off Project Initiation

Arrange a formal Kick Off meeting with all the resources participating in the Project Initiation.

It is important that the project in formally kicked off by the Project Sponsor in order to foster a team spirit. It will also raise the profile of the project in the organization.

Step 02: Project Objective & Scope

Description

Objective

To

- clearly define the project

boundaries, in a way that

- identifies the types of boundary (scope dimensions) relevant to the project,
- takes account of the background to the project,
- explores the variety of objectives and scope that the project could cover,
- clearly and explicitly defines what the project will cover,
- clearly and explicitly defines what the project will not cover,

so that

- a clear and commonly understood target and benchmark is available to project members and other interested parties by which they can steer the direction of the project and assess the quality of the final product.

Overview

It is important to establish at the outset of a project, a precise definition of the purpose and scope of the project to ensure that both Business Partners and Technical personnel are clear about the field of reference.

Any project carried out by an organization should be addressing one or more of the Business Objectives of the organization. If it does not, why is the project being carried out? Therefore to establish the objectives and scope of the project, it is first necessary to identify the overall reason for the project by relating it to one or more objectives of the organization. This will put the project into context for the organization as a whole. It is vital that the project objective be clearly

stated and agreed before proceeding with the rest of Project Initiation. If this is not possible, then do not continue.

The project objective can then be further defined in terms of scope. There are two aspects to project scope, the scope of the investigation, and the scope of the solution. At the start of the project it is unlikely that the problems and requirements will be fully understood. However, in order to avoid wasting time by analyzing irrelevant areas, the scope of investigation will help focus on those areas thought most likely to be impacted by the project. Therefore the scope of investigation may well expand as a better understanding of the problems is achieved. The problems and requirements must be fully understood before a range of cost justified solutions can be proposed. This will avoid the risk of focusing on preconceived solutions, which may well be constrained by current practices, and facilitate creative solutions. The clients will choose a solution based upon cost justification criteria which may exclude some of the original requirements. This scope of solution will be more closely defined and will determine the design and build stages of the project.

Scope can be expressed in terms of dimensions. These include business organization, business functions, data, geography, systems, operating environments, etc. Identify the dimensions appropriate to the project and determine those components in scope and those out of scope.

Scope will be further defined in terms of problems and requirements.

In effect the move from objective to requirements is a continuum illustrating the progressive expansion of the project definition.

Task .010 Establish Project Objective

Conduct workshops and/or interviews with clients to identify the project objective. This must be clearly stated and agreed. The project objective must also relate back to a business objective, to ensure that the project is aligned with the business direction of the organization.

Techniques: Objectives Formatting

Task .020 Establish Scope of Investigation

Determine which dimensions of scope to apply to defining the project.

Diagrammatically represent each dimension of scope, explicitly stating as narrative bullet points what is in scope and what is out of scope.

Identify the constraints, specific limitations or exclusions within which the project must operate.

Record any assumptions made in defining the scope of the investigation.

Techniques: Scoping Diagram
Data Modeling
Data Flow Diagrams

Task .030 Identify Initial Requirements

Identify the initial requirements. Validate them against the project objective. The requirements will be fully investigated and described during the next stage.

Requirements express what the application must achieve (a solution is how it will be achieved).

Conversely, problems express the limitations of the current business and system.

Identify the criteria for assessing the success of both the final project product and the process used to create it (e.g., quality objectives, quantitative requirements, expected benefits).

Techniques: Critical Requirements Analysis

Task .040 Identify Outline Solution

Where possible, prepare an outline solution to illustrate the feasibility of achieving the defined business requirements for the project. Outline the likely nature of the solution, and provide sufficient information for the preparation of a business case.

Techniques: Data Flow Diagrams
Data Modeling

Task .050 Identify Training Requirement

Determine the probable client training and technical writing requirement. This will give the TDC advanced warning of their involvement in the project.

Task .060 Review Project Scope

Conduct a product review of the Objective statement (To, in a way that, so that... construct) and Scope definition documents to ensure the scope meets the business needs and all standards are met.

Step 03: Project Schedule and Budgeting

Description

Objective

To

- develop an overall time schedule for the

project, in a way that

- defines the overall development approach for the project,
- selects the appropriate template,
- produces a customized work breakdown structure (task list) specific to the project,

- creates a range estimate for the target completion date, and the associated total cost of the project,
- identifies the major Project Board control points,
- identifies the Client, development and operations resources required to carry out the project,
- identifies hardware, software, contractor and training resources required to carry out the project,

so that

- a schedule is available to guide the project and to use as a benchmark by which progress on the project can be monitored and controlled.

Overview

Once the objective and scope are decided, it is necessary to determine what activities are required to be carried out to meet the objective. The dependencies between these activities can then be determined, which in turn allows resources and timescales to be estimated.

This needs to be done for the whole project (project plan), and then in more detail for the next stage of the project (stage plan). This step is concerned with the overall project. The project schedule is not intended to direct resources to specific activities on certain dates.

The ideal situation is to have a proven process on which to base the tasks for the project. This may be a standard IT process or an outside process. It may be necessary to build a process from a series of kernels (common steps).

Once a process is chosen, this should then be customized to the particular needs of the project.

If a proven process is not available, it will be necessary to develop a process for use on the project which conforms to the stage, step, task construct.

Once this has been done, it is necessary to estimate the resources, both client and technical, required for the project. This should be expressed by resource type or role (e.g., Client Accounts Clerk, Systems Analyst, Analyst Programmer) rather than by individual. It should cover all personnel resources required, both full and part time.

The requirements for other types of resource, such as office space and equipment, should also be determined. A time line and cost estimate for the project can then be developed.

The development of the project schedule is an iterative activity during Project Initiation. The other steps carried out in Project Initiation will affect the schedule.

The project plan applies to large, multi-stage projects. For medium sized, single stage projects it is not necessary to create a project plan. The detailed stage plan will define the whole project from beginning to end.

Task .010 Determine Project Approach

The purpose of the project schedule is to provide an overall structure to the project. The top-down stage and step estimates will be validated and revised as and when each stage schedule is produced with detailed bottom-up estimates.

Review the Selecting and Adapting Guidelines within the Template section of the Process HyperGuide to assist in determining the appropriate template. Additionally, review the Concepts section for a specific template.

Either;

- Select a process template from the Process Library whose selection criteria most closely match the project characteristics and risk profile, or

- Select the "Basic Work Breakdown Structure" in the Process Library and expand by including predefined kernels and creating customized steps and tasks.

Software Guidelines

Task .020 Determine Project Stages and Steps

Review the stages and steps from the chosen process template.

Based upon the project objective, scope, constraints and assumptions, tune the project work breakdown structure to:

- Add new stages and/or steps,

- Remove unnecessary stages and/or steps,

- Merge stages and/or steps,

Removing stages and steps will probably increase project risk. Document the risks and identify proposed countermeasures.

Review, and revise as appropriate, the predefined stage and step objective and overview statements.

Create objective statements, using the "To, in a way that, so that..." construct, for each custom built stage and step.

Create stage and step overviews. The stage overview should include a brief rationale for the proposed stage and step selection and sequencing. Record all assumptions and issues identified.

Review and revise the products to be produced by each stage. Start at the end of the project with the final deliverable, and work forwards to the beginning. Describe the objective, outline and content of each product. Validate the final product against the project objective. For each stage product, break it down in to interim or step level products. Again, describe the objective, outline and content of the step products. This exercise will confirm that the primary project deliverables are clearly defined and understood.

Software Guidelines

Task .030 Determine Stage and Step Product Workflow

Chart the sequence of stages and steps to reflect the intrinsic and architectural dependencies inherent in the project.

An output of one step will be the input to another. Some inputs may be sourced from outside the project. These External Inputs (e.g., Standards, Project Initiation report of another project, etc.) must be identified. The project products and external inputs will primarily determine the step dependencies.

Define the dependencies, and dependency type, between the steps. Steps within a stage are not necessarily finish-start, but may be in parallel or phased. Stages may also run in parallel with one another. Do not specify dependencies at the stage level.

Ensure that all dependencies with other projects are identified. Examine other Project Initiation Reports to assess inter-project dependencies.

Record all assumptions and issues identified.

Software Guidelines

Task .040 Estimate Duration

Project schedule estimates will be determined as duration or elapsed time. Determine the duration for each step. It is recommended that you estimate in units of a day. Step level estimates are unlikely to be less than one day. When estimating duration, include expected non-productive and non-effective time.

Alternatively, produce an initial top-down estimate for the each stage and apportion to the component steps.

It may be desirable to express the stage and step estimates as ranges, namely best case and worst case. In this case create a single estimate as above and then extrapolate the best and worst cases. Document with supporting assumptions.

Software Guidelines

Task .050 Establish Resource Requirements

When estimating duration, define an initial requirement for resources. For the project schedule, it is sufficient to estimate the number of each type of resource required, rather than specific people, e.g., 2 Programmers. Concentrate on identifying the resource types who will either be part of the project team or who will have a significant impact on the project.

Document the initial resource requirements, since if these assumptions are invalid (e.g., Step 020, duration 30 days, resource requirement 2 Programmers) then the step estimates will need to be revised. Documenting assumptions also facilitates recreation of the estimates, and "what if analysis".

Convert the number of resource types in to a chargeable resource equivalent. This is a function of the number of chargeable resource types and their assigned time (including overheads of non-productive and non-effective time). Differentiate between Internal Staff Resource Equivalent and External Staff Resource Equivalent. For example, a step requiring 1 programmer assigned 50%, 2 contract programmers assigned 100%, and a DBA assigned for 25% of the time will have an Internal Resource Equivalent of 0.5+0.25 or 0.75, and an External Resource Equivalent of 1.0+1.0, or 2.0. This resource equivalent will be used to calculate initial project costs.

Also identify other resources required for the project e.g. equipment, accommodation etc.

The estimating and initial resourcing tasks as interdependent and will be done interactively.

Software Guidelines

Task .060 Prepare Project Schedule

Develop an initial schedule of project activities.

Determine the proposed project start date and use the scheduler to calculate the stage and step start and end dates.

Validate these dates against the project constraints. Adjust scope, dependency and resources until a satisfactory balance is achieved. Revise any assumptions that have been modified.

Software Guidelines

Task .070 Prepare Project Budget

Estimate the internal and external staff costs by step. Staff costs are a function of step duration, resource equivalent and chargeable rate.

Estimate non-staff costs by step:

- Hardware
- Software
- Project Training, for the project team to develop the application
- Installation Training, for clients, operations, etc. to use the application
- Miscellaneous, includes supplies, copying and printing, accommodation, subsistence, travel, or other costs which cannot be classified above.

Aggregate the costs by stage.

Software Guidelines

Task .080 Create Project Schedule Products

Produce and collate the project schedule documents at stage and step level:

- WBS Description Report,
- Products Report,
- Project Costs Report,
- Gantt chart,
- PERT chart.

Software Guidelines

Task .090 Document Project Process Success Criteria

Determine how the success of the project process will be measured and record as a series of success criteria.

These will be used to measure the success of the process used on the project.

Task .100 Review Project Schedule

Conduct a product review of the Project Schedule and Budget to ensure that the scope meets the business needs and that all technical standards are met.

Step 04: Stage Schedule and Budgeting

Description

Objective

To

- develop a time schedule and budget for the next stage of the project, in a way that
  - defines the tasks necessary to carry out the next stage of the project,
  - determines the best approach to completing each activity,
  - identifies the tools for performing the project work,
  - identifies actual resource requirements,
  - determines task and resource dependencies,
  - creates an estimate for the cost of the stage,
  - creates an estimated completion date for the stage,

So that

- a schedule is available to guide the next stage and to use as a benchmark by which progress on the project can be monitored and controlled.

Overview

An overall project schedule is required to determine complete project timescale, resource requirements and costs. A more detailed schedule is required to manage and control the project. This more detailed schedule is developed progressively through the project by producing a schedule for the next stage during Project Initiation and towards the end of subsequent project stages.

The overall project schedule provides a overview of the activities in the stage. These activities need to be further defined to the point where all necessary tasks have been identified. This should use the same approach as for developing the overall project schedule. That is, using a proven process, or developing the process if one does not exist.

Once this has been done it is necessary to estimate the resources required for the stage. This should cover all personnel resources required, both full and part time, and other types of resource such as office space and equipment. A time line and cost estimate for the stage can then be developed.

The development of the stage schedule is an iterative activity during Project Initiation. The other steps carried out in Project Initiation will affect the schedule.

For single stage projects, the stage plan is both the project and stage plan.

Task .010 Determine Next Stage Activities

Based upon the project and stage objective, scope, constraints and assumptions, tune the stage work breakdown structure to:

- Add new steps and/or tasks,
- Remove unnecessary steps and/or tasks,
- Merge steps and/or tasks,

The project plan identified the probable steps within the stage. Now is the opportunity to reassess the steps and their associated objectives and products. Removing steps and tasks may increase project risk. Document these risks and identify proposed countermeasures, which may include additional quality assurance tasks.

Determine the products to be produced by each step. Start at the end of the stage with the final deliverable, and work forwards to the beginning. Describe the objective, outline and content of each product. Validate the final product against the project and stage objective.

Within each step, identify the tasks or activities required to produce the step products. A task will have the following characteristics:

- Reference

- Name
- Description
- Input
- Output or product
- Technique (optional)
- Tool (optional)
- Role / responsibility assignment
- Resource / responsibility assignment
- Effort estimate

In this task define the Task Reference, Name, Description, Product, Techniques and Tools.

Record all assumptions and issues identified.

Software Guidelines

Task .020 Determine Product Workflow

Chart the sequence of stages and steps to reflect the intrinsic and architectural dependencies inherent in the project.

An output or product of one task will usually be the input to another, and this will be the primary driver in determining the task dependencies and workflow.

Determine whether the successor task references (throughput) or updates (entry requirement) the input product.

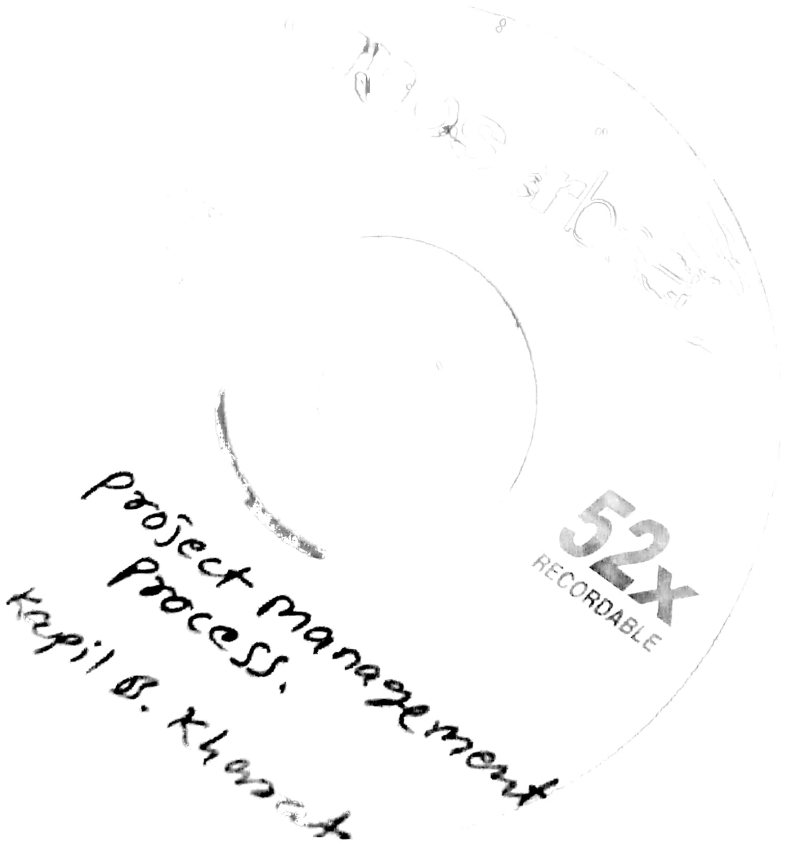
Some inputs may be sourced from outside the project. Identify these External Inputs (e.g., Long Range System Plan, Standards, Project Initiation report of another project, etc.).

Review the dependencies determined by the task inputs and outputs. Review the dependency types between the tasks. Tasks are not necessarily finish-start, but may be in parallel or phased. Where appropriate, define lags (both positive and negative) between tasks. Remove any step dependencies. It is recommended that the dependencies be kept simple and reduced to a minimum, otherwise the schedule will be very difficult to execute and will probably be abandoned.

Ensure that all dependencies with other projects are identified. Examine other Project Initiation Reports to assess inter-project dependencies.

Record all assumptions and issues identified.

- Name
- Description
- Input
- Output or product
- Technique (optional)



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Ensure that all dependencies with other projects are identified. Examine other Project Initiation Reports to assess inter-project dependencies.

Record all assumptions and issues identified.

Software Guidelines

Task .030 Estimate Effort

Stage schedule estimates will be determined as effort time (or work). Determine the total effort per task. Remember to include peer review and revision time if such activities are not identified as specific tasks. It is recommended that you estimate in units of an hour. Avoid estimating tasks to less than one hour. It is advisable to estimate in units of 4 hours. No task should be longer than 80 hours.

By combining small tasks and including a detailed description of the task it will be possible to simplify the schedule merely by reducing the number of tasks in the Gantt.

The task effort estimates will be apportioned to individual roles and resources in the next task.

Record all assumptions supporting the estimate in the task description. This is very important because it will enable you to recreate and substantiate the estimate. It will also ensure that you have thoroughly throughout what is to be done, and that it is communicated clearly to the Team. Estimating takes time, but it will validate the tasks, products, techniques and assumptions.

Aggregate the task estimates and compare against the original top-down step and stage estimates. If the detailed estimate is substantially different from the original top-down estimate it may be necessary to refer to the Project Board and consider revising both the project and stage plans.

Software Guidelines

Task .040 Allocate Resources

Assign roles and their associated responsibility to each task. In order to avoid overwhelming the plan with complexity focus on the "produce", "consult" and "review" responsibilities. The "approve" responsibility will generally apply only to the Project Board. The responsibilities are defined as follows:

- Produce: to create the product of the task. Usually applies to Project Team Members like Business Analysts, Systems Analysts and Programmers. The schedule will be simpler to balance if only a single role is assigned per task.

- Consult: provide information required to produce the task. Usually applies Coordinators and Key Resources.

- Review: review the product for correctness, accuracy and completeness. Usually applies Coordinators and Key Resources.

- Approve: official signoff. Usually applies to the Project Board.

Assign resources to the roles and responsibilities.

Apportion the total task effort estimate to the resources. As a tip, the schedule will be much easier to balance if the task effort estimate is apportioned entirely to

the a single "produce" resource. Therefore this estimate should include time for the other "consult" and "review" resources, e.g., Client review, DBA review. Although this is a simplification, it is still applicable if the non-project team costs are excluded from the plan, since the estimates are primarily for the Project Team. The "consult", "review" and "approve" resources still need to be assigned to tasks, albeit at zero work, in order for them to be included in the schedule.

Define by task the resources availability (unit). The scheduler will calculate task duration as effort / unit.

Software Guidelines

Task .050 Prepare Stage Schedule

Develop an initial schedule of project activities.

Determine the proposed stage start date and use the scheduler to calculate the step and task start and end dates. Validate these dates against the project constraints.

Review the project objective, constraints and control factors before attempting to balance the plan. Deadline, resource utilization and costs can be adjusted as follows:

- Modify dependencies,
- Modify dependency type (finish-start, lag, etc.),
- Modify tasks and therefore the effort estimate (avoid arbitrarily reducing estimates),
- Assign more resources (task duration will theoretically be reduced if more resources are applied to the task),
- Reassign more proficient resources,
- Provide productivity enhancing tools,
- Train and coach team members,
- Motivate team members,
- Increase resource availability.

Modify task descriptions and assumptions to record all the adjustments to the plan. Failure to do this will result in a mismatch between the original plan and the current schedule, and reduce the probability of project success.

Software Guidelines

Task .060 Prepare Stage Budget

Determine staff costs at the task level. This is a function of the resource work and chargeable rate. The Process Manager will supply standard hourly rates for both Internal Staff and External Contractors.

Determine non-staff costs for the stage by category. The categories are:

- Hardware & Network
- Software
- Project Training, training the project team to execute the project
- Installation Training, training the clients, operations, etc. to use the application
- Miscellaneous, includes supplies, copying of training materials, accommodation, subsistence, travel, or other costs which cannot be classified above.

Software Guidelines

Task .070 Baseline Stage Schedule

Once a satisfactory balanced stage schedule and budget has been achieved, baseline it. This will retain a record of the original start and end dates, work and duration estimates, and staffing costs

Actual progress will be monitored against this baseline.

Software Guidelines

Task .080 Create Stage Schedule Products

Produce and collate the project schedule documents at the step and task level:

- WBS Description Report,
- Products Report,
- Resource Report,
- Baseline Stage Estimates,
- Baseline Resource Work
- Cost Workbook,
- Gantt chart,
- PERT chart,
- Resource Usage
- Project Summary

Report Software Guidelines.

Task .090 Review Stage Schedule Products

Conduct a product review of the Stage Schedule Products with the Process Management Group to ensure that the scope meets the business needs and that all technical standards are met.

Communicate the plan to the Project Board since it is a "contract" stating what is to be done, how, when and by whom. If the Project Board accepts the plan, then they are committed to supply the resources, both client and technical.

The Project Board will assign a project or stage start date for the schedule when they authorize the project to proceed. This may require some minor adjustments to the schedule.

Communicate the plan to the Project Team since it defines exactly what is to be done. Hopefully they will have been heavily involved in producing the plan so there should be no surprises and they will have already bought in to it.

Step 05: Project Organization

Description

Objective

To

- select and prepare the people whose involvement will be necessary for the project to succeed,

In a way that

- clearly identifies roles and responsibilities,
- ensures that the best individuals to fulfill roles and responsibilities are selected,
- identifies training required to enable individuals to fulfill their roles and responsibilities on the project,
- gains the appropriate allocation of resource time to the project,
- ensures that all major interest groups are appropriately represented,
- updates the project and stage schedules in line with available resources,

so that

- the project benefits from having a group of people who can operate in an integrated fashion and who understand exactly the roles they must play in contributing to the success of the project.

Overview

Once the objectives of the project have been identified and a work breakdown structure developed for how to meet these objectives, it is necessary to plan for the people involvement on the project.

An important step in this planning is to identify the required roles and responsibilities. This methodology provides a standard set of roles and responsibilities for a project and it is necessary to review this list and customize it for the particular project.

The Project Board is the most senior level of Project Organization and has the responsibility of ensuring the continued integrity of the project from all points of view. The structure of the Project Board reflects the tripartite responsibility that exists in any project, namely the Business, Customer, and Technical interests. The Board should be prepared to recommend termination of the project if necessary.

The Stage Manager is recruited by the Project Board to ensure the successful completion of the stage products, on time, within budget and to the specified quality standards within an agreed tolerance.

The Stage Manager may be recruited from any area concerned with the project, or may be from outside the immediate organization. The Stage Manager may need help with the business, customer, or technical aspects of the project. This help is provided by appointing a co-coordinator for each of these areas. This ensures that the main interests being served by the project are properly represented at the working level, e.g. through participation in quality reviews. This also provides continuity in the day to day coordination of the project especially where there are to be changes of Stage Manager.

There are likely to be a number of key individuals within the organization that have an interest in, and can facilitate the project. They will receive regular progress reports on the project, and will be invited to attend Project Board meetings.

The time commitment required for the project will vary for each role and responsibility identified. It is important that the individuals selected to carry out the various roles can devote the time that the project requires.

Once the roles, responsibilities, and time requirements for each activity are defined, it is possible to assign individuals to perform the activities. It will often be necessary to assign individuals to the project who do not have all the skills required to perform their roles. Therefore, it is necessary to identify what additional training these individuals require.

Individuals then need to be made available for their involvement on the project.

Task .010 Identify Key Personnel

Review the project Scoping Diagram. Identify those business areas that are within scope or directly interface with the scope boundary and list them in the "Business Area" column of the Project Assignment Worksheet. Project Organization members will be selected from these groups. Do not forget to include development and operations.

- Which areas will be directly impacted by the project?
- Which areas are not impacted today but may be impacted in the future?
- Which areas will the project team have to depend on for information about the way things are done today?
- Upon which groups will the project depend for success?

Identify the key personnel for each area and list them in the "Person" column of the Project Assignment Worksheet. Do not allocate roles in this task, just list any personnel you think should be involved in the project.

Task .020 Recruit Project Board

Assemble a senior management team which will direct and be accountable for the project and gain management commitment. Ensure that those senior Managers with a significant interest in the successful outcome of the project are properly represented.

Generally identify the lowest level person for each Project Board role. Work up the organization chart until a person is found who can make the decisions "stick".

Project Sponsor:

- Which client executive will champion the project and sell it to the rest of the company?
- Who is responsible for funding?
- Who will be the link between the project and the company strategy team?
- Who is ultimately responsible for the success or failure of the project?

There may be several candidates, but there is only one Project Sponsor!

Client Representative:

- Who will represent the clients most affected by the delivered project?
- Who will ensure that the project is aligned to the client business need?
- Who will provide client resources for the project?
- Who will remove any barriers present in the client area?

Ideally there should be only one client representative, but there may need to be more than one because no single person has authority over all the client areas within project scope. However, the more Project Board members, the more difficult it is to schedule them and obtain decisions.

Technical Representative:

- Who will provide technical resources for the project?
- Who is ultimately responsible for the technical quality of the project products?
- Who will remove any barriers in the development and operations area?

Ensure that the Project Board members understand their responsibilities and the time commitment that they are making to the project. Document the responsibilities to be performed by the Project Board.

Task .030 Recruit Stage Manager

Identify a suitable manager for the next project stage, bearing in mind the nature and importance of the activities involved.

- Who will manage the project on a day-to-day basis for this stage?

The person selected must be made available for the time required by the project. It is suggested that it takes up to 15% of a Stage Manager's time to plan, control, review, coach, etc. each team member. A project team of 6 people is almost a full time job. There must be a recognition by the Stage Manager and the Project Board that project management takes time, that it is an investment in project success, and not a cost. The Stage Manager is not necessarily from development. Sometimes the best person to manage the Project Initiation and Installation stages of the project is a client.

Document the responsibilities to be performed by the Stage Manager.

Task .040 Recruit Project Coordinators

Identify the need for coordination and control activities throughout the project. These are supporting roles to the Stage Manager. They may be filled by the Stage Manager if the project is relatively small. They may also be filled by Key resources.

Planning Co-coordinator:

- Who will help the stage manager create the plans, capture actual work and costs, update plans, etc.
- Who is experienced with using the project scheduling tools?
- Who has strong administrative skills?
- Who has a detailed knowledge of the development project management standards?

Client Co-coordinator:

- Who will assist in obtaining detailed information about how a client area works?
- Who knows how the client area is organized?

- Who can assist in identifying the best Key Resource from a particular client area?

Technical Co-coordinator:

- Who can facilitate the identification of project tasks required to produce the required products?
- Who is skilled in the techniques used to create products?
- Who can ensure the technical quality of products?
- Who can assist in identifying the best Key Resource for a particular technical issue?

Clearly define these co-ordination and control activities and identify and brief suitable personnel to carry them out. Document the responsibilities to be performed by the Coordinators.

Estimate the time required to perform these roles, and ensure that the individuals selected have the necessary time available.

Task .050 Recruit Key Stakeholders

Identify other people who are critical to the success of the project. They are management level personnel who will be affected by the project, but are not the primary decision makers. Clearly define who these people are and what their responsibilities are to the project.

- Who could slow down the project if they opposed the approach or project?
- Who might informally assist the Project Board in evaluating objective, scope, solution and financial viability?
- Who is not on the Project Board, but leads a client area included on the Project Assignment Worksheet?
- Who has people in their area whose jobs may be impacted by the implemented project?
- From whom is political buy-in required?

Document the responsibilities to be performed by the Stakeholders.

Estimate the time required to perform these roles, and ensure that the individuals selected have the necessary time available.

Task .060 Recruit Stage Teams

If there is confidence that the Project Initiation will result in an immediate authorization to proceed to the next stage then perform this task now. If not, then it will be performed after the Project Board authorizes the project to proceed as part of the next stage planning.

There are two types of team members, client and technical. People assigned to team member roles will usually fulfill the "produce" responsibility for tasks.

Team members may change from stage to stage as different skill sets are required.

Identify appropriate personnel required for the stage, define the team structure and, if necessary appoint Team Leaders.

Ensure that the time commitments required for the project are defined and understood by team members and their management, if appropriate. Document the responsibilities to be performed by the Team members.

The appointment of the Team Leaders and Stage Teams completes the process of delegating responsibility for the work down through the now established Project Organization structure.

Task .070 Recruit Key Resources

If there is confidence that the Project Initiation will result in an immediate authorization to proceed to the next stage then perform this task now. If not, then it will be performed after the Project Board authorizes the project to proceed as part of the next stage planning.

Identify any additional technical or business specialists required to support the project. These roles contribute to the creation of products by providing information about the business and reviewing the products. They generally fulfill the "consult" and "approve" responsibilities. They will include both client and technical personnel. Individuals assigned to a Key Resource role may also have project co-coordinator responsibilities, but will not be team members. Key Resources may change during the project depending on the skills required by the WBS.

Business Key Resources:

- Who will use the application?
- Who will provide the client information to create the products?
- Who can ensure that the business requirements are correctly understood?
- Who can ensure that all the business requirements are captured?
- Who will assist in establishing and confirming the business case?
- Who has specialist skills required at this stage (legal, audit, Health & Safety, etc.)?

Technical Key Resources:

- Who can ensure that technical products meet the technical standards?

- Who has specialist skills required at this stage (DBA, Communications, Networks, Back-ups, Security, etc.)?

Clearly define the responsibilities of these resources and estimate the time required by these Key Resources over the duration of the project. Document the responsibilities to be performed by the Key Resources.

Task .080 Determine Training Requirements

Assess the capabilities and skills of all those identified as part of the Project Organization.

Based upon this assessment establish a training plan to acquaint the project team members with the methodologies, technologies, and business areas under study.

It may the first time that some clients have been involved in a development project so it is important that they are adequately briefed as to the project management and development process, and especially their roles and responsibilities. The Project Organization step is intended to ensure that the clients, development and operations are working as a single team on the project, and that artificial organizational barriers are removed.

Update the project schedule to incorporate scheduled training activities.

Task .090 Create Project Organization Chart

Using the Project Assignment Worksheet, allocate the identified personnel to one or more roles.

Ensure all key individuals are assigned an appropriate role, but don't overwhelm the project with too many people.

Produce a Project Organization Chart defining reporting and communication lines between all parties involved in the project.

Task .0100 Review Project Organization

Conduct a product review of the Project Organization to ensure that the proposed organization reflects all participants needed to achieve the project objective.

Step 06: Project Control Procedures

Description

Objective

To

- ensure that all procedures required to carry out and control project work are established,

In a way that

- identifies all necessary procedures,

- Who has specialist skills required at this stage (DBA, Communications, Networks, Back-ups, Security, etc.)?

Clearly define the responsibilities of these resources and estimate the time required by these Key Resources over the duration of the project. Document the responsibilities to be performed by the Key Resources.

Task .080 Determine Training Requirements

Assess the capabilities and skills of all those identified as part of the Project Organization.

Based upon this assessment establish a training plan to acquaint the project team members with the methodologies, technologies, and business areas under study.

It may the first time that some clients have been involved in a development project so it is important that they are adequately briefed as to the project management and development process, and especially their roles and responsibilities. The Project Organization step is intended to ensure that the clients, development and operations are working as a single team on the project, and that artificial organizational barriers are removed.

Update the project schedule to incorporate scheduled training activities.

Task .090 Create Project Organization Chart

Using the Project Assignment Worksheet, allocate the identified personnel to one or more roles.

Ensure all key individuals are assigned an appropriate role, but don't overwhelm the project with too many people.

Produce a Project Organization Chart defining reporting and communication lines between all parties involved in the project.

Task .0100 Review Project Organization

Conduct a product review of the Project Organization to ensure that the proposed organization reflects all participants needed to achieve the project objective.

Step 06: Project Control Procedures

Description

Objective

To

- ensure that all procedures required to carry out and control project work are established,

In a way that

- identifies all necessary procedures,

- defines appropriate standards,
- defines necessary performance levels and tolerances,

So that

- all project work is carried out as effectively as possible.

Overview

There should be clearly established control procedures for any piece of work. A Project is not an exception to this rule, but due to the nature of projects, these procedures are often not readily available. It is therefore necessary to identify what procedures are required and to define these procedures.

Any established project control procedures that an organization has in place should be incorporated into the project plan. Procedures to consider are:

- Quality Control
- Progress Control
- Change Control
- Version Control
- Issue Resolution

Any existing procedures should be modified if necessary for the project. Additional procedures may be required, depending on the nature of the project.

The project and stage schedules need to incorporate project control tasks, and may need to be updated as a result of defining the control procedures.

Step 06: Project Control Procedures

Task .010 Set Up Project Administration

Create an electronic file structure to consistently maintain the administration of plans, progress, status reports, change control and issue management.

Task .020 Establish Quality Control Procedure

Determine the mechanisms to be used to ensure the quality of products produced during the project.

Task products may be subject to informal peer review. These task products should be small and the peer reviews frequent, since defects can be quickly identified and corrected with minimal rework.

Step products will be subject to formal review, with defects being recorded and assigned for correction.

Specify for each product the Co-coordinators and Key Resources who will perform the quality reviews.

See the "Quality Control" process for more details.

Task .030 Establish Progress Control Procedures

Set up the infrastructure to facilitate:

- capture of actual effort and re-estimated effort to complete,
- weekly status meetings to discuss achievements, forthcoming work, and issues,
- production of weekly status reports.

See "Progress Control" process for more details.

Task .040 Establish Project Control Factors

Determine the project Control Factors.

It is important to agree in advance with the Project Board the "elasticity" of the project, so that the suitable controls are applied in response to deviations from the plan.

The Project Dimensions are:

- Cost: the total cost of personnel and non-personnel resources,
- Schedule: the stage end dates,
- Performance: the quantity and quality of products.

They can be controlled by the following Management Directives:

- Maximize: the project dimension which will be most tightly controlled, with the least permitted deviation, to achieve project success,
- Constraint: the next most important dimension which will be optimized within the constraints of the first,
- Accept: the dimension whose performance (or lack of) will have to be accepted to achieve the first and second.

A directive can be assigned to only one project dimension.

Example 1: to meet the schedule end date, while constraining costs, we will accept a lower quality product.

Example 2: to achieve a high quality product, while constraining costs, we will accept a later finish date.

- revises other sections of the project plan,

so that

- senior management has good quality quantitative information to guide their decision as to whether to proceed with the project.

Overview

One of the objectives of the project initiation stage of a project is to gather sufficient information to assess whether it is worthwhile to proceed.

Other Project Initiation steps will develop much of this information. This step extends that information with financial values to provide a business case for the continuation of the project.

One essential piece of information which has not been addressed in previous steps is the identification of the benefits of the project. These must be researched and documented.

The benefits can be compared against the costs which are included in the project budget.

These two basic sets of information are then compared and analyzed to ensure that proceeding with the project makes sense from a financial perspective.

This step also examines the risks associated with the project, which need to be considered by senior management (the Project Board), when making decisions about the project. Risks associated with the project as it has been defined in the other Project Initiation steps are examined, and actions to reduce, mitigate, or eliminate the risks are identified.

The risks of not carrying out the project are the risks associated with not achieving the benefits identified for the project.

In developing the Business Case, it may be necessary to adjust other parts of the project plan, including the Scope, Project and Stage schedules, and the Project Organization.

Task .010 Determine the Project Costs

Review the project budget and determine that all development costs have been identified.

The project constraints will have stated the maximum project cost. This task is intended to develop an initial project budget within these constraints.

Develop an initial project level estimate of costs. As with the sliding planning window, this project level estimate is intended to give an overall cost of the project. It is a top-down estimate, and will be revised and revalidated at the end of each stage. Although there will be many assumptions, it is very important that an initial estimate of project costs is completed. Failure to produce an initial estimate of project cost, with supporting assumptions and caveats, will tend to

suggest that the project objective, scope, approach and resourcing have not been properly thought through.

Estimate costs by the following categories:

Development (including Conversion and Installation)

- Staffing, internal and external resources who will chargeable to the project, e.g., project team, contractors, trainers, technical writers, etc.
- Hardware, includes purchases and licenses
- Software, includes purchases and licenses
- Project Training, for the project team to develop the application
- Installation Training, for clients, operations, etc. to use the application
- Miscellaneous, includes copying and printing, office space, accommodation, travel, subsistence, supplies or other costs which cannot be classified above.

Operational & Maintenance

- Staffing, operations, maintenance, support, clients, trainers
- Hardware, includes purchases, licenses, machine time, telecommunications, data storage
- Software, includes purchases and licenses
- Miscellaneous, includes copying and printing, office space, accommodation, travel, subsistence, supplies or other costs which cannot be classified above.

Aggregate the Development costs by stage.

Task .020 Quantify Benefits

Identify and quantity all benefits associated with the final product of the project. Attempt to put a financial value on each benefit, so that the benefits are tangible.

During project scoping Critical Requirements Analysis will have identified and qualified the major requirements. The technique requires that "Performance Criteria" and "Performance Levels" be identified for each Critical Performance Area (CPA). The major requirements will be identified and associated with the corresponding CPAs. It is therefore possible to extrapolate this further and place a value upon a requirement and quantify the benefits.

For example: The performance criteria for the CPA "Perfect Order" may be the number of incorrect orders per 1000 orders processed. The current performance level is 50 per 1000. The required performance level is 10. The clients, in conjunction with the project team, are expected to be able to translate this reduction of errors from 50 to 10 into a $ value.

Define for each benefit, when it is expected to be accrued. It is very useful to be able to map out the expected benefit through time since it will re-enforce the justification of the project.

Quantifying the benefits is an excellent way of setting realistic business expectations of the project.

Document any calculations used to determine tangible benefits since it will be necessary to repeat the calculation process in subsequent stages of the project.

Task .030 Determine Breakeven Point

Establish the breakeven point for the project as a whole

Create a cost worksheet which charts accumulated costs and accumulated benefits through time. Generally, costs are incurred prior to accruing the benefits. Where the benefit line crosses the cost line will indicate the expected breakeven point.

Review whether the projected breakeven point is acceptable. The longer the breakeven point, the less chance that it will ever be achieved.

Task .040 Analyze Risk

Determine the risks associated with conducting the project. Risks tend to be factors which are not within the control of the project manager, but which could nevertheless result in the failure to achieve the project success criteria.

Conduct a Risk Analysis. Risks can be categorized as:

- External Dependencies,
- Organizational,
- Planning,
- Business Case,
- Technical.

Evaluate each risk factor within these categories and determine a value. Aggregate the risk values by category to determine low, medium and high risk areas.

The real benefit of this exercise is not in determining a numeric value, but in identifying areas of the project which are exposed to risk.

Identify the medium and high risk factors and determine appropriate countermeasures to reduce, mitigate or eliminate the risks. Where appropriate include these countermeasures as steps and tasks in the project and stage plans. Document the assumptions in the task descriptions and cross reference them back to the project risk factors.

Task .050 Review Business Case

Conduct a product review of the Business Case to ensure that the Business Case is complete and accurate.

Step 08: Project Initiation Stage Assessment

Description

Objective

To

- document the results of the Project Initiation stage and to have the results reviewed by management,

In a way that

- provides a comprehensive package of information from which a decision can be made,
- gains agreement on the scope of project,
- gains agreement on the overall approach and schedule for the project,
- gains agreement on the Business Case for the project,
- gains agreement on the Project Organization,
- gains commitment to making the necessary resources available for the project,
- gains agreement to the approach and schedule for the next stage of the project,
- gains agreement to the control procedures defined for the project,
- provides a record of the project and stage plans for use in managing and controlling the project if it gets authorization to proceed,
- confirms that the Project Initiation stage is complete,

so that

- a decision can be made as to whether to commit to and authorize the project.

Overview

An Stage End Assessment should be held at the end of every stage in the project. The Project/Stage Manager and Project Team report their progress and recommendations to the Project Board to gain the Board's approval to proceed with the project.

The work carried out in the Project Initiation steps is collated into a single product.

For small projects the document is the Project Initiation Checklist. This single product comprises objectives and scope, organization, tentative schedule and estimate, milestone activities and products, business case, and risk analysis.

For medium and large projects the document is the Project Initiation Report. It consists of:

- Project Objective
- Project Scope
- Project & Stage Schedules
- Project Organization
- Project Control Procedures
- Business Case for the project
- Risk Analysis
- Recommendation

For medium projects the Project Initiation Report will include the detailed schedule (Stage Plan) for the entire project. A "go / no go" decision will be made for the entire project by the Project Board.

For large projects the Project Initiation Report will include the project level schedule (Project Plan) and a detailed schedule (Stage Plan) for the next stage only. A "go / no go" decision for the next stage will be made by the Project Board. Upon completion of this next stage, a recommendation to proceed with the entire project will be made to the Capital Acquisition Committee. The Project Schedule consists of:

- Project Level WBS Description
- Major Products List
- Overall Project Schedule

The Stage Plan for the next stage consists of:

- WBS Description Report
- Products List
- Resources Requirement (including roles and responsibilities)
- Baselined Stage Schedule
- Cost Worksheet for the next stage

By agreeing to the plans, the Project Board are committing to the provision of funding and other resources, and understanding and accepting the assumptions, pre-requisites and risks. They must ensure that appropriate Progress, Quality and Change Control procedures are being administered effectively.

Task .010 Compile Project Initiation Report

For medium and large projects, collate all the elements of the Project Initiation Report, and the project and stage plans, into a single product for review by the Project Board.

Task .020 Prepare Project Imitation Stage Assessment

Decide what decisions the Project Board must make. These will cover issues that have arisen during Project Initiation, and the decision on how to proceed with the project.

Determine the recommendations to be made to the Project Board concerning those decisions. If the development Stage Manager and the Client Co-coordinator disagree, then record both with supporting arguments.

Determine the information the Project Board needs to make the decisions.

Determine the best way to provide that information to the Project Board.

Prepare advance material for the Project Board.

Arrange and schedule a Project Board meeting and send out the advance material.

Prepare a structured agenda for the Project Board meeting.

Prepare a brief report covering the work carried out during the stage.

Task .030 Conduct Project Initiation Stage Assessment

Follow the prepared agenda and present the results of the stage to the Project Board.

Make recommendation.

Task .040 Follow-Up Project Initiation Stage Assessment

Update the Project and Stage Plans based on the decisions made by the Project Board.

Create a Stage End Approval Report and obtain Project Board signatories. Record any qualifications.

Task .050 Compile Small Project Initiation Checklist

For small projects, create the Small Project Initiation Checklist. Attach the original Blue Form.

Task .060 Prepare Small Project Assessment

The Project Initiation Checklist is to be reviewed by the following parties in order to obtain the "go / no go" decision:

- Client Originator,
- Client Originator's Manager (Department Manager),
- development Project Manager,
- development Manager.

By agreeing to the Project Initiation Checklist the parties are committing to the provision of funding and other resources, and understanding and accepting the assumptions, pre-requisites and risks.

Determine the best way to obtain this decision. Either distribute the Project Initiation Checklist to the individuals or organize a meeting.

Task .070 Review Small Project Assessment

Ensure that the parties clearly understand the character of the project, and how it will be executed. Provide the parties with adequate information to enable them to make a "go / no go" decision. Assess the urgency of the project relative to other outstanding projects. Where possible set an expectation of the project Start and End date.

Task .080 Follow-Up Small Project Assessment

Authorized small projects will be subject to the Small Project prioritization process. Rejected small projects are removed from the prioritization process.

Project Control

Objective

To

- manage project work during a stage and prepare for the next

stage, in a way that

- controls project progress,
- controls the quality of project products,
- controls any changes that occur to previously agreed products,
- manages the configuration of the component products of the stage and the project,
- resolves any issues identified during the stage,
- provides consistent reports to management as defined in the stage schedule,
- controls the commitments of the project team and the expectations of the client,
- provides appropriate decision making information,

so that

- this stage can reach a successful conclusion and the project can progress to the next stage.

Overview

During a project stage, the focus should be on carrying out the work planned for the stage. However, there are many project management activities that need to be carried out in addition to the project work itself. In this methodology, these activities are arranged into a series of steps. These steps fall into four categories:

- a step to initiate the stage,
- steps that are carried out on an on-going basis throughout the stage,
- steps that are carried out at the end of the stage,
- a step that is only carried out in an exception situation.

Most of these activities are planned for in the project and stage planning. The procedures that are defined during Project Initiation, and are revised during further stage planning, are followed in these steps.

The Project Management activities include:

- monitoring and controlling project progress, through the use of regular checkpoints involving the project team and formal reviews with the Project Board,
- controlling the quality of products,
- controlling the way changes to baselined products are implemented,
- controlling and resolving issues that arise during the course of the project.

Several of the activities will result in changes to the stage schedule. The Stage Manager should ensure that these changes are made smoothly, and that these changes are communicated to all concerned. Any changes made to individual work assignments should be confirmed in the regular checkpoint meetings.

In the event of a stage tolerance being exceeded, an exception situation will arise. The Stage Plan will be replaced by an Exception Situation Report which will explain how the exception arose, the options examined, and the proposed actions.

Step 01: Stage Kick Off

Description

Objective

To

- start the project work on the

stage, in a way that

- gains agreement and commitment to the stage plan from the project team,
- sets up the project administration,
- initiates the on-going day by day execution of stage activities,
- initiates the stage control procedures,

so that

- the project team members can begin to work as a team for the success of the stage and project.

Overview

Once the Project Board has authorized the project to proceed with the stage, it is important to make a successful start to the work. Brief the project team on achievements to date, the more detailed plans for the current stage, and their place within the context of the overall project. There may be new team members who need to be briefed on all aspects of the project and existing team members may need to be brought up to date with any changes to the overall project plan.

Electronic and hardcopy file structures are set up to consistently maintain and administer project management and development products.

All control and documentation procedures for the stage should be established and the team should understand what these are for, how they are used, and what their individual responsibilities are.

It is possible that the stage schedule is not at a sufficient level of detail to manage and control the project on a day to day basis. This level of control may be achieved using a commitment calendar, which details each person's work on the project for a rolling four week window. This is initiated at stage start up and updated regularly as the project progresses.

Task .010 Setup Stage Administration

The Process Manager will assign each new project a project mnemonic or acronym which is to be used in all naming conventions.

Set up the project administration. Paper based and electronic versions will be maintained concurrently. Establish the Directories and create a master index.

Setup a hardcopy Project Binder with the following sections and contents:

Plans

- Project Initiation Report,
- Baselined Stage Schedule,
- Progress Control Tracking Schedules,
- Summary Cost Worksheet.

Change

- Change Control Requests,
- Change Control Log.

Issues

- Issue Log

Quality

- Quality Review Schedule,
- Quality Review Agendas,
- Quality Review Exception Item Lists.

Status

- Status Reports
- Flash Reports
- Stage End Report(s)
- Stage End Approval Report(s)

Create the following Server based PMC directory structure for the project: Plans

- Project Initiation Report,
- Baselined Stage Schedule,
- Progress Control Tracking Gantts,
- Summary Cost Worksheet.

Change

- Change Control Requests,
- Change Control Log.

Issues

- Issue Log

Status

- Status Reports
- Flash Reports
- Stage End Report(s)
- Stage End Approval Report(s)

Task .020 Establish Checkpoint Cycle

Establish the project checkpoint cycle.

It is recommended that the checkpoint cycle be of one week duration. Determine the start and end day.

For example, Checkpoint Cycle of Thursday thru Wednesday. Progress will be captured for the period 8.00am Thursday through to 5.00pm the following Wednesday. The plans will be updated for the Status Meeting on Thursday.

Task .030 Initiate Stage Version Control

Create one or more Development Product Directories, as appropriate, to file either electronically or on paper where the stage development products will be located.

Update the Process Engineer Project File with the Product path for each development product. This will support document management and access.

Products which have a Quality Review status of "QR Complete" or "QR Qualified & Complete" will be require a baseline version number. If a product is made up of multiple components, establish a version number for each component.

Identify the team member who will exercise configuration control for the development products. This role will be responsible for controlling the revision of versioned products.

Task .040 Acquire Stage Resources

Acquire the resources required to carry out the stage.

Task .050 Brief The Team

Brief both the project team and the key resources on the expectations for the stage.

Walkthrough:

- stage objective,
- planned activities,
- products,
- organization, roles and responsibilities,
- metrics,
- project controls.

Task .060 Initiate Stage Control Procedures

Initiate the control procedures:

- Checkpoint Cycle,
- Progress Controls,
- Status Reporting,
- Change Control Log,

- Issue Log.

Step 02: Project Board Meetings

Description

Objective

To

- setup and manage an effective Project Board,

in a way that

- ensures that all Project Board Members understand and accept their roles and responsibilities,
- ensures the Project Board provides executive direction to the project,
- ensures the Project Board is notified of project status and issues on a timely basis,
- enables the Project Board to provide guidance to the Project Manager,
- enables the Project Manager to obtain executable decisions,
- guarantees ownership of the project by the Project Board,

so that

- the project is organized for success.

Overview

The Project Board is the executive authority of a project. It authorizes the project to proceed, change direction or stop. It enters in to a contract with the Project Manager through the Project Initiation, Project and Stage Plans, to provide the executive support and resources required to execute a project which will deliver the specified products to schedule and budget. In effect, the Project Board acts as the project guardians, enabling the Project Manager and Project Team to do their job protected "from the arrows of outrageous fortune".

The Project Board is not expected to have a close day to day association with the project, that after all is the responsibility of the Project Manager. However, they do need to meet with the Project Manager periodically to review the achievement of objectives, scope, schedule, budget and quality products, and to resolve outstanding issues and change requests.

The Project Board should view the project as an investment intended to yield significant business benefits. Failure to achieve those benefits reflects as much upon the control exercised by the Project Board as it does on the execution of responsibilities by the Project Manager and Project

- Monitor the successful application of development standards.

Task .040 Prepare for Project Board Meeting

It is the responsibility of the Project Manager to schedule standing Project Board meetings at the beginning of the project. Confirm the logistics of the next meeting, namely date, time and conference room.

Create the meeting agenda. It is recommended that you use the Word 6.0 Agenda Wizard (standard style) to create the agenda. This Wizard also creates the skeleton meeting minutes. Confirm the agenda with the Project Sponsor.

Assemble any additional documentation that requires reading as preparation for the Project Board meeting.

Distribute the meeting agenda and additional documentation at least 3 days prior to the meeting.

Confirm individual Project Board member attendance. Where a Project Board member is unable to attend, it is that individual's responsibility to arrange a substitute, and to notify the Project Manager.

Identify a documenter to take meeting minutes.

Task .050 Conduct Project Board Meeting

The Project Manager will conduct the meeting according to the agenda.

See the tasks below for suggested discussion points for specific types of Project Board meeting.

Confirm attendance and logistics of the next meeting.

Task .060 Follow-up Project Board Meeting

Create the meeting minutes. It is recommended that you use the Word 6.0 Agenda Wizard (standard style) to create the meeting minutes. Distribute to all Project Board members. File a copy in the Project Binder.

Task .070 Project Initiation Stage Project Board Meeting

The Project Initiation Report is the contract between the Project Manager and Project Board concerning the execution of the project. Although this meeting is not intended as a detailed "line item" review, it is important that the Project Board fully understand and accept the Project Initiation Report. If the Project Board authorizes the project to continue they must be prepared to provide unconditional support to the Project Team.

Topics for discussion include:

Project Initiation

- Project objective statement
- Scope

- Initial requirements
- Constraints
- Project approach (stage objectives)
- Project and stage products
- Project organization (project board, key stakeholders and project coordinators)
- Resource equivalent requirements
- Project costs, benefits and viability
- Risks and issues
- Recommendation

Project Plan

- Project schedule

Stage Plan

- Stage and step objective statements
- Stage and step products
- Stage schedule, including probable start date
- Project team resources
- Key client and technical resources

Task .080 End of Stage Project Board Meeting

Review the Stage End Assessment Report. The objective is identify key learning's from this stage and apply them to the next stage. It is all a matter of reducing risk and setting realistic expectations. Consider the following questions:

Objective

- Is the project objective statement still valid?
- How has the objective statement changed?

Scope

- Were all the tasks completed as specified?
- Were any tasks not executed and why?
- Were any additional unplanned tasks executed and why?

- Were the tasks executed in the planned sequence, and if not, why?
- Has scope changed without being subject to a formal change request?
- How many change requests were received, analyzed, accepted and or rejected?

Schedules

- Did the stage exceed schedule, and if so, by how much and why?
- What recovery actions, if any, were taken?
- Was a Tracking Gantt chart maintained?
- How effective were the progress controls?

Cost

- Did you monitor stage costs?
- Did the stage exceed budget, and if so, by how much and why?
- What recovery actions, if any, were taken?

Products

- Were the planned products produced?
- What planned products were not produced and why?
- What additional products were produced and why?
- What additional products should have been produced?
- Did the format and medium of products change from plan?
- Where is the Quality Plan?
- What products failed quality review, or were accepted with qualification?
- How effective was the quality review process?
- Do the products provide an effective baseline for future development and maintenance?

Client Alignment

- Are client representatives still committed to the project?
- Did the project organization (system and business) present obstacles to progress?

- Were the clients available when required and for long enough?
- Did the clients effectively participate in the project?
- How often did the Project Board meet?
- Did the Project Board meet as scheduled?

Issues

- Are there any unresolved business issues?
- Are there any unresolved technical issues?

Risk

- Did the Critical Success Factors correctly identify possible risks?
- What additional factors impacted the project?

Review the Project Plan

- Revised project schedule
- Revised project costs
- Revised project benefits

Review the Next Stage Plan

- Stage and step objective statements
- Stage and step products
- Stage schedule
- Project team resources
- Key client and technical resources
- Recommendation

Task .090 Intra-Stage Project Board Meeting

Agenda items for discussion include:

- Project progress
- Stage progress vs. schedule
- Actual stage costs vs. budgeted stage costs
- Quality Plan

- Issues Log (including specific decisions required of the Project Board)
- Change Requests (awaiting authorization)
- Change Request Log
- Risk and mitigation measures

Task .0100 Project Closure Project Board Meeting

Report to the Project Board the results of the Post Implementation Review. This assesses the performance of the new system against the objectives planned. It also identifies and captures metrics and factors that will improve the development process.

Determine whether the project achieved it's objectives and whether it was a success.

Evaluate team achievements and determine suitability of awards.

Step 03: Quality Control

Description

Objective

To

- confirm that a product is complete,

in a way that

- involves business and technical staff,
- ensures that products meet defined technical standards,
- ensures that products meet business requirements,
- ensures clarity of the product,
- ensures that there is no ambiguity in the product,
- establishes a baseline version of the product,
- continually improves the quality control procedure,

so that

- the related project activities can be signed off as completed and the project can progress.

Overview

ISO9001 definition of quality; "The totality of features and characteristics of a product or service which bear on its ability to satisfy a given need"

Work on a product can only be considered complete when the product has been tested against acceptance criteria, that have been previously established for the product. It is important that those criteria are established in advance since it is difficult to produce a product if you do not know what it is you are trying to produce.

When quality control is correctly applied, it can make a project team more effective, since it prevents situations where work has been carried out based on a product that is not acceptable.

Establish the degree of quality control to be applied to each product during the planning work for a stage. This step is used when a product is thought to be complete, and the product is either confirmed as complete, or corrected until it is confirmed as complete

The underlying quality principle applied in this methodology is that a quality product is achieved by using a quality process, and quality control is a final but necessary step in that quality process. The quality process itself should be reviewed to ensure that it is achieving the objectives set for the process.

Task Summary

.010 Schedule Quality Review

.020 Prepare for Quality Review

.030 Conduct Quality Review

.040 Follow-up Quality Review

.050 Review Quality Control Procedures

Project Control : Step 03: Quality Control

Task .010 Schedule Quality Review

Schedule the Quality Reviews for the current stage.

The WBS identifies the resources fulfilling the "review" responsibilities. The schedule will determine when the Quality Reviews need to take place. In practice these dates will need to be adjusted to fit individual's calendars.

Alternatively, Quality Reviews can be explicitly defined as separate milestone tasks, without successors.

It is recommended that Quality Reviews be scheduled at the beginning of the stage to occur regularly every two or three weeks. This will ensure that reviewers are aware well in advance when they are to participate, and it will reduce scheduling conflicts. It will also motivate the project team to create small products at regular intervals. Quality Reviews can always be postponed if the products are not ready for review.

Software Guidelines

Task .020 Prepare for Quality Review

Create a Quality Review Agenda specifying the objective, products, logistics, roles, responsibilities and agenda of the Quality Review.

Distribute the Quality Review Agenda and the product to the reviewers not less than 3 working days prior to the review.

The reviewers are required to review the product before the Quality Review meeting. They will annotate the product with comments and errors.

Clients will review the product to ensure accuracy and completeness of business content.

Technical reviewers will evaluate the product against specific standards which define the structure, format and content of the product.

Task .030 Conduct Quality Review

The Quality Review is to be conducted in a structured and formal manner. Participants will fill the following roles:

Facilitator

review logistics

ensures that the appropriate follow up action is taken,

notifies the Stage Manager of the results,

files the Quality Review Exception Item List in the Project Binder

Reviewer

- identifies deficiencies in the product in the light of their prepared comments,
- does not suggest solutions in order to expedite the review.

Author

- presents the deliverable,
- provides clarification, but not to defend the product,
- understand identified deficiencies,
- corrects the product after the Quality

Review. Documenter

- record identified deficiencies in the Quality Review Exception Item List (Item #, Reviewer, Product Section, and a Comment on the deficiency).

At the end of the Quality Review the status of the product will be determined:

"QR Complete", whereby the product is complete and meets the prescribed quality standard.

"QR Qualified & Complete", whereby some deficiencies have been identified to be corrected, but does not require another formal Quality Review.

"QR Qualified & In Progress", whereby the deficiencies are sufficiently numerous or serious to warrant correction and another formal Quality Review.

Task .040 Follow-up Quality Review

For products with a status of:

"QR Complete", the Facilitator will notify the Stage Manager who will update the product status from "In Progress" to "QR Complete".

"QR Qualified & Complete", the author will correct the product from the Quality Review Exception Item List and annotated copies of the product. The author may wish to discuss solutions with other individuals, including the reviewers. The author will also update the Quality Review Exception Item List with the "Action" taken. Upon completion the author will notify the Stage Manager who will update

"QR Qualified & In Progress", the Facilitator will notify the Stage Manager who will update the product status from "In Progress" to "QR Qualified & In Progress". The author will correct the product from the Quality Review Exception Item List and annotated copies of the product, and schedule another Quality Review. The author will also update the Quality Review Exception Item List with the "Action" taken.

Software Guidelines

Task .050 Review Quality Control Procedures

Review the Quality Review Procedures undertaken during the Stage. Verify that the level of control is appropriate, that the quality objectives for each product are appropriate and that all participants are satisfied both with the process and its outcome.

Step 04: Progress Control

Description

Objective

To

- monitor and control progress on the

project, in a way that

- collects actual work and cost performance information,
- collects latest estimates to completion,
- compares actual performance with plan,
- determines the causes of the deviation,
- promotes re-planning,
- identifies out of tolerance situations,
- involves all parts of the Project Organization.

Control

The project work can be carried out as scheduled

Monitoring

The progress control procedures that are defined during the Project Initiation stage form the basis of the progress control during project stages. These procedures cover day to day progress tracking amongst the team, up to Project Board reporting.

Checkpoints are held throughout the project at weekly intervals and provide the mechanism for monitoring and controlling the day to day work on the project. Performance information is captured and plans are updated prior to the Project Status meeting. This enables the meeting to concentrate on determining what to do next.

Defining the control procedures includes the setting of tolerance levels for project performance.

When the stage tolerance is exceeded, the Stage Manager should carry out the tasks in the Exception Situation step, to regain control of the project.

Task .010 Capture Performance

Create the timesheets and distribute to the project team members at the beginning of the checkpoint cycle.

Capture from each team member the following:

- actual start date for tasks started this period,
- actual finish date for tasks finished this period,
- actual work (effort) in hours per task this period,
- latest estimated work in hours to complete the task,
- latest estimated elapsed time (duration) in hours to complete the task. Capture any non-staff costs incurred this period.

Software Guidelines

Task .020 Update Schedule

Update the schedule by task by resource for the following:

- actual start date for tasks started this period,
- actual finish date for tasks finished this period,
- actual work (effort) in hours per task this period,

assigned 50% to a task and the estimated work to complete is 3 days. The scheduler will recalculate the end date to be 6 working days hence. However, the resource has stated that the elapsed time to complete is 10 days because of a training class. In this example, update the resource calendar to remove the 4 days of the class from the calculation.

Software Guidelines

Task .030 Update Costs

Update the Stage Cost Summary worksheet with:

- actual costs incurred this period,
- estimated remaining costs

Staff costs will be automatically updated from the scheduler, since they are calculated from actual work.

Non-staff costs (Hardware & Network, Software, Project Training, Installation Training and Miscellaneous Items) will be updated directly in the Stage Cost Summary worksheet. In practice it is expected that these non-staff costs will be maintained at a stage level, rather than by checkpoint.

Software Guidelines

Task .040 Re-plant Stage Schedule

Review the Tracking Gantt and Cost Workbook and identify any deviation from the baseline. Establish why the deviation has occurred. Refer back to the Project Control Factors to help determine the appropriate corrective action and adjust the schedule accordingly. Actions include:

- do nothing,
- accept a date slippage, within the project tolerance levels,
- adjust staff availability,
- reassign staff,
- assign additional resources,
- coach and motivate the staff to work more effectively,
- resolve scheduling conflicts,
- expedite fuller client participation
- reduce the number of tasks,
- substitute tasks.

Determine if the stage has exceeded the progress, cost and quality tolerance levels agreed with the Project Board. If the stage is out of tolerance then execute the tasks in the Exception Management step to regain control of the project.

Review status of open issues and determine any further action required on these issues.

Review the status of any outstanding quality reviews.

Review any new Change Requests.

Revise the schedule.

Software Guidelines

Task .050 Conduct Team Status Review

Conduct a Status Meeting with the Project Team.

It is beneficial to conduct the Status Meeting according to a formal standard agenda.

Items for discussion are:

- achievements this period,
- planned activities that are incomplete or overdue,
- activities for the next period,
- new issues identified this period,
- issues closed this period,
- summary of results of quality reviews,
- summary of schedule and cost status,
- suggested revisions to the plan,

The Status Meeting is an opportunity to exchange information between all members of the Project Team.

Task .060 Create Status Report

The Status Report provides a record of current achievements and immediate expectations of the project. It provides an accurate history of the project, effectively communicates to all interested parties the current status of the project, and integrates progress tracking, change control and issue management.

Create the weekly Status Report. List:

- accomplishments this period,
- items not completed this period,

- proposed activities for the next period,
- reference new issues identified this period from the Project Issues Log,
- reference any issues resolved this period from the Project Issues Log,
- identify any predicted slippage to the stage schedule, along with cause and corrective action,
- identify any predicted cost overrun, along with cause and corrective action.

Distribute to the Project Team and the development Manager directly responsible for the Project Manager.

Retain an electronic and paper copy of the Status Report.

Task .070 Update Stage Schedule

Following to the Status Meeting make any additional adjustments to the schedule and Stage Cost Summary worksheet.

Software Guidelines

Task .080 Create Flash Report

Create the Flash Report at the end of the month.

Summarize the accomplishments for the month, schedule status, upcoming tasks for the month, and any major issues.

Distribute to the Project Team and Project Board. Retain

an electronic and paper copy of the Flash Report.

Step 05: Change Control

Description

Objective

To

- control the addition of work to the stage

activities, in a way that

- assesses the value of the change request,
- presents alternative solutions,
- assesses the impact of the alternative solutions,

- records all change requests and resulting actions,
- enables changes to completed products,

so that

- the Stage Managers and Project Board can make controlled changes to project scope, schedule and cost.

Overview

As a project progresses, the people involved with the project develop a better understanding of what the end product should be and what they need to do to produce the product. This increased understanding manifests itself as changes to the stage activities, and changes to the products. This will disrupt:

- project and stage schedules,
- project and stage costs,
- project scope,

Such changes cannot always be avoided, but their impact can be predicted and controlled.

Change requests may come from a variety of sources but they will require Project Board sponsorship to be processed. The originator will describe the change request and provide a justification.

Alternative solutions, and their respective impacts on the project, will be identified and a recommendation made.

The recommendation will be presented to the Project Board who will decide whether to accept it or make an alternative recommendation.

Task .010 Request Change

This is a formal request from either a member of the project team, a client, a coordinator or Key Stakeholder to make a change to the project scope or functionality. The originator must obtain sponsorship from a Project Board member for the proposed change request.

The proposed change request will be submitted on a Change Request Form by the originator. Before it can be accepted as a proposed change request the originator must complete the following information:

- Request Title,
- Originator's Name,
- Originator's Phone/Email/Mailstop,
- Sponsor's name,

- Description, of the proposed change,
- Justification, for the change, with quantified benefits,
- Originator's priority.

The Stage Manager will review the change request and assign it to someone to investigate alternative solutions.

The Stage Manager will update the Change Request Form:

- assign a unique Change Request #,
- update the Request Date,
- set status to "Open",
- update "Assigned To" and "Response Date". The

Stage Manager will update the Change Request Log.

Task .020 Identify Alternative Solutions

Evaluate the change request and identify several alternative

solutions. Assess the impact of each solution on:

- Functional Scope, including baselined products, tasks in progress and future tasks,
- Schedule,
- Effort,
- Cost.

One solution may be to reject the change request.

If a solution will force the stage out of tolerance, explicitly state this on the Change Request Form.

Make a recommendation.

Update the Change Request Form with the alternative solutions, their respective impacts, and the recommendation.

Task .030 Decide Change Actions

Present the change request, alternative solutions and recommendation to the Project Board.

The Project Board is required to either accept the recommendation, chose an alternative solution, or request further investigation.

Update the Change Request Form

- update "Action", "Authorized By" and "Authorization Date".

set status to "Close"

Change Log:

- update "Status" and "Close Date".

If the Project Board requests further investigation then the Change Request remains open.

Notify the originator of action.

If the chosen solution will cause the stage to exceed the tolerance limits then the Project Board may require the Stage Manager to produce an Exception Situation Report which will replace the Stage Plan.

Task .040 Implement Change

Make appropriate schedule and other project plan adjustments and communicate these to team members impacted. Include activities to monitor progress and execute quality control on the changes.

Step 06: Issues Management

Description

Objective

To

- resolve issues affecting the success of the project,

in a way that

- identifies issues affecting the project,
- assesses the extent to which issues affect the project,
- identifies actions to resolve issues,
- involves the appropriate level of management to make decisions on issues,
- tracks progress on issues,

so that

- the project can be carried out as planned

Overview

There will always be issues that arise during the course of a project. Some of these issues may have a bearing on the project, and some will be of little consequence.

Issues can arise from within the Project Organization and from the environment that impacts the project.

Any issues that arise should be evaluated and dealt with as efficiently and effectively as possible.

An issue can often linger on, even after it has supposedly been resolved, so it is important to track issues to complete resolution.

Task .010 Identify Project Issue

Identify and describe an issue that is thought to affect the project. Determine whether to pursue the issue and, if any further research is required before assessing the issue, assign someone to research the issue.

Update Issue Log as follows:

- Assign a unique Issue No.
- Issue Title
- Type
  - Internal, where the issue can be resolved by the project team.
  - External, which cannot be resolved by the project team, but requires client or Project Board resolution.
- Priority
  - 0 irrelevant, since it does not impact the project in any way,
  - 1 low, whereby the unresolved issue will not impact current stage schedule,
  - 2 medium, whereby the issue will impact the stage schedule if not resolved within four weeks,
  - 3 stage stopper, whereby the issue must be resolved for work to continue on the current stage,
  - 4 project stopper, whereby the issue must be resolved by the end of the stage for work to continue on the project.
- Originator's Name

- Status (Open or Closed)

Forward the issue to the appropriate team member, client, coordinator or Project Board member for assessment and recommended resolution.

Task .020 Assess Impact of Issue

Consider the potential impact of the issue on the project:

- what happens if the issue is not actioned?
- will it impact project scope?
- will it impact the quality of the final product?
- will it cause the project to go out of tolerance?
- will it impact resource usage?
- will it change the project benefits?
- will it increase project risk?

Determine how the issue might be resolved.

Update the Issue Log with the recommended "Resolution".

Task .030 Resolve Issue

Determine whether the to accept the recommended resolution.

If the recommendation is accepted, and no additional effort is required, execute the resolution. Set Issue status to "Closed". Update Close Date.

If additional effort is required to execute the recommended resolution, create a Change Request. Set Issue status to "Closed".

If the recommendation is unacceptable, then determine next steps. Issue status remains "Open".

Step 07: Exception Situation

Description

Objective

To

- take corrective action when a project is off course,

in a way that

- minimizes impact to the project,

- gains agreement from all parts of the Project Organization,

so that

- the project can still be successfully completed.

Overview

The Project Initiation Report defines the project tolerances with respect to:

- cost,
- schedule,
- quality.

During the lifetime of a project it is possible that:

- a stage tolerance set by the Project Board is or will be exceeded,
- a major technical deviation is identified and recorded,
- an important dependency from another project is not available.

Their effect is that the current Stage Plan will not be met and so the Stage must be re-planned in the light of the new situation. This is done by preparing an Exception Report.

An Exception Report serves the essential purposes of any plan; it must contain all the information normally given in Stage plans since, after approval, it will replace the current Stage Plan. In addition it shows the effect on the project of exceptional situations; for this reason the exception plan includes information on the exception that has arisen, the options that have been examined and the action that it is proposed to take.

In addition to the information contained in the Stage Plan, an Exception Report contains the following:

- an explanation of why a given situation is an exception and the circumstances that led to the situation,
- a prediction of the schedule, cost, schedule, functional, quality and technical impact if no action is taken,
- the recommended recovery action (changes to scope, organization, budget, timescale, etc),
- the consequences of this corrective action on both the Stage Plan and the Project Plan,
- a recommendation.

The Exception Report is prepared by the Stage Manager and submitted to the Project Board at a Mid Stage Assessment (MSA). Consideration should be given

to both the project objective statement and the original Control Factors when considering recovery actions. If approved it becomes the effective plan for the remainder of the stage.

tep 07: Exception Situation

Task .010 Analyze Cause of Exception Situation

Confirm which component of the project is out of tolerance. Ensure that the control measuring the tolerance is functioning correctly.

Analyze the causes of the Exception Situation. These may include:

- resource utilization and availability,
- resource productivity and performance,
- external factors,
- under estimating,
- scope creep,
- quality issues requiring the rework of products.

Assess the impact on the project of doing nothing, and continuing with the original plan, with respect to:

- stage and project schedule,
- stage and project cost,
- scope,
- quality of development products,
- inter-project dependencies, both business and technical projects.

Task .020 Create Exception Plan

Review, from the Project Initiation Report, the Project Objective Statement, Measures of Project Success and the Control Factors. They will help to focus on identifying the most effective changes.

Consider each aspect of the project, identify appropriate changes and define their probable impact.

Dimension of Scope

- functional,

- creates an Exception Plan which replaces the original stage and project plan.

If it is not clear what option should be taken, prepare an analysis of the options for the Project Board together with an outline Exception Report for each option.

Task .030 Prepare for Exception Assessment

Arrange a project assessment meeting of the Project Board to decide what course of action to take on the project.

Prepare an agenda and any presentation material that will be required to present the Exception Report to the Project Board in order for them to make a decision.

Task .040 Conduct Exception Assessment

Conduct the Project Assessment meeting. The Project Board should make a decision on how to proceed with the project, that the Stage Manager and Project Team can follow.

Task .050 Follow-up Exception Assessment

Record the decision made by the Project Board and take the appropriate action.

In most cases, this will be a series of additional project activities that are required to address the causes of the Exception Situation.

Execution of the Exception Plan may require invoking the Change Management process.

Step 08: Stage End Assessment

Description

Objective

To

- document the results of the current stage and prepare for the next stage and have the results reviewed by management,

in a way that

- provides a summary of the work carried out in the stage,
- identifies the tasks necessary to carry out the next stage of the project,
- develops a schedule for the next stage of the project,
- provides a comprehensive package of information from which a decision can be made,
- gains agreement on any revisions to the scope of project,

- gains agreement on any revisions to the overall approach and schedule for the project,
- gains agreement on any revisions to the Business Case for the project,
- gains agreement on any revisions to the Project Organization,
- gains commitment to making the necessary resources available for the project,
- gains agreement to the approach and schedule for the next stage of the project,
- gains agreement to any changes to the control procedures defined for the project,
- provides a record of the project and stage plans for use in managing and controlling the project if it gets authorization to proceed,
- confirms that the stage is complete,

so that

- a decision can be made as to whether to commit to and authorize the project to proceed.

Overview

An Stage End Assessment should be held at the end of every stage in the project. The Stage Manager and Project Team report their progress and recommendations to the Project Board to gain the Board's approval to either to proceed with the next stage, or to confirm that project has been satisfactorily completed. This assessment reviews the overall progress of the project and the plan for continuing the project.

In the same way that a detailed schedule for the next stage of the project is developed in Project Initiation, a detailed schedule for the next stage of the project is developed in every other stage, except the last.

The overall project schedule provides an overview of the activities in each stage. These activities need to be further defined for the next stage to the point where all necessary tasks have been identified. This should use the same approach as for developing the overall project schedule. That is, using a proven process, or developing the process if one does not exist.

Once this has been done it is necessary to estimate the resources required for the next stage. This should cover all personnel resources required, both full and part time, and other types of resource such as office space and equipment. A time line and cost estimate for the stage can then be developed.

The work carried out in the stage is collated into a consistent document that contains the work completed to date, plans for the Project as a whole, and plans for the next project stage.

The revised Project Plan consists of an updated version of:

- Project Scope
- Overall Project Schedule
- Overall Budget for the Project.
- Project Organization
- Business Case for the project
- Standards and Control Procedures to be used on the project

The Plan for the next stage consists of:

- Stage Schedule
- Quality Review standards for next stage products
- Control Tolerances for the next stage
- Budget for the next stage.

Developing these plans will be an iterative process and may begin early during the current stage.

A brief Stage End Report should also be produced which summarizes the work carried out during the stage and contains recommendations to the Project Board.

By agreeing plans for the next stage, the Project Board are committing to the provision of funding and other resources, and understanding and accepting the assumptions, pre-requisites and risks. They must ensure that appropriate Progress, Quality and Change Control procedures are being administered effectively.

This approval also marks the formal delegation of responsibility to the next Stage Manager for the achievement of stage products, within the time and budget, subject to the agreed tolerance levels.

Task .010 Close Stage Administration

Ensure that all project management and development products produced in the current stage are correctly filed.

Task .020 Determine Next Stage Activities

Based upon the project and stage objective, scope, constraints and assumptions, tune the stage work breakdown structure to:

- Add new steps and/or tasks,
- Remove unnecessary steps and/or tasks,
- Merge steps and/or tasks,

The project plan identified the probable steps within the stage. Now is the opportunity to reassess the steps and their associated objectives and products Removing steps and tasks may increase project risk. Document these risks and identify proposed countermeasures, which may include additional quality assurance tasks.

Determine the products to be produced by each step. Start at the end of the stage with the final deliverable, and work forwards to the beginning. Describe the objective, outline and content of each product. Validate the final product against the project and stage objective.

Within each step, identify the tasks or activities required to produce the step products. A task will have the following characteristics:

- Reference
- Name
- Description
- Input
- Output or product
- Technique (optional)
- Tool (optional)
- Role / responsibility assignment
- Resource / responsibility assignment
- Effort estimate

In this task define the Task Reference, Name, Description, Product, Techniques and Tools.

Record all assumptions and issues identified.

Task .030 Determine Activity Dependencies

Chart the sequence of stages and steps to reflect the intrinsic and architectural dependencies inherent in the project.

An output or product of one task will usually be the input to another, and this will be the primary driver in determining the task dependencies and workflow.

Determine whether the successor task references (throughput) or updates (entry requirement) the input product.

Some inputs may be sourced from outside the project. Identify these External Inputs (e.g., Long Range System Plan, Standards, Project Initiation report of another project, etc.).

Review the dependencies determined by the task inputs and outputs. Review the dependency types between the tasks. Tasks are not necessarily finish-start, but may be in parallel or phased. Where appropriate, define lags (both positive and negative) between tasks. Remove any step dependencies. It is recommended that the dependencies be kept simple and reduced to a minimum, otherwise the schedule will be very difficult to execute and will probably be abandoned.

Ensure that all dependencies with other projects are identified. Examine other Project Initiation Reports to assess inter-project dependencies.

Record all assumptions and issues identified.

Task .040 Estimate Effort

Stage schedule estimates will be determined as effort time (or work). Determine the total effort per task. Remember to include peer review and revision time if such activities are not identified as specific tasks. It is recommended that you estimate in units of an hour. Avoid estimating tasks to less than one hour. It is advisable to estimate in units of 4 hours. No task should be longer than 80 hours.

By combining small tasks and including a detailed description of the task it will be possible to simplify the schedule merely by reducing the number of tasks in the Gantt.

The task effort estimates will be apportioned to individual roles and resources in the next task.

Record all assumptions supporting the estimate in the task description. This is very important because it will enable you to recreate and substantiate the estimate. It will also ensure that you have thoroughly throughout what is to be done, and that it is communicated clearly to the Team. Estimating takes time, but it will validate the tasks, products, techniques and assumptions.

Aggregate the task estimates and compare against the original top-down step and stage estimates. If the detailed estimate is substantially different from the original top-down estimate it may be necessary to refer to the Project Board and consider revising both the project and stage plans.

Task .050 Allocate Resources

Assign roles and their associated responsibility to each task. In order to avoid overwhelming the plan with complexity focus on the "produce", "consult" and "review" responsibilities. The "approve" responsibility will generally apply only to the Project Board. The responsibilities are defined as follows:

- Produce: to create the product of the task. Usually applies to Project Team Members like Business Analysts, Systems Analysts and Programmers. The schedule will be simpler to balance if only a single role is assigned per task.

- Consult: provide information required to produce the task. Usually applies Coordinators and Key Resources.

- Review: review the product for correctness, accuracy and completeness. Usually applies Coordinators and Key Resources.

- Approve: official signoff. Usually applies to the Project Board.

Assign resources to the roles and responsibilities.

Apportion the total task effort estimate to the resources. As a tip, the schedule will be much easier to balance if the task effort estimate is apportioned entirely to the a single "produce" resource. Therefore this estimate should include time for the other "consult" and "review" resources, e.g., Client review, DBA review. Although this is a simplification, it is still applicable if the non-project team costs are excluded from the plan, since the estimates are primarily for the Project Team. The "consult", "review" and "approve" resources still need to be assigned to tasks, albeit at zero work, in order for them to be included in the schedule.

Define by task the resources availability (unit). The scheduler will calculate task duration as effort / unit.

Task .060 Prepare Next Stage Schedule

Develop an initial schedule of project activities.

Determine the proposed stage start date and use the scheduler to calculate the step and task start and end dates. Validate these dates against the project constraints.

Review the project objective, constraints and control factors before attempting to balance the plan. Deadline, resource utilization and costs can be adjusted as follows:

- Modify dependencies,

- Modify dependency type (finish-start, lag, etc.),

- Modify tasks and therefore the effort estimate (avoid arbitrarily reducing estimates),

- Assign more resources (task duration will theoretically be reduced if more resources are applied to the task),

- Reassign more proficient resources,

- Provide productivity enhancing tools,

- Train and coach team members,

- Motivate team members,

- Increase resource availability,

Modify task descriptions and assumptions to record all the adjustments to the plan. Failure to do this will result in a mismatch between the original plan and the current schedule, and reduce the probability of project success.

Task .070 Prepare Next Stage Budget

Determine staff costs at the task level. This is a function of the resource work and chargeable rate. The Process Manager will supply standard hourly rates for both Internal Staff and External Contractors.

Determine non-staff costs for the stage by category. The categories are:

- Hardware & Network
- Software
- Project Training, training the project team to execute the project
- Installation Training, training the clients, operations, etc. to use the application
- Miscellaneous, includes supplies, copying of training materials, accommodation, subsistence, travel, or other costs which cannot be classified above.

Task .080 Baseline Next Stage Schedule

Once a satisfactory balanced stage schedule and budget has been achieved, baseline it. This will retain a record of the original start and end dates, work and duration estimates, and staffing costs

Actual progress will be monitored against this baseline.

Task .090 Update Project Schedule

Update the overall Project Schedule to reflect the details of the Next Stage Schedule.

Task .0100 Review Project Budget

Review the overall Project Budget, and make changes based on the latest Project Schedule

Task .0110 Review Business Case

Update the Business Case to reflect any changes in Costs, Benefits and Risks for the project.

Task .0120 Review Project Organization

Review the resource requirements from the Next Stage Schedule and update the Project Organization accordingly.

Task .0130 Review Project Scope

Review the latest statement of the Project Scope and ensure that it still accurately reflects the current status and plans for the project.

If the Project Scope is subject to Change Control, it should be up to date.

Task .0140 Compile Stage End Assessment Report

Collate all the elements of the project and next stage plans into a single document for review by the Project Board.

Summarize the achievements of the preceding stage, highlighting any issues concerning quality, cost, resource utilization, schedule, etc.

Verify that the project objective, scope, approach, products, organization, control factors, cost justification and risk are still valid. Highlight any changes.

Task .0150 Prepare Stage End Assessment

Decide what decisions the Project Board must make. These will cover issues that have arisen during the previous stage, and the decision on how to proceed with the project.

Determine the recommendations to be made to the Project Board concerning those decisions. If the development Stage Manager and the Client Co-coordinator disagree, then record both with supporting arguments.

Determine the information the Project Board needs to make the decisions.

Determine the best way to provide that information to the Project Board.

Prepare advance material for the Project Board.

Arrange and schedule a Project Board meeting and send out the advance material.

Prepare a structured agenda for the Project Board meeting.

Prepare a brief report covering the work carried out during the stage.

Task .0160 Conduct Stage End Assessment

Follow the prepared agenda and present the results of the stage to the Project Board.

Make a recommendation to the Project Board and ensure the Project Board makes a decision.

Task .0170 Follow-up Stage End Assessment

Update the Project and Stage Plans based on the decisions made by the Project Board.

Create a Stage End Approval Report and obtain Project Board signatories. Record any qualifications.

Project Closure

Objective

To

- formally close the

project in a way that

- establishes mechanisms for the continued development or improvement of the final product of the project,
- improves the standard process for this type of project,
- updates the estimating model for this type of project,

so that

- the project resources can be re-deployed.

Overview

All good things must come to an end. Projects are designed to end at some point, that is the nature of project work. To gain maximum benefit from a project, the project should go through a formal close down.

There may be some outstanding work that needs to be carried out on the products of the project. This work should either be canceled, or mechanisms, such as a maintenance program, or additional projects, should be established to complete the work.

The project will have been using several lists and tracking mechanisms, such as the change request log and the issues log. These need to be formally closed.

The members of the Project Organization will have learnt how to carry out this type of project better in the future, and will have a better idea of how long the various activities on this type of project will take to do. These learnings should be captured for future use.

There will be a lot of information generated during a project, and this will have been stored with varying degrees of formality by the members of the Project Organization. This information needs to be formally filed away for possible future use.

Step 01: Description — Final Product Evaluation

Objective

- determine the overall quality of the final product and to implement a mechanism for improving or maintaining that quality,

in a way that

- evaluates the product against the original objectives identifies outages in the final product determines how to address any outages,

so that

- the overall project objectives can be met.

Overview

By this time in the project, all project work should have been completed, and the products of the project should have been accepted by the customers. It is possible however, that the final products do not fully meet the original objectives and requirements.

Before the project is completely finished, any outages in the products should be identified and evaluated. If it is decided that the outages need to be fixed, it will be necessary to set up a mechanism to carry this out. This may be by a new project, or a maintenance program.

If the product fully meets the original objectives and requirements, it is still necessary to consider how to maintain the product.

Task .010 Prepare Product Evaluation

Determine what form the final evaluation of the product should take. It could be:

- a meeting
- a quality review
- a questionnaire

Make sure that the evaluation includes an evaluation against the Business Success Criteria that were defined during the Project Initiation Stage. However, it is also important to evaluate the overall quality of the final product in respect of its ability to meet current requirements.

Prepare and distribute material as appropriate.

Task .020 Conduct Product Evaluation

Carry out the evaluation in the chosen way.

Determine if the project has been successful in relation to the original Business Success Criteria.

Determine if the product does meet all requirements. If the product does not meet requirements, identify the shortcomings and record them.

Determine if any of the shortcomings with the final product need to be addressed. If there are any items that need action, decide on the best way of addressing the items. Options include:

- do not close the project
- define a follow-on project
- initiate a maintenance process

Task .030 Initiate Maintenance Process

If there is a need for on-going maintenance of the final product, a maintenance process should be initiated.

If the organization does not have a maintenance process, this should be established. This should be a formal defined process, that involves business and technical staff in the identification, approval for work, carrying out the work and quality control of work.

There may be some maintenance work already identified, and this work should go through the defined maintenance process.

ep 02: Project Completion
escription

Objective

To

- complete all outstanding project

work, in a way that

- reviews outstanding project items,
- resolves outstanding project items,

so that

- the project can be formally closed.

Overview

The project will have been using a number of control procedures that produce logs of change requests and issues.

The logs need to be reviewed for a last time, To make sure that all items have been closed. If any items have not been closed, they should be evaluated to see if they still have a bearing on the final product. The items that are still open should then be closed or resolved. As a last resort, if there is a follow on project or maintenance program, the outstanding items should be passed on to the person responsible for the subsequent work.

It is possible that some activities were not completed on the project. The final commitment plan should be reviewed and any items that are still not complete should be identified. Any uncompleted activities should be treated in the same way as unresolved change requests or issues.

The best way to carry out this work is to have a final meeting of the project team and any other members of the Project Organization that are necessary to make decisions on the outstanding items.

Step 02: Project Completion

Task .010 Close Outstanding Project Work

Review the Change Control log and close any outstanding items.

Review the Issue Log and close any outstanding items.

Review the quality control log and close any outstanding items from completed quality reviews.

The project logs may be closed by transferring the items to a follow on project or to the maintenance process.

Produce personal assessments for all project team members.

Close and store project files. This may require forwarding some documents to other parts of the company (e.g. contracts correspondence).

Prepare a report on the final actions taken, for approval in the Project Closure Meeting.

Task .020 Prepare for Project Closure Meeting

Determine what needs to be accomplished in the Project Closure Meeting and decide who should attend.

Arrange and schedule the Project Closure Meeting.

Produce and circulate pre-meeting material (meeting notification, any required reading).

Produce outline project closure report for review at the closure meeting.

Task .030 Conduct Project Closure Meeting

Carry out the Project Closure Meeting in the agreed way.

Gain approval on closure actions.

Task .040 Follow Up Project Closure Meeting

Revise the closure actions if they were not approved in the Project Closure Meeting.

Step 03: Process Improvement

Description

Objective

To

- review and update the process used by the

project, in a way that

- involves both technical and business staff,
- covers the project process, techniques and organization,
- identifies things that worked well,
- identifies things that didn't work,
- identifies things were not necessary,
- identifies additional things that were necessary,
- improves the estimating model for the process,

so that

- the organization can learn from this project and make similar future projects more successful.

Overview

This is the final step in any quality process. This step evaluates the process itself and identifies any learnings from the project. If these learnings are likely to apply to future projects of the same type, the project process is updated to reflect what has been learned.

Task .010 Prepare End of Project Review

Determine what form the final review of the project should take. It could be:

- a meeting
- a facilitated workshop
- a questionnaire

The review should involve all parts of the Project Organization. It may also involve other staff and customers of, and suppliers to, the project.

Prepare and distribute material as appropriate to the people involved in the review.

Task .020 Conduct End of Project Review

Carry out the review in the chosen way.

Record recommended changes to the process and estimating model.

Task .030 Update Process Metrics

Review the recommended changes to the estimating model.

Assess each change and decide if it is likely to apply to future projects of this type. Change the estimating model based on these decisions.

Task .040 Implement Process Improvement

Review the recommended changes to the standard process used on the project. Assess each change and decide if it is likely to apply to future projects of this type. Change the standard process based on these decisions.

SAGAR COLLEGE OF BCA JALNA

A

PROJECT REPORT

ON

" BANKING SYSTEM "

SUBMITTED TO

DR.BABASAHEB AMBEDKAR MARATHWADA

UNIVERSITY, AURANGABAD

IN THE PARTIAL FULFILMENT FOR THE DEGREE

BACHELOR OF COMPUTER APPLICATION

-: ACADEMIC YEAR :-

2017-18

-: SUBMITTED BY :-

AMOL M. KAVHALE

-: UNDER THE GUIDANCE OF :-

D.E.SURADKAR

Lecturer Dept. Of

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CERTIFICATE

Sagar College JALNA

This is to certify that **AMOL M. KAVHALE** bonafide student of **BACHELOR OF COMPUTER APPLICATION (B.C.A.)** of **SAGAR COLLEGE OF BCA JALNA.**

I hereby certify that this project report on **"Banking System"** is

An original and genuine work carried out in partial fulfillment of the requirement of the Bachelor of Computer Application (3rd year – VI Semester) for the year 2017-18 the information is true and original to the best of my knowledge.

Internal Examiner

External Examiner

D.E. Surdkar
Principal

PRINCIPAL
SAGAR COLLEGE
JALNA

INDEX

INTRODUCTION TO VISUAL BASIC 6.0

Microsoft Visual Basic, is the fastest and easiest way to create applications for Microsoft windows. Visual basic provides a complete set of tools to simplify rapids application development.

So what is Visual Basic? The "virtual" part refers to the method used to create the graphical user interface (GUI). Rather than writing numerous lines of codes to describe the appearance and location of interface elements, you simply add rebuilt objects into place on screen. If you have ever used a drawing program such as Paint, you already have most of the skills necessary to create an effective user interface.

The "Basic" part refers to the BASIC language, a language used by more programmers then any other language in the history of computing. VB has evolved from the original BASIC language and now contains several hundreds statements, functions, and keywords, many of which relate directly to the Windows GUI. Beginners can create useful applications by learning just a few of the keywords, yet the power of the language allows professionals to accomplished using any other Windows programming language.

The visual Basic programming language is not unique to Visual Basic. The Visual Basic programming system, Applications Edition included in MS Excel, MS Access, and many other windows applications uses the same language. The Visual Basic scripting (VB Script) is a widely used scripting language and a subset of the Visual Basic language. The investment you make in learning Visual Basic will carry to those areas.

MODULES :

In Visual Basic we can create a procedure or function or a variable or a connection global for that project using a useful feature of VB called module. Modules help us in reducing codes & faster execution. As in any programming language such as C++ of JAVA in which access specifiers are used we can use same type of public access specifier for the module.

MDI FORM :

The multiple-document interface (MDI) allows us to create an application that maintains multiple forms within a single container. An MDI application allows the user to display documents at the same time, with each document displayed in its own window. Documents or a child windows are contained in a parent window, which provides a workspace for all child windows of different types. A child form is an ordinary forms of that has its MDI child property set to true. An application can include many MDI child forms of similar or different types.

ENU EDITOR :

With menu editor, we can add new commands to existing menus, replace existing menu commands with our own commands, create new menus and menu bar, and change and delete existing menus and menu bars. The main advantage of menu editor is its ease of use. We can customize menu in a completely manner that involves very little programming.

DATA REPORTS :

VB's data report designer is a versatile data report generator that features the ability to created-banded hierarchical reports. Used in conjunction with a data source such as the Data Environment designer, we can create reports drom several different relational tables. In data report drags and drop functionality works very effectively for fields. VB automatically creates a text box control on the data report and sets the data member and data field properties of the dropped field. We can also drag a command object from the data environment designer to the data report designer.

VB'S STANDARD CONTROL :

COMMAND BUTTON CONTROL :

We can use a command button control to begin, interrupt, or end a process. When chosen, a Command Button appears pushed in and so is sometimes called a push button. To display text on a Command Button control, set its Caption property. A user can always choose a Command Button by clicking it. To allow the user to choose it by pressing ENTER, set the Default property to true. To allow the user to choose the button by pressing ESC, set the Cancel property of the Command Button to True.

LABEL CONTROLS :

A Label tool display text on a form that user cannot change. It is mainly used to give the labels or messages to the Text Box.

TEXT BOX :

A Text Box command is used to accept the data in it. We can display the data, change the data etc. that is available in this box.

CHECK & OPTION BOX :

Check Box is used to select one or more choices from the given choices. Option Button is used to provide an option to the user and user can select only one of them.

LIST & DRIVE LIST BOX :

List Box is similar to Combo box, used to display lost of item. Drive List Boxis used to display all the drives, which are connected to your computer.

TIMER :

A Timer control can execute code at regular intervals by causing a Timer event to occur. The Timer control is invisible to user & is useful for background processing.

FILE LIST & DIRECTORY LIST BOX :

File List Box is used to display list of all the files in the current folder. Directory List Box is used to display all the list of folders in the current drive.

SHAPE BOX :
Shape Box is used to draw graphical elements, such as boxes, lines, circles, etc.

OLE :
Object Linking and Embedding is called as OLE. OLE is used to insert word, excel or other documents in your form.

INTRODUCTION TO MS-ACCESS

A database is a collection of related and ordered information, organized in such a way that information can be accessed quickly and easily. A database can consist of one or more tables of information that are related in some way. A Database Management System(DBMS) is a computer based system to manage a database, or a collection of databases or files.

Microsoft Access 2000 is a DBMS package from Microsoft. It is one of the products in the Microsoft Office 2000 suite. MS-ACCESS supports RDBMS features like setting Primary key, relations between more than one table, designing queries, reports.

- A primary key is to be set to a table, which uniquely identifies each record.
- A query that displays specified columns and data from a table(s).

MS-ACCESS supports SQL – Structured Query Language which is used to manipulate data, retrieve data from more than one tables or for query designing.

The three basic data functions provided by SQL are:

Data Definition Language (DDL):

Consists of commands to create the objects such as tables, views, indexes etc.

Data Manipulation Language (DML):

Uses for query , insertion , deletion and updation of data stored in the database.

Data Control Language (DCL):

this is used for controlling data and their access to the database.

PROJECT OVERVIEW

The Domain "Banking System " keeps the day by day tally record as a complete banking. It can keep the information of Account type, account opening form, Deposit, Withdrowal, and Searching the transaction, Transaction report, Individual account opening form, Group Account. The exciting part of this project is; it displays Transaction reports, Statistical Summary of Account type and Interest Information.

SYNOPSIS

"Banking System " keeps the day by day tally record as a complete banking. It can keep the information of Account type, account opening form, Deposit, Withdrawal, and Searching the transaction, Transaction reports, Individual account opening form, Group Account. The exciting part of this project is; it displays Transaction reports, Statistical Summary of Account type and Interest Information.

AIM

In the existing system the transactions are done only manually but in proposed system we have to computerize all the banking transaction using the software Banking System.

They are:

Administrative Module

ADMINISTRATIVE MODULE

This module is the main module which performs all the main operations in the system. The major operations in the system are:

- Account Opening Form
- Deposit
- Withdrawal

- Account type
- Searching Transaction
- Transaction report

SYSTEM STUDY AND ANALISYS

SYSTEM ANALYSIS

System analysis is a process of gathering and interpreting facts, diagnosing problems and the information to recommend improvements on the system. It is a problem solving activity that requires intensive communication between the system users and system developers. System analysis or study is an important phase of any system development process. The system is studied to the minutest detail and analyzed. The system analyst plays the role of the interrogator and dwells deep into the working of the present system. The system is viewed as a whole and the input to the system are identified. The outputs from the organizations are traced to the various processes. System analysis is concerned with becoming aware of the problem, identifying the relevant and decisional variables, analyzing and synthesizing the various factors and determining an optimal or at least a satisfactory solution or program of action.

A detailed study of the process must be made by various techniques like interviews, questionnaires etc. The data collected by these sources must be scrutinized to arrive to a conclusion. The conclusion is an understanding of how the system functions. This system is called the existing system. Now the existing system is subjected to close study and problem areas are identified. The designer now functions as a problem solver and tries to sort out the difficulties that the enterprise faces. The solutions are given as proposals. The proposal is then weighed with the existing system analytically and the best one is selected. The proposal is presented to the user for an endorsement by the user. The proposal is reviewed on user request and suitable changes are made. This is loop that ends as soon as the user is satisfied with proposal.

Preliminary study is the process of gathering and interpreting facts, using the information for further studies on the system. Preliminary study is problem solving activity that requires intensive communication between the system users and system developers. It does various feasibility studies. In these studies a rough figure of the system activities can be obtained, from which the decision about the strategies to be followed for effective system study and analysis can be taken.

EXISTING SYSTEM

In the existing system the transactions are done only manually but in proposed system we have to computerize all the banking transaction using the software Banking system.

2. 1.1 PROBLEMS WITH EXISTING SYSTEM

- Lack of security of data.
- More man power.

- Time consuming.
- Consumes large volume of pare work.
- Needs manual calculations.
- No direct role for the higher officials.
- Damage of machines due to lack of attention.

To avoid all these limitations and make the working more accurately the system needs to be computerized.

PROPOSED SYSTEM

The aim of proposed system is to develop a system of improved facilities. The proposed system can overcome all the limitations of the existing system. The system provides proper security and reduces the manual work.

2. 2. 1 ADVANTAGES OF THE PROPOSED SYSTEM

The system is very simple in design and to implement. The system requires very low system resources and the system will work in almost all configurations. It has got following features

- Security of data.
- Ensure data accuracy's.
- Proper control of the higher officials.
- Reduce the damages of the machines.
- Minimize manual data entry.
- Minimum time needed for the various processing.
- Greater efficiency.
- Better service.
- User friendliness and interactive.
- Minimum time required.

2.3. FEASIBILITY STUDY

Feasibility study is made to see if the project on completion will serve the purpose of the organization for the amount of work, effort and the time that spend on it. Feasibility study lets the developer foresee the future of the project and the usefulness. A feasibility study of a system proposal is according to its workability, which is the impact on the organization, ability to meet their user needs and effective use of resources. Thus when a new application is proposed it normally goes through a feasibility study before it is approved for development.

The document provide the feasibility of the project that is being designed and lists various areas that were considered very carefully during the feasibility study of this project such as Technical, Economic and Operational feasibilities. The following are its features:

2.3.1. TECHNICAL FEASIBILITY

The system must be evaluated from the technical point of view first. The assessment of this feasibility must be based on an outline design of the system requirement in the terms of input, output, programs and procedures. Having identified an outline system, the investigation must go on to suggest the type of equipment, required method developing the system, of running the system once it has been designed.

Technical issues raised during the investigation are:

Does the existing technology sufficient for the suggested one?
Can the system expand if developed?

The project should be developed such that the necessary functions and performance are achieved within the constraints. The project is developed within latest technology. Through the technology may become obsolete after some period of time, due to the fact that never version of same software supports older versions, the system may still be used. So there are minimal constraints involved with this project. The system has been developed using Java the project is technically feasible for development.

2.3.2. ECONOMIC FEASIBILITY

The developing system must be justified by cost and benefit. Criteria to ensure that effort is concentrated on project, which will give best, return at the earliest. One of the factors, which affect the development of a new system, is the cost it would require.

The following are some of the important financial questions asked during preliminary investigation:

- The costs conduct a full system investigation.
- The cost of the hardware and software.
- The benefits in the form of reduced costs or fewer costly errors.

Since the system is developed as part of project work, there is no manual cost to spend for the proposed system. Also all the resources are already available, it give an indication of the system is economically possible for development.

2.3.3. BEHAVIORAL FEASIBILITY

This includes the following questions:

- Is there sufficient support for the users?
- Will the proposed system cause harm?

The project would be beneficial because it satisfies the objectives when developed and installed. All behavioral aspects are considered carefully and conclude that the project is behaviorally feasible.

SYSTEM DESIGN

3.1 INTRODUCTION

Design is the first step into the development phase for any engineered product or system. Design is a creative process. A good design is the key to effective system. The term "design" is defined as "the process of applying various techniques and principles for the purpose of defining a process or a system in sufficient detail to permit its physical realization". It may be defined as a process of applying various techniques and principles for the purpose of defining a device, a process or a system in sufficient detail to permit its physical realization. Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm that is used. The system design develops the architectural detail required to build a system or product. As in the case of any systematic approach, this software too has undergone the best possible design phase fine tuning all efficiency, performance and accuracy levels. The design phase is a transition from a user oriented document to a document to the programmers or database personnel. System design goes through two phases of development: Logical and Physical Design.

LOGICAL DESIGN:

The logical flow of a system and define the boundaries of a system. It includes the following steps:

- Reviews the current physical system – its data flows, file content, volumes , frequencies etc.
- Prepares output specifications – that is, determines the format, content and frequency of reports.
- Prepares input specifications – format, content and most of the input functions.
- Prepares edit, security and control specifications.
- Specifies the implementation plan.
- Prepares a logical design walk through of the information flow, output, input, controls and implementation plan.
- Reviews benefits, costs, target dates and system constraints.

PHYSICAL DESIGN:

Physical system produces the working systems by define the design specifications that tell the programmers exactly what the candidate system must do. It includes the following steps.

- Design the physical system.
- Specify input and output media.
- Design the database and specify backup procedures.
- Design physical information flow through the system and a physical design Walk through.

- Plan system implementation.
- Prepare a conversion schedule and target date.
- Determine training procedures, courses and timetable.
- Devise a test and implementation plan and specify any new hardware/software.
- Update benefits , costs , conversion date and system constraints

Design/Specification activities:

- Concept formulation.
- Problem understanding.
- High level requirements proposals.
- Feasibility study.
- Requirements engineering.
- Architectural design.

MODULE DESIGN

Admin

The Administrator logs in using the admin login. In this module two operations are done. During login the Login and Password is verified with that in the database

INPUT DESIGN

The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy. Input Design considered the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Methods for preparing input validations and steps to follow when error occur.

OBJECTIVES

Input Design is the process of converting a user-oriented description of the input into a computer-based system. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system.
It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The goal of designing input is to make data entry easier and to be free

from errors. The data entry screen is designed in such a way that all the data manipulation can be performed. It also provides record viewing facilities.
When the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages are provided as when needed so that the user will not be in a maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision-making.

Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analysis design computer output, they should :

- Identify the specific output that is needed to meet the requirements.
- Select methods for presenting information.
- Create document, report, or other formats that contain information produced by the system.

3.3 DATABASE DESIGN

A database is an organized mechanism that has the capability of storing information through which a user can retrieve stored information in an effective and efficient manner. The data is the purpose of any database and must be protected.

The database design is a two level process. In the first step, user requirements are gathered together and a database is designed which will meet these requirements as clearly as possible. This step is called Information Level Design and it is taken independent of any individual DBMS.

In the second step, this Information level design is transferred into a design for the specific DBMS that will be used to implement the system in question. This step is called Physical Level Design, concerned with the characteristics of the specific DBMS that will be used. A database design runs parallel with the system design. The organization of the data in the database is aimed to achieve the following two major objectives.

- Data Integrity
- Data independence

Normalization is the process of decomposing the attributes in an application, which results in a set of tables with very simple structure. The purpose of normalization is to make tables as simple as possible. Normalization is carried out in this system for the following reasons.

- To structure the data so that there is no repetition of data , this helps in saving
- To permit simple retrieval of data in response to query and report request.
- To simplify the maintenance of the data through updates, insertions, deletions.
- To reduce the need to restructure or reorganize data which new application requirements arise

RELATIONAL DATABASE MANAGEMENT SYSTEM (RDBMS):

A relational model represents the database as a collection of relations. Each relation resembles a table of values or file of records. In formal relational model terminology, a row is called a tuple, a column header is called an attribute and the table is called a relation. A relational database consists of a collection of tables, each of which is assigned a unique name. A row in a tale represents a set of related values.

RELATIONS, DOMAINS & ATTRIBUTES:

A table is a relation. The rows in a table are called tuples. A tuple is an ordered set of n elements. Columns are referred to as attributes. Relationships have been set between every table in the database. This ensures both Referential and Entity Relationship Integrity. A domain D is a set of atomic values. A common method of specifying a domain is to specify a data type from which the data values forming the domain are drawn. It is also useful to specify a name for the domain to help in interpreting its values. Every value in a relation is atomic, that is not decomposable.

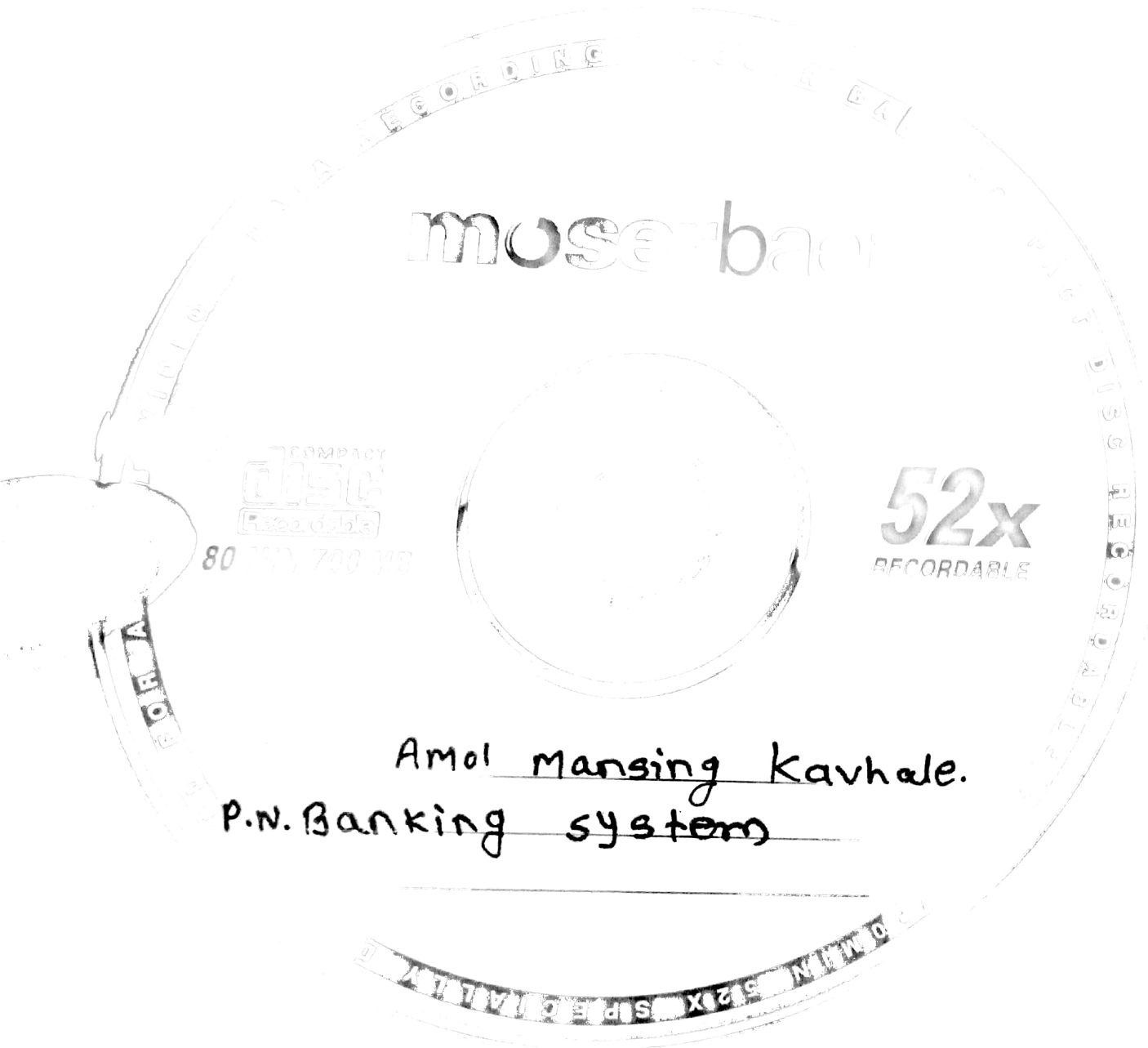
RELATIONSHIPS:

Table relationships are established using Key. The two main keys of prime importance are Primary Key & Foreign Key. Entity Integrity and Referential Integrity Relationships can be established with these keys.Entity Integrity enforces that no Primary Key can have null values.Referential Integrity enforces that no Primary Key can have null values.
Referential Integrity for each distinct Foreign Key value, there must exist a matching Primary Key value in the same domain. Other key are Super Key and Candidate Keys. Relationships have been set between every table in the database. This ensures both Referential and Entity Relationship Integrity.

NORMALIZATION:

As the name implies, it denoted putting things in the normal form. The application developer via normalization tries to achieve a sensible organization of data into proper tables and columns and where names can be easily correlated to the data by the user. Normalization eliminates repeating groups at data and thereby avoids data redundancy which proves to be a great burden on the computer resources. These includes:

- Normalize the data
- Choose proper names for the tables and columns.
- Choose the proper name for the data.



Amol Mansing Kavhale.

P.N. Banking system

First Normal Form:

The First Normal Form states that the domain of an attribute must include only atomic values and that the value of any attribute in a tuple must be a single value from the domain of that attribute. In other words 1NF disallows "relations within relations" or "relations as attribute values within tuples". The only attribute values permitted by 1NF are single atomic or indivisible values.

The first step is to put the data into First Normal Form. This can be donor by moving data into separate tables where the data is of similar type in each table. Each table is given a Primary Key or Foreign Key as per requirement of the project. In this we form new relations for each nonatomic attribute or nested relation. This eliminated repeating groups of data.

A relation is said to be in first normal form if only if it satisfies the constraints that contain the primary key only.

Second Normal Form:

According to Second Normal Form, For relations where primary key contains multiple attributes, no nonkey attribute should be functionally dependent on a part of the primary key.

In this we decompose and setup a new relation for each partial key with its dependent attributes. Make sure to keep a relation with the original primary key and any attributes that are fully functionally dependent on it. This step helps in taking out data that is only dependant on apart of the key.

A relation is said to be in second normal form if and only if it satisfies all the first normal form conditions for the primary key and every non-primary key attributes of the relation is fully dependent on its primary key alone.

Third Normal Form:

According to Third Normal Form, Relation should not have a nonkey attribute functionally determined by another nonkey attribute or by a set of nonkey attributes. That is, there should be no transitive dependency on the primary key.

In this we decompose and set up relation that includes the nonkey attributes that functionally determines other nonkey attributes. This step is taken to get rid of anything that does not depend entirely on the Primary Key.

A relation is said to be in third normal form if only if it is in second normal form and more over the non key attributes of the relation should not be depend on other non key attribute.

TABLES STRUCTURE

Table: bank_table
Primary bank id

Field	Data Type	Constraints	Description
bank id	Number(9)	Primary key	
name	char(30)		
type	char(30)		
date	date		
Address	char(30)		
total	number		
Acc_no	number		

Table: bankwithdraw
Primary Key: b_id

Field	Data Type	Constraints	Description
emp id	Number(9)	Primary key	
name	char(30)		
Acc_no	Number		
date	date		
amount	Number		

Table: DailyTrans
Primary Key: Account no:

Field	Data Type	Constraints	Description
Account no	Number(9)	Primary key	
firstname	char(30)		
surname	char(30)		
date	date		
TransactionName	char(30)		
Transaction amount	Number(9)		
Previous Balance	Number(9)		
Current Balance	Number(9)		
Owner Name	char(30)		

Table: current
Primary key: account no

Field	Data Type	Constraints	Description
Account no	Number(9)	Primary key	
Surname	char(30)		
Firstname	char(30)		
Account type	Char(30)		
Current balance	char(30)		

Table: Account type
Primary account no

Field	Data Type	Constraints	Description
Account no	Number(9)	Primary key	
Surname	char(30)		
Firstname	char(30)		
DateOfOpening	date		
Address	char(30)		
Phone no	Number(9)		
Occupation	char(30)		
Nextofkin	char(30)		
Account Type	char(30)		
Account status	char(30)		
Opening amount	Number(9)		

SYSTEM DEVELOPEMENT

4.1 SYSTEM SPECIFICATION

HARDWARE REQUIREMENTS

Processor : X86 Compatible processor with 1.7 GHz Clock speed

RAM : 512 MB or more

Hard disk : 20 GB or more

Monitor : VGA/SVGA

Keyboard : 104 Keys

Mouse : 2 buttons/ 3 buttons

SOFTWARE REQUIREMENTS

Operating System : Windows 2000/XP
Front end : Visual Basic 6.0
Back end : MS Access

4.2 SOFTWARE ENVIRONMENT

The Control Properties

Before writing an event procedure for the control to response to a user's input, you have to set certain properties for the control to determine its appearance and how it will work with the event procedure. You can set the properties of the controls in the properties window or at runtime.

Handling some of the common controls

3.2.1 The Text Box

The text box is the standard control for accepting input from the user as well as to display the output. It can handle string (text) and numeric data but not images or pictures. String in a text box can be converted to a numeric data by using the function Val(text). The following example illustrates a simple program that processes the input from the user.

[illegible]

Example

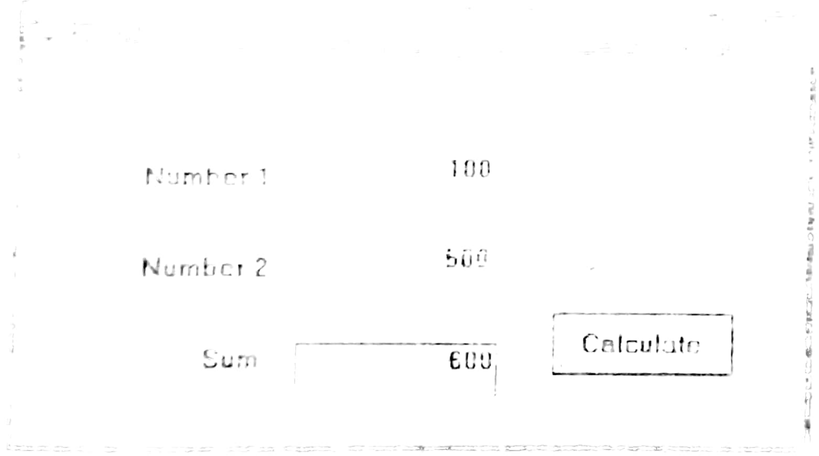
In this program, two text boxes are inserted into the form together with a [illegible] The first text box [illegible] and the second [illegible] used to display the sum of two numbers that are entered into the [illegible] Besides, a command button is also programmed to calculate the sum of the numbers using the plus operator. The program uses [illegible] variable [illegible] summation of values from text box 1 and text box 2. The [illegible] display the output on the label is shown below. The output is shown in Figure [illegible]

```
Private Sub Command1_Click()

Sum = Val(Text1.Text) + Val(Text2.Text)

Label1.Caption = Sum
End Sub
```

Figure 3.2



3.2.2 The Label

The label is a very useful control for Visual Basic, as it is not only used to provide instructions and guides to the users, it can also be used to display outputs. One of its most important properties is **Caption**. Using the syntax **label.Caption**, it can display text and numeric data. You can change its caption in the properties window and also at runtime. Please refer to Example 3.1 and Figure 3.1 for the usage of label.

3.2.3 The Command Button

The command button is one of the most important controls as it is used to execute commands. It displays an illusion that the button is pressed when the user click on it. The most common event associated with the command button is the Click event, and the syntax [illegible]

```
Private Sub Command1_Click()
Statements
End Sub
```

Scanned with OKEN Scanner

The Picture Box is one of the controls that is used to handle graphics. You can load a picture at design phase by clicking on the picture item in the properties window and select the picture from the selected folder. You can also load the picture at runtime using the **LoadPicture** method. For example, the statement will load the picture grape.gif into the picture box.

Picture1.Picture LoadPicture ("C:\VB program\Images\grape.gif")

You will learn more about the picture box in future lessons. The image in the picture box is not resizable.

3.2.5 The Image Box

The Image Box is another control that handles images and pictures. It functions almost identically to the picture box. However, there is one major difference, the image in an Image Box is stretchable, which means it can be resized. This feature is not available in the Picture Box. Similar to the Picture Box, it can also use the LoadPicture method to load the picture. For example, the statement loads the picture grape.gif into the image box.

Image1.Picture=LoadPicture ("C:\VB program\Images\grape.gif")

3.2.6 The List Box

The function of the List Box is to present a list of items where the user can click and select the items from the list. In order to add items to the list, we can use the **AddItem method**. For example, if you wish to add a number of items to list box 1, you can key in the following statements

Example 3.2

```
Private Sub Form_Load ( )

List1.AddItem "Lesson1"
List1.AddItem "Lesson2"
List1.AddItem "Lesson3"
List1.AddItem "Lesson4"

End Sub
```

The items in the list box can be identified by the **ListIndex** property, the value of the ListIndex for the first item is 0, the second item has a ListIndex 1, and the second item has a ListIndex 2 and so on

3.2.7 The Combo Box

The function of the Combo Box is also to present a list of items where the user can click and select the items from the list. However, the user needs to click on the small arrowhead on the right of the combo box to see the items which are presented in a drop-down list. In order to add items to the list, you can also use the **AddItem method**. For example, if you wish to add a number of items to Combo box 1, you can key in the following statements

Example 3.3

```
Private Sub Form_Load ( )
Combo1.AddItem "Item1"
Combo1.AddItem "Item2"
```

```
Combo1.AddItem "Item3"
Combo1.AddItem "Item4"
End Sub
```

3.2.8 The Check Box

The Check Box control lets the user select or unselect an option. When the Check Box is checked, its value is set to 1 and when it is unchecked, the value is set to 0. You can include the statements Check1.Value 1 to mark the Check Box and Check1.Value 0 to unmark the Check Box, as well as use them to initiate certain actions. For example, the program will change the background color of the form to red when the check box is unchecked and it will change to blue when the check box is checked. You will learn about the conditional statement If…Then…Else if in later lesson. VbRed and vbBlue are color constants and BackColor is the background color property of the form.

3.2.9 The Option Box

The Option Box control also lets the user selects one of the choices. However, two or more Option Boxes must work together because as one of the Option Boxes is selected, the other Option Boxes will be unselected. In fact, only one Option Box can be selected at one time. When an option box is selected, its value is set to "True" and when it is unselected; its value is set to "False". In the following example, the shape control is placed in the form together with six Option Boxes. When the user clicks on different option boxes, different shapes will appear. The values of the shape control are 0, 1, and 2,3,4,5 which will make it appear as a rectangle, a square, an oval shape, a rounded rectangle and a rounded square respectively.

Example 3.4

```
Private Sub Option1_Click()
Shape1.Shape = 0
End Sub
Private Sub Option2_Click()
Shape1.Shape = 1
End Sub
Private Sub Option3_Click()
Shape1.Shape = 2
End Sub
Private Sub Option4_Click()
Shape1.Shape = 3
End Sub
Private Sub Option5_Click()
Shape1.Shape = 4
End Sub
Private Sub Option6_Click()
Shape1.Shape = 5
End Sub
```

3.2.10 The Drive List Box

The Drive ListBox is for displaying a list of drives available in your computer. When you place this control into the form and run the program, you will be able to select different drives from your computer as shown in Figure 3.3

3.2.11 The Directory List Box

The Directory List Box is for displaying the list of directories or folders in a selected drive. When you place this control into the form and run the program, you will be able to select different directories from a selected drive in your computer as shown in Figure 3.4

3.2.12 The File List Box

The File List Box is for displaying the list of files in a selected directory or folder. When you place this control into the form and run the program, you will be able to shown the list of files in a selected directory as shown in Figure 3.5
You can coordinate the Drive List Box, the Directory List Box and the File List Box to search for the files you want. The procedure will be discussed in later lessons.

CODING

5.1 CODING

Main Form Coding

```
Private Sub cmdQuit_Click()
End
End Sub

Private Sub Command1_Click()
End
End Sub

Private Sub MDIForm_Load()
Call connectDatabase
End Sub

Private Sub Toolbar1_ButtonClick(ByVal Button As MSComctlLib.Button)
Select Case Button.Index
Case 1:
frmCustomers.Show
Case 4:
frmDeposits.Show
Case 7:
frmWithdrawal.Show
Case 10:
frmTransactions.Show
End Select
End Sub

Private Sub Toolbar1_ButtonMenuClick(ByVal ButtonMenu As
MSComctlLib.ButtonMenu)
Select Case ButtonMenu.Key
Case "acc_type"
frmAccTypes.Show

Case "customer"
Set rptCustomers.DataSource = Nothing
Set rptCustomers.DataSource = rsCustomers
rptCustomers.Show

Case "deposit"
```

```
Set rptDeposits.DataSource = Nothing
Set rptDeposits.DataSource = rsDeposit
rptDeposits.Show

Case "withdraw"
Set rptWithdrawals.DataSource = Nothing
Set rptWithdrawals.DataSource = rsWithdrawal
rptWithdrawals.Show


End Select
End Sub


Private Sub cmdAdd_Click()
NewRecord = True

cmdAdd.Enabled = False
cmdSave.Enabled = True

cmdCancel.Enabled = True
cmdEdit.Enabled = False
cmdQuit.Enabled = False
Call UnLock_Form_Controls(Me)
MsgBox ("Are Ypu sure")
Call clear_Form_Controls(Me)
Call GenerateNewAccountCode
txtAccountID.Locked = True
txtAccountName.SetFocus

End Sub

Private Sub cmdCancel_Click()
cmdAdd.Enabled = True
cmdSave.Enabled = False

cmdCancel.Enabled = False
cmdEdit.Enabled = True
cmdQuit.Enabled = True
With rsAccTypes
   If NewRecord = True Then
      .CancelUpdate
      NewRecord = False
   Else
      .CancelUpdate
   End If
   Call DisplayaccTypes(rsAccTypes)
End With
MsgBox ("Are You Sure")
Call Lock_Form_Controls(Me)
```

```
End Sub

Private Sub cmdEdit_Click()
NewRecord = False
cmdAdd.Enabled = False
cmdSave.Enabled = True
cmdCancel.Enabled = False
cmdEdit.Enabled = True
cmdQuit.Enabled = True
MsgBox ("Are you Sure to Edit")
Call UnLock_Form_Controls(Me)

End Sub

Private Sub cmdFirst_Click()
Call MoveToFirst(rsAccTypes)
Call DisplayaccTypes(rsAccTypes)
lblStatus.Caption = CStr("Record :" & rsAccTypes.AbsolutePosition & " of " &
rsAccTypes.RecordCount)
End Sub

Private Sub cmdLast_Click()
Call MoveToLast(rsAccTypes)
Call DisplayaccTypes(rsAccTypes)
lblStatus.Caption = CStr("Record :" & rsAccTypes.AbsolutePosition & " of " &
rsAccTypes.RecordCount)
End Sub

Private Sub cmdNext_Click()
Call MoveToNext(rsAccTypes)
Call DisplayaccTypes(rsAccTypes)
lblStatus.Caption = CStr("Record :" & rsAccTypes.AbsolutePosition & " of " &
rsAccTypes.RecordCount)

End Sub

Private Sub cmdPrevious_Click()
Call MoveToPrev(rsAccTypes)
Call DisplayaccTypes(rsAccTypes)
lblStatus.Caption = CStr("Record :" & rsAccTypes.AbsolutePosition & " of " &
rsAccTypes.RecordCount)
End Sub

Private Sub cmdQuit_Click()
MsgBox ("Are You sure to exit")
Unload Me

End Sub
```

```
Public Sub GenerateNewAccountCode()
  Dim lastnumber As Long, newnumber As Long
  'Check if there are records in the file
  With rsAccTypes
  If BOF = True And EOF = True Then
    lastnumber = 1000
  Else
    .MoveLast
    lastnumber = !AccountID
  End If
  'Generate New Number
  newnumber = lastnumber + 1
  txtAccountID.Text = newnumber
  End With
End Sub

Private Sub cmdSave_Click()
With rsAccTypes
If NewRecord = True Then .AddNew
!AccountID = txtAccountID.Text
!AccountName = txtAccountName.Text
!Description = txtDescription.Text
!IntrestRate = txtInterestRate.Text
!MinBalance = txtMinBalance.Text
.Update
MsgBox ("You are successfully added")
End With
End Sub

Private Sub Form_Load()
Call connectDatabase
cmdAdd.Enabled = True
cmdSave.Enabled = False
cmdCancel.Enabled = False
cmdEdit.Enabled = False
cmdQuit.Enabled = True
Call Lock_Form_Controls(Me)
Call DisplayaccTypes(rsAccTypes)
lblStatus.Caption = CStr("Record :" & rsAccTypes.AbsolutePosition & " of " &
rsAccTypes.RecordCount)
Call DisplayaccTypes(rsAccTypes)
End Sub

Public Sub DisplayaccTypes(myRs As Recordset)
With myRs
If BOF = True And EOF = True Then Exit Sub

  txtAccountID.Text = !AccountID
  txtAccountName.Text = !AccountName
  txtDescription.Text = !Description
```

```
    txtInterestRate.Text = !InterestRate
    txtMinBalance.Text = !MinBalance
End With
End Sub
Dim cleardisplay As Boolean
Dim strMessage As String

Private Sub cmdAccept_Click()
Set rs = New ADODB.Recordset
    With rs
        .ActiveConnection = con
        .CursorLocation = adUseClient
        .CursorType = adOpenKeyset
        .LockType = adLockOptimistic
        .Open "tblScode"
    End With

  With rs
    .Find "Scode ='" & txtDisplay & "'"
If .EOF Then
        MsgBox "Pin Number is incorrect or does not Exist", vbCritical, "ATM-Pin
Error"
        txtDisplay = "": txtDisplay.SetFocus
    Else
        fraTransaction.Visible = True
        fraSecretCode.Visible = False
  End If
End With
txtDisplay = ""
End Sub

Private Sub cmdBack_Click()
fraTransaction.Visible = False
fraSecretCode.Visible = True
End Sub

Private Sub cmdCancel_Click()
fraAcctType.Visible = False
fraTransaction.Visible = True
End Sub

Private Sub cmdClear_Click()
txtDisplay.Text = "": txtDisplay.SetFocus
End Sub

Private Sub cmdExit_Click()
fraSecretCode.Visible = False
MsgBox "Thank you for Banking with us, Do have an nice day...", vbInformation, "A
T M-SERVICE"
End
```

```
End Sub

Private Sub cmdOk_Click()
With deBankUba
    .conBankUba.Open "PROVIDER=Microsoft.Jet.OLEDB.4.0;Data Source=" +
App.Path + "\BankUba.mdb;"
    .rscmdStatement.Open "Select * From DailyTrans where [AccountNumber]='" &
txtAcctNo & "'", deBankUba.conBankUba, adOpenDynamic, adLockOptimistic
    rptStatement.Show vbModal
    .conBankUba.Close
End With
Unload Me
End Sub


Private Sub cmdInquery_Click()
fraAcctType.Visible = True
frmStatement.Caption = "Enter your Account Number"
frmStatement.cmdSearch.Caption = "&Inquire"
frmWel.fraTransaction.Visible = False
End Sub

Private Sub cmdNewAcct_Click()
frmNewAcct.Show vbModal
End Sub

Private Sub cmdPin_Click()
fraTransaction.Visible = False
frmChangePin.Show vbModal
End Sub

Private Sub cmdProceed_Click()
fraAcctType.Visible = False
frmStatement.Show vbModal
End Sub

Private Sub cmdStatement_Click()
fraTransaction.Visible = False
fraAcctType.Visible = True
End Sub

Private Sub cmdTransfer_Click()
strMessage = "This Service is Un-Avialable at the moment, Please bear with us"
MsgBox strMessage, vbInformation, "A T M SERVICE"
fraTransaction.Visible = True
End Sub

Private Sub cmdWithD_Click()
fraAcctType.Visible = True
frmStatement.Caption = "Enter your Account Number"
```

```
rsTemp.Open "Select * from tblCustomers Where AccountNo='" & cboAccNo.Text
& "'", cnBank, adOpenKeyset, adLockOptimistic
With rsTemp
If .RecordCount > 0 Then
cboAccNo = !AccountNo
cboCustomerID = !CustomerID
cboFirst = !FirstName
Else
MsgBox "Invalid customer ID/Name/Account NO. Please Try Again", vbInformation
Exit Sub
End If
.Close
End With


Set rsTemp = New ADODB.Recordset
rsTemp.Open "Select * from tblTransactions Where AccountNo='" & cboAccNo.Text
& "'", cnBank, adOpenKeyset, adLockOptimistic
With rsTemp
If .RecordCount > 0 Then
lvwTransactions.ListItems.Clear
Call LoadListView(rsTemp)
'cboAccNo = !AccountNo
'cboCustomerID = !CustomerID
'cboFirst = !FirstName
Else
MsgBox "Invalid customer ID/Name/Account NO. Please Try Again", vbInformation
Exit Sub
End If
.Close
End With


End Sub

Private Sub cboCustomerID_Click()

Set rsTemp = New ADODB.Recordset
rsTemp.Open "Select * from tblCustomers Where customerID='" &
cboCustomerID.Text & "'", cnBank, adOpenKeyset, adLockOptimistic
With rsTemp
If .RecordCount > 0 Then
cboAccNo = !AccountNo
cboCustomerID = !CustomerID
cboFirst = !FirstName
Else
MsgBox "Invalid customer ID/Name/Account NO. Please Try Again", vbInformation
Exit Sub
End If
.Close
```

```
End With

Set rsTemp = New ADODB.Recordset
rsTemp.Open "Select * from tblTransactions Where customerID='" &
cboCustomerID.Text & "'", cnBank, adOpenKeyset, adLockOptimistic
With rsTemp
If .RecordCount > 0 Then
lvwTransactions.ListItems.Clear
Call LoadListView(rsTemp)
Else
MsgBox "No Transactions bearing this customer ID. Please Try Again",
vbInformation
Exit Sub
End If
.Close
End With
End Sub

Private Sub cboFirst_Click()
Set rsTemp = New ADODB.Recordset
rsTemp.Open "Select * from tblCustomers Where FirstName='" & cboFirst.Text &
"'", cnBank, adOpenKeyset, adLockOptimistic
With rsTemp
If .RecordCount > 0 Then
cboAccNo = !AccountNo
cboCustomerID = !CustomerID
cboFirst = !FirstName
Else
MsgBox "Invalid customer ID/Name/Account NO. Please Try Again", vbInformation
Exit Sub
End If
.Close
End With


Set rsTemp = New ADODB.Recordset
rsTemp.Open "Select * from tblTransactions Where CustomerID='" &
cboCustomerID.Text & "'", cnBank, adOpenKeyset, adLockOptimistic
With rsTemp
If .RecordCount > 0 Then
lvwTransactions.ListItems.Clear
Call LoadListView(rsTemp)
Else
MsgBox "No Transactions bearing this customers' first name. Please Try Again",
vbInformation
Exit Sub
End If
 Close
End With
End Sub
```

```
Private Sub cmdEdit_Click()
With rsTransactions
.MoveFirst
While Not .EOF

If lvwTransactions.SelectedItem.ListSubItems(9) = !Code Then
   frmTransaction.txtCustomerID.Text = !CustomerID
   frmTransaction.txtAccountNo.Text = !AccountNo
   frmTransaction.txtNarration.Text = !Narration
   frmTransaction.txtCheckNo.Text = !CheckNO
   frmTransaction.txtDated.Value = !Dated
   frmTransaction.txtDebit.Text = !Debit
   frmTransaction.txtMode.Text = !Mode
   frmTransaction.txtCredit.Text = !Credit
   frmTransaction.txtBalance.Text = !Balance
   frmTransaction.txtCode.Text = !Code
   .MoveLast
   .MoveNext
   Else
   .MoveNext
   End If
Wend
frmTransaction.Show
MsgBox ("Are You Sure")
End With
End Sub

Private Sub cmdOk_Click()
Set rsTemp = New ADODB.Recordset
rsTemp.Open "Select * from tblTransactions Where Dated BETWEEN #" &
dtFrom.Value & "# AND #" & dtTo.Value & "#", cnBank, adOpenKeyset,
adLockOptimistic
With rsTemp
If .RecordCount > 0 Then
lvwTransactions.ListItems.Clear
Call LoadListView(rsTemp)
Else
MsgBox "No Transactions Were carried out between these Dates. Please Try Again",
vbInformation
Exit Sub
End If
.Close
End With
End Sub

Private Sub cmdPrint_Click()
With deBank
If .rscmdStatement_Grouping.State = adStateOpen Then
.rscmdStatement_Grouping.Close
```

```
End Sub

Private Sub DTPicker1_Click()

End Sub

Private Sub cmdRefresh_Click()
lvwTransactions.Refresh
End Sub


Private Sub Command1_Click()

End Sub

'Text1.Text = lvwTransactions.SelectedItem.Text


Private Sub Form_Load()

Call connectDatabase
Call LoadListView(rsTransactions)
With rsCustomers
.MoveFirst
For X = 1 To .RecordCount
   cboCustomerID.AddItem !CustomerID
   cboFirst.AddItem !FirstName
   cboAccNo.AddItem !AccountNo
   .MoveNext
Next X
End With
Frame1.Enabled = False
End Sub


Private Sub lvwTransactions_ColumnClick(ByVal ColumnHeader As
   MSComctlLib.ColumnHeader)
   ' Sort according to data in this column.
   If lvwTransactions.Sorted And _
      ColumnHeader.Index - 1 = lvwTransactions.SortKey Then
      ' Already sorted on this column, just invert the sort order.
      lvwTransactions.SortOrder = 1 - lvwTransactions.SortOrder
   Else
      lvwTransactions.SortOrder = lvwAscending
      lvwTransactions.SortKey = ColumnHeader.Index - 1
   End If
   lvwTransactions.Sorted = True

End Sub
```

```
rsTemp.Open "Select * FROM tblCustomers WHERE CustomerID '" &
cboCustomerNo.Text & "'", cnBank, adOpenKeyset, adLockOptimistic
With rsTemp

If .RecordCount > 0 Then
   txtAccountNo.Text = !AccountNo

   txtNarration.SetFocus
Else
MsgBox "Invalid Customer Code", vbInformation

txtAccountNo.Text = ""
Exit Sub
End If
.Close
End With

Set rsTemp = New ADODB.Recordset
rsTemp.Open "Select * FROM tblBalances WHERE CustomerID='" &
cboCustomerNo.Text & "'", cnBank, adOpenKeyset, adLockOptimistic
With rsTemp
If .RecordCount > 0 Then
lblBalance.Caption = !Balance
Else
Exit Sub
End If
.Close
End With

End Sub

Private Sub cboCustomerNo_KeyPress(KeyAscii As Integer)
If KeyAscii = 13 Then Call cboCustomerNo_Click
End Sub

Private Sub cmdCancel_Click()
MsgBox ("Plz pree Quit button")
End Sub

Private Sub cmdPrint_Click()
MsgBox ("Sorry ! plz connect the System to printer")
End Sub

Private Sub cmdQuit_Click()
MsgBox ("Are you sure ")
Unload Me
End Sub

Private Sub cmdSave_Click()
If txtTransactionID.Text <> "" Then
```

```
MsgBox "Please Enter the Transaction ID.", vbInformation
txtTransactionID.SetFocus
Exit Sub
End If

If cboCustomerNo.Text = "" Then
MsgBox "Please Enter the Customer ID", vbInformation
cboCustomerNo.SetFocus
Exit Sub
End If

If txtAccountNo.Text = "" Then
MsgBox "Please Enter the Account No.", vbInformation
txtAccountNo.SetFocus
Exit Sub
End If

If txtNarration.Text = "" Then
MsgBox "Please Enter the Narration.", vbInformation
txtNarration.SetFocus
Exit Sub
End If

 If txtAmountWithdrawn.Text = "" Then
MsgBox "Please Enter the Amount to Deposit.", vbInformation
txtAmountWithdrawn.SetFocus
Exit Sub
End If



With rsWithdrawal
If NewRecord = True Then .AddNew
!TransactionID = txtTransactionID.Text
!CustomerID = cboCustomerNo.Text
!AccountNo = txtAccountNo.Text
!Narration = txtNarration.Text
!AmountWithdrawn = txtAmountWithdrawn.Text


!Dated = txtDated.Value
.Update
End With

currBalance = (CCur(lblBalance.Caption) - CCur(txtAmountWithdrawn.Text))

With rsTransactions
.AddNew
!CustomerID = cboCustomerNo.Text
!AccountNo = txtAccountNo.Text
```

```
!Narration = txtNarration.Text
!CheckNO = "N/A"
!Dated = txtDated.Value
!Debit = "00"
!Mode = "N/A"
!Credit = txtAmountWithdrawn.Text
!Balance = currBalance
.Update
End With

Set rsTemp = New ADODB.Recordset
rsTemp.Open "Select * FROM tblBalances WHERE CustomerID='" &
cboCustomerNo.Text & "'", cnBank, adOpenKeyset, adLockOptimistic
With rsTemp
!Balance = currBalance
.Update
.Requery
.Close
End With

'rsBalances.Open "UPDATE tblBalances SET Balance ='" & currBalance & "'
WHERE CustomerID='" & cboCustomerNo.Text & "'", cnBank, adOpenKeyset,
adLockOptimistic

End Sub

Private Sub cmdWithdraw_Click()
NewRecord = True
Call clear_Form_Controls(Me)
Call GenerateNewTransactCode
cboCustomerNo.SetFocus
MsgBox ("You are successfully Withdrawed,plz check your current balance,Thank
You....")
End Sub

Private Sub Form_Load()
Call connectDatabase

With rsCustomers
For X = 1 To .RecordCount
cboCustomerNo.AddItem !CustomerID
.MoveNext
Next X
End With
txtDated.Value = Date
End Sub
Public Sub GenerateNewTransactCode()
    Dim lastnumber As Long, newnumber As Long
    'Check if there are records in the file
    With rsWithdrawal
```

```
    If .BOF = True And .EOF = True Then
      lastnumber = 1000
    Else
      .MoveLast
      lastnumber = !TransactionID
    End If
    'Generate New Number
    newnumber = lastnumber + 1
    txtTransactionID.Text = newnumber
    End With
End Sub

Private Sub txtAccountNo_Change()
txtNarration.SetFocus
End Sub


Private Sub txtAmountwithdrawn_KeyPress(KeyAscii As Integer)
Call ValidNumeric(KeyAscii)

End Sub

Private Sub txtNarration_KeyPress(KeyAscii As Integer)
KeyAscii = Asc(UCase$(Chr$(KeyAscii)))
If KeyAscii = 13 Then txtAmountWithdrawn.SetFocus
End Sub
End With

Set rsTemp = New ADODB.Recordset
rsTemp.Open "Select * FROM tblBalances WHERE CustomerID='" &
cboCustomerNo.Text & "'", cnBank, adOpenKeyset, adLockOptimistic
With rsTemp
If .RecordCount > 0 Then
lblBalance.Caption = !Balance
Else
Exit Sub
End If
.Close
End With

End Sub

Private Sub cboCustomerNo_KeyPress(KeyAscii As Integer)
If KeyAscii = 13 Then Call cboCustomerNo_Click
End Sub

Private Sub cmdCancel_Click()
MsgBox ("Plz press Quit Button")
End Sub
```

```
Private Sub cmdDeposit_Click()
NewRecord = True
Call clear_Form_Controls(Me)
Call GenerateNewTransactCode
cboCustomerNo.SetFocus
MsgBox ("Your Deposit Accepted,plz check Your Total amount,Thank You....")
End Sub

Private Sub cmdPrint_Click()
MsgBox ("Sorry!,plz connect the System to printer")
End Sub

Private Sub cmdQuit_Click()
Unload Me
End Sub

Private Sub cmdSave_Click()
If txtTransactionID.Text = "" Then
MsgBox "Please Enter the Transaction ID.", vbInformation
txtTransactionID.SetFocus
Exit Sub
End If

If cboCustomerNo.Text = "" Then
MsgBox "Please Enter the Customer ID", vbInformation
cboCustomerNo.SetFocus
Exit Sub
End If

If txtAccountNo.Text = "" Then
MsgBox "Please Enter the Account No.", vbInformation
txtAccountNo.SetFocus
Exit Sub
End If

If txtNarration.Text = "" Then
MsgBox "Please Enter the Narration.", vbInformation
txtNarration.SetFocus
Exit Sub
End If

If txtAmountDeposited.Text = "" Then
MsgBox "Please Enter the Amount to Deposit.", vbInformation
txtAmountDeposited.SetFocus
Exit Sub
End If

If txtMode.Text = "" Then
MsgBox "Please select Transaction Mode.", vbInformation
txtMode.SetFocus
```

```
Exit Sub
End If

If txtCheckNo.Text = "" Then
MsgBox "Please Enter the Check No.", vbInformation
txtCheckNo.SetFocus
Exit Sub
End If


With rsDeposit
If NewRecord = True Then .AddNew
!TransactionID = txtTransactionID.Text
!CustomerID = cboCustomerNo.Text
!AccountNo = txtAccountNo.Text
!Narration = txtNarration.Text
!AmountDeposited = txtAmountDeposited.Text
!Mode = txtMode.Text
!CheckNO = txtCheckNo.Text
!Dated = txtDated.Value
.Update
End With

currBalance = (CCur(lblBalance.Caption) + CCur(txtAmountDeposited.Text))

With rsTransactions
.AddNew
!CustomerID = cboCustomerNo.Text
!AccountNo = txtAccountNo.Text
!Narration = txtNarration.Text
!CheckNO = txtCheckNo.Text
!Dated = txtDated.Value
!Debit = txtAmountDeposited.Text
!Mode = txtMode.Text
!Credit = "00"
!Balance = currBalance
.Update
End With

Set rsTemp = New ADODB.Recordset
rsTemp.Open "Select * FROM tblBalances WHERE CustomerID='" &
cboCustomerNo.Text & "'", cnBank, adOpenKeyset, adLockOptimistic
With rsTemp
!Balance = currBalance
.Update
.Requery
.Close
End With
```

```
'rsBalances.Open "UPDATE tblBalances SET Balance = '" & currBalance & "'
WHERE CustomerID = '" & cboCustomerNo.Text & "'", cnBank, adOpenKeyset,
adLockOptimistic

End Sub

Private Sub Form_Load()
Call connectDatabase

With rsCustomers
For X = 1 To .RecordCount
cboCustomerNo.AddItem !CustomerID
.MoveNext
Next X
End With
txtDated.Value = Date
End Sub
Public Sub GenerateNewTransactCode()
   Dim lastnumber As Long, newnumber As Long
   'Check if there are records in the file
   With rsDeposit
   If .BOF = True And .EOF = True Then
      lastnumber = 1000
   Else
      .MoveLast
      lastnumber = !TransactionID
   End If
   'Generate New Number
   newnumber = lastnumber + 1
   txtTransactionID.Text = newnumber
   End With
End Sub

Private Sub optCash_Click()
txtCheckNo.Text = "N/A"
txtCheckNo.Locked = True
txtMode.Text = "CASH"

End Sub

Private Sub optCheque_Click()
txtMode.Text = "CHEQUE"
txtCheckNo.Text = ""
txtCheckNo.Locked = False
txtCheckNo.SetFocus
End Sub

Private Sub optOthers_Click()
txtOther.Text = ""
txtMode.Text = ""
```

```
txtCheckNo.Text = "N/A"
txtCheckNo.Locked = True
txtOther.SetFocus
End Sub
Private Sub txtAccountNo_Change()
txtNarration.SetFocus
End Sub


Private Sub txtAmountDeposited_KeyPress(KeyAscii As Integer)
Call ValidNumeric(KeyAscii)
If KeyAscii = 13 Then optCash.SetFocus
End Sub

Private Sub txtCheckNo_KeyPress(KeyAscii As Integer)
If KeyAscii = 13 Then cmdSave.SetFocus
End Sub

Private Sub txtMode_LostFocus()
If txtMode.Text = "" Then
MsgBox "Select the Mode of Transaction", vbInformation
End If
End Sub

Private Sub txtNarration_KeyPress(KeyAscii As Integer)
KeyAscii = Asc(UCase$(Chr$(KeyAscii)))
If KeyAscii = 13 Then txtAmountDeposited.SetFocus
End Sub

Private Sub txtOther_LostFocus()
txtMode.Text = txtOther.Text
End Sub

            .Update
            MsgBox "Pin Has been Successfull changed!", vbInformation
            Unload Me
            frmWel.fraTransaction.Visible = True
          Else
           MsgBox "Confirm Pin does not march with New Pin", vbInformation
            txtOldPin = ""
            txtNewPin = ""
            txtConFNewPin = ""
            txtOldPin.SetFocus
          End If
    End With
End Sub

Private Sub cmdExit_Click()
```

```
End Sub

Private Sub Form_Load()
Call tblSecretCode
Call OpenDB
End Sub
```

Transaction

```
Private Sub cmd1000_Click()
txtWAmtDpt = "1000"
WithD = txtWAmtDpt
Call WithDraw
End Sub

Private Sub cmd2000_Click()
txtWAmtDpt = "2000"
WithD = txtWAmtDpt
Call WithDraw
End Sub

Private Sub cmd3000_Click()
txtWAmtDpt = "3000"
WithD = txtWAmtDpt
Call WithDraw
End Sub

Private Sub cmd4000_Click()
txtWAmtDpt = "4000"
WithD = txtWAmtDpt
Call WithDraw
End Sub

Private Sub cmd5000_Click()
txtWAmtDpt = "5000"
WithD = txtWAmtDpt
Call WithDraw
End Sub

Private Sub cmdOthers_Click()
MsgBox ("ok You can enter your choice")
fraWamt.Visible = False
fraAmt.Visible = False
lblAmt.Visible = True
cmdOthers.Visible = False
txtWAmtDpt.Visible = True
fraGetCash.Visible = True
End Sub
```

```
Private Sub cmdWClose_Click()
Unload Me
Unload frmStatement
frmStatement.Hide
frmWel.fraTransaction.Visible = True
End Sub
Private Sub WithDraw()
With rsT
   .AddNew
   .Fields(0) = txtWDate
   .Fields(1) = ActVariable
   .Fields(5) = "Withdrawal"
   .Fields(6) = WithD
   .Fields(7) = PrevBal
   .Fields(8) = txtWCrrntBal
   .Update
End With
   With rsC
      .Fields(4) = txtWCrrntBal
      .Update
      Unload Me
      Me.Hide
   End With
 Unload frmWithD
 frmWithD.Hide
frmWaitWithD.Show vbModal
MsgBox "The Sum of: " & WithD & " Has been Deducted from your account",
vbInformation
frmCash.cmdCancel.Visible = False
frmCash.lblDisplay.Visible = False
Load frmCash
frmCash.Show vbModal
End Sub

Private Sub cmdWDraw_Click()
Dim strMessage As String
Dim strWithAmt As String
With rsT
   .AddNew
   .Fields(0) = txtWDate
   .Fields(1) = ActVariable
   .Fields(5) = "Withdrawal"
   .Fields(6) = txtWAmtDpt
   .Fields(7) = PrevBal
   .Fields(8) = txtWCrrntBal
   .Update
End With
   With rsC
      .Fields(4) = txtWCrrntBal
```

```
    Unload Me
    Me.Hide
  End With
frmWaitWithD.Show vbModal
Unload Me
MsgBox " Your Toatl amount  Has been Deducted from your account,plz wait...",
vbInformation
frmCash.cmdCancel.Visible = False
frmCash.lblDisplay.Visible = False
Load frmCash
frmCash.Show vbModal
End Sub

Private Sub Form_Load()
Call Master
Call Trans
Call Crent
txtWDate = Date
With rsC
  .Find "AccountNumber =" & ActVariable & ""
  If .EOF Then
    MsgBox "Account does not Exist! Please contact customer services",
vbInformation, "A T M Service....."
  Else
    PrevBal = rsC.Fields(4)
    txtWAcctTyp = rsC.Fields(1)
    txtWSname = rsC.Fields(2)
    txtWFname = rsC.Fields(3)
    txtWPrevBal = PrevBal
  End If
End With
End Sub

Private Sub txtWAmtDpt_Change()
txtWCrrntBal = Val(txtWPrevBal) - Val(txtWAmtDpt)
End Sub
Private Sub ClearWBoxes()
  txtWDate = ""
  txtWAcctTyp = ""
  txtWAcctNum = ""
  txtWSname = ""
  txtWFname = ""
  txtWDName = ""
  txtWAmtDpt = ""
  txtWPrevBal = ""
  txtWCrrntBal = ""
End Sub
```

Statements View

```
Private Sub cmdSearch_Click()
If cmdSearch.Caption = "&View Statement" Then
  ActVariable = txtStAcctNum.Text
  Unload Me
  Load frmWait
  frmWait.Show
  frmWel.fraTransaction.Visible = False
  Exit Sub
ElseIf cmdSearch.Caption = "&Process" Then
  ActVariable = txtStAcctNum
  Call Crent
  With rsC
    .Find "AccountNumber =" & ActVariable & ""
  If .EOF Then
    MsgBox "Account does not Exist! Please contact customer services",
vbInformation, "A T M Service....."
    txtStAcctNum = ""
    txtStAcctNum.SetFocus
    cmdSearch.Caption = "&Process"
  Else
    Unload Me
    Me.Hide
    Load frmWithD
    frmWithD.Show vbModal
  End If
End With
Else
  ActVariable = txtStAcctNum
  Call Crent
  With rsC
    .Find "AccountNumber =" & ActVariable & ""
  If .EOF Then
    MsgBox "Account does not Exist! Please contact customer services",
vbInformation, "A T M Service....."
    txtStAcctNum = ""
    txtStAcctNum.SetFocus
    cmdSearch.Caption = "&Inquire"
  Else
    Unload Me
    Me.Hide
    frmCash.Image1.Visible = False
    frmCash.cmdOk.Visible = False
    Load frmCash
    frmCash.Show vbModal

  End If
End With
End If
Unload Me
```

```
frmWel.fraTransaction.Visible = True
frmWel.fraAcctType.Visible = False
frmWel.fraSecretCode.Visible = False
End Sub
```

5.2 SYSTEM IMPLEMENTATION AND TESTING

Implementation is the stage of the project where the theoretical design is turned into a working system. It can be considered to be the most crucial stage in achieving a successful new system gaining the users confidence that the new system will work and will be effective and accurate. It is primarily concerned with user training and documentation. Conversion usually takes place about the same time the user is being trained or later. Implementation simply means convening a new system design into operation, which is the process of converting a new revised system design into an operational one.

5.2.1. SYSTEM TESTING

Software Testing is the process of executing software in a controlled manner, in order to answer the question - Does the software behave as specified?. Software testing is often used in association with the terms verification and validation. Validation is the checking or testing of items, includes software, for conformance and consistency with an associated specification. Software testing is just one kind of verification, which also uses techniques such as reviews, analysis, inspections, and walkthroughs. Validation is the process of checking that what has been specified is what the user actually wanted.

Validation : Are we doing the right job?
Verification : Are we doing the job right?

Software testing should not be confused with debugging. Debugging is the process of analyzing and localizing bugs when software does not behave as expected. Although the identification of some bugs will be obvious from playing with the software, a methodical approach to software testing is a much more thorough means for identifying bugs. Debugging is therefore an activity which supports testing, but cannot replace testing.
Other activities which are often associated with software testing are static analysis and dynamic analysis. Static analysis investigates the source code of software, looking for problems and gathering metrics without actually executing the code. Dynamic analysis

looks at the behavior of software while it is executing, to provide information such as execution traces, timing profiles, and test coverage information.

Testing is a set of activity that can be planned in advanced and conducted systematically. Testing begins at the module level and work towards the integration of entire computers based system. Nothing is complete without testing, as it vital success of the system testing objectives, there are several rules that can serve as testing objectives. They are

Testing is a process of executing a program with the intend of finding an error. A good test case is one that has high possibility of finding an undiscovered error. A successful test is one that uncovers an undiscovered error.

If a testing is conducted successfully according to the objectives as stated above, it would uncovered errors in the software also testing demonstrate that the software function appear to be working according to the specification, that performance requirement appear to have been met.

There are three ways to test program.

- For correctness
- For implementation efficiency
- For computational complexity

Test for correctness are supposed to verify that a program does exactly what it was designed to do. This is much more difficult than it may at first appear, especially for large programs.

TEST PLAN

A test plan implies a series of desired course of action to be followed in accomplishing various testing methods. The Test Plan acts as a blue print for the action that is to be followed. The software engineers create a computer program, its documentation and related data structures. The software developers is always responsible for testing the individual units of the programs, ensuring that each performs the function for which it was designed. There is an independent test group (ITG) which is to remove the inherent problems associated with letting the builder to test the thing that has been built. The specific objectives of testing should be stated in measurable terms. So that the mean time to failure, the cost to find and fix the defects, remaining defect density or frequency of occurrence and test work-hours per regression test all should be stated within the test plan.

The levels of testing include:

- Unit testing
- Integration Testing
- Data validation Testing
- Output Testing

UNIT TESTING

Unit testing focuses verification effort on the smallest unit of software design – the software component or module. Using the component level design description as a guide, important control paths are tested to uncover errors within the boundary of the module. The relative complexity of tests and uncovered scope established for unit testing. The unit testing is white-box oriented, and step can be conducted in parallel for multiple components. The modular interface is tested to ensure that information properly flows into and out of the program unit under test. The local data structures is

examined to ensure that data stored temporarily maintains its integrity during all steps in an algorithm's execution. Boundary conditions are tested to ensure that all statements in a module have been executed at least once. Finally, all error handling paths are tested.

Tests of data flow across a module interface are required before any other test is initiated. If data do not enter and exit properly, all other tests are moot. Selective testing of execution paths is an essential task during the unit test. Good design dictates that error conditions be anticipated and error handling paths set up to reroute or cleanly terminate processing when an error does occur. Boundary testing is the last task of unit testing step. Software often fails at its boundaries.

Unit testing was done in Sell-Soft System by treating each module as separate entity and testing each one of them with a wide spectrum of test inputs. Some flaws in the internal logic of the modules were found and were rectified.

INTEGRATION TESTING

Integration testing is systematic technique for constructing the program structure while at the same time conducting tests to uncover errors associated with interfacing. The objective is to take unit tested components and build a program structure that has been dictated by design. The entire program is tested as whole. Correction is difficult because isolation of causes is complicated by vast expanse of entire program. Once these errors are corrected, new ones appear and the process continues in a seemingly endless loop.

After unit testing in Sell-Soft System all the modules were integrated to test for any inconsistencies in the interfaces. Moreover differences in program structures were removed and a unique program structure was evolved.

VALIDATION TESTING OR SYSTEM TESTING

This is the final step in testing. In this the entire system was tested as a whole with all forms, code, modules and class modules. This form of testing is popularly known as Black Box testing or System testing.

Black Box testing method focuses on the functional requirements of the software. That is, Black Box testing enables the software engineer to derive sets of input conditions that will fully exercise all functional requirements for a program.

Black Box testing attempts to find errors in the following categories; incorrect or missing functions, interface errors, errors in data structures or external data access, performance errors and initialization errors and termination errors.

OUTPUT TESTING OR USER ACCEPTANCE TESTING

The system considered is tested for user acceptance; here it should satisfy the firm's need. The software should keep in touch with perspective system; user at the time of developing and making changes whenever required. This done with respect to the following points

- Input Screen Designs.
- Output Screen Designs.
- Online message to guide the user and the like.

The above testing is done taking various kinds of test data. Preparation of test data plays a vital role in the system testing. After preparing the test data, the system under study is tested using that test data. While testing the system by which test data errors are again uncovered and corrected by using above testing steps and corrections are also noted for future use.

5.3. TRAINING

Once the system is successfully developed the next important step is to ensure that the administrators are well trained to handle the system. This is because the success of a system invariably depends on how they are operated and used. The implementation depends upon the right people being at the right place at the right time. Education involves creating the right atmosphere and motivating the user. The administrators are familiarized with the run procedures of the system, working through the sequence of activities on an ongoing basis.

Implementation is the state in the project where the theoretical design is turned into a working system. By this, the users get the confidence that the system will work effectively. The system can be implemented only after through testing.

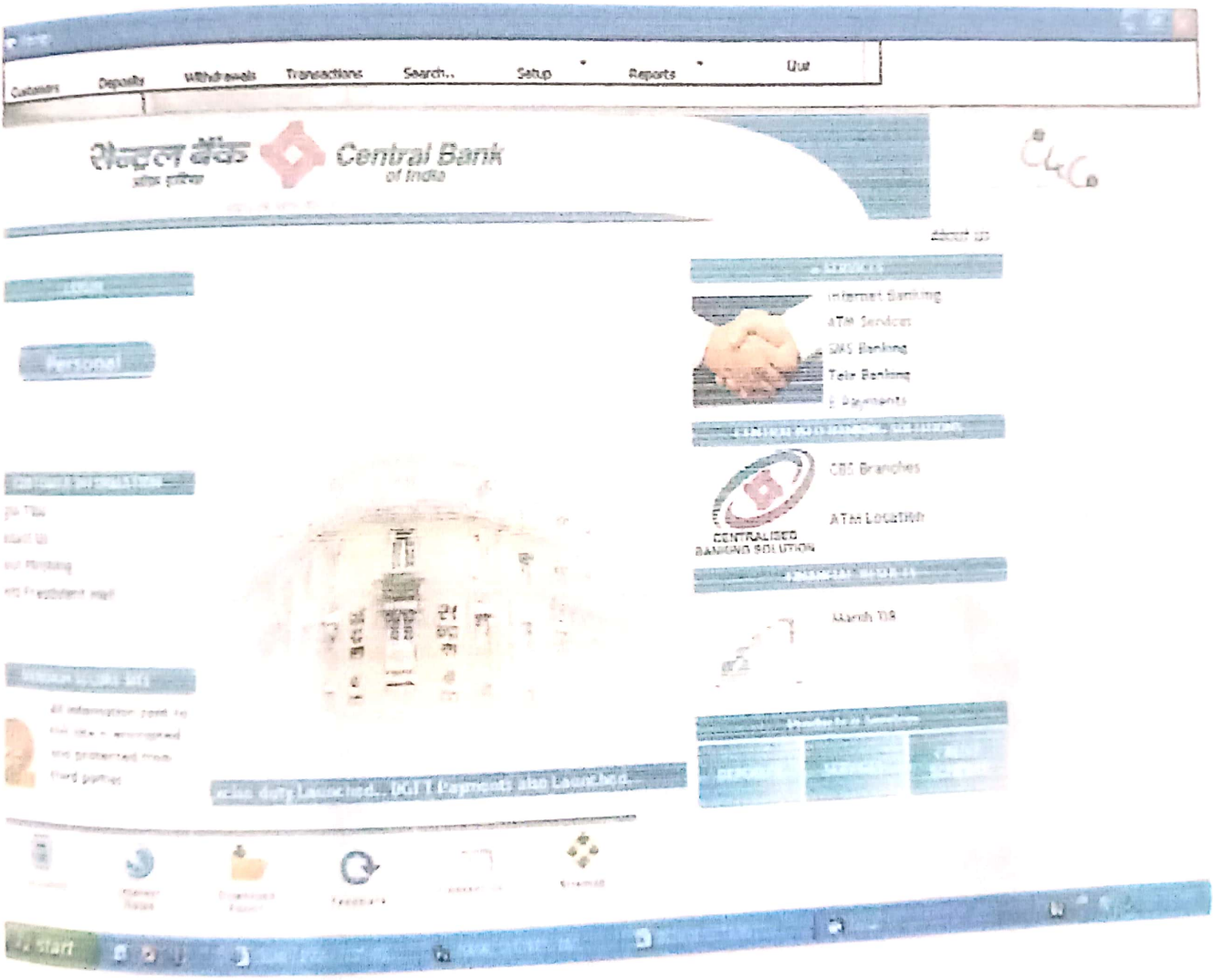
The systems personnel check the feasibility of the system. The actual data were inputted to the system and the working of the system was closely monitored. The master option was selected from the main menu and the actual data were input through the corresponding input screens. The data movement was studied and found to be correct queries option was then selected and this contains various reports. Utilities provide various data needed for inventory was input and the module was test run. Satisfactory results were obtained. Reports related to these processes were also successfully generated. Various input screen formats are listed in the appendix.

Implementation walkthroughs ensure that the completed system actually solves the original problem. This walkthrough occurs just before the system goes into use, and it should include careful review of all manuals, training materials and system documentation. Again, users, the analyst and the members of the computer services staff may attend this meeting.

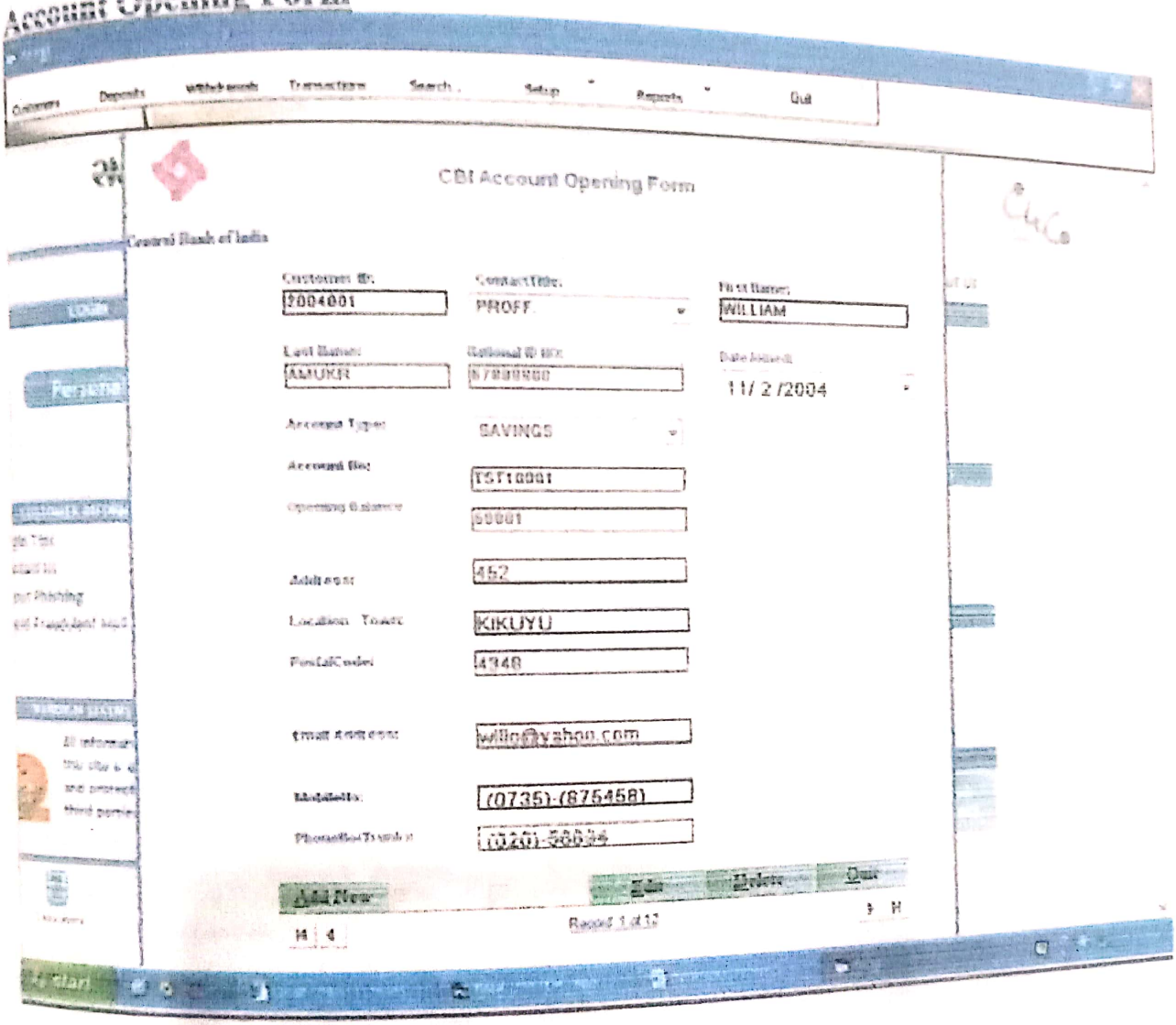
APPENDIX

SCREEN SHOTS

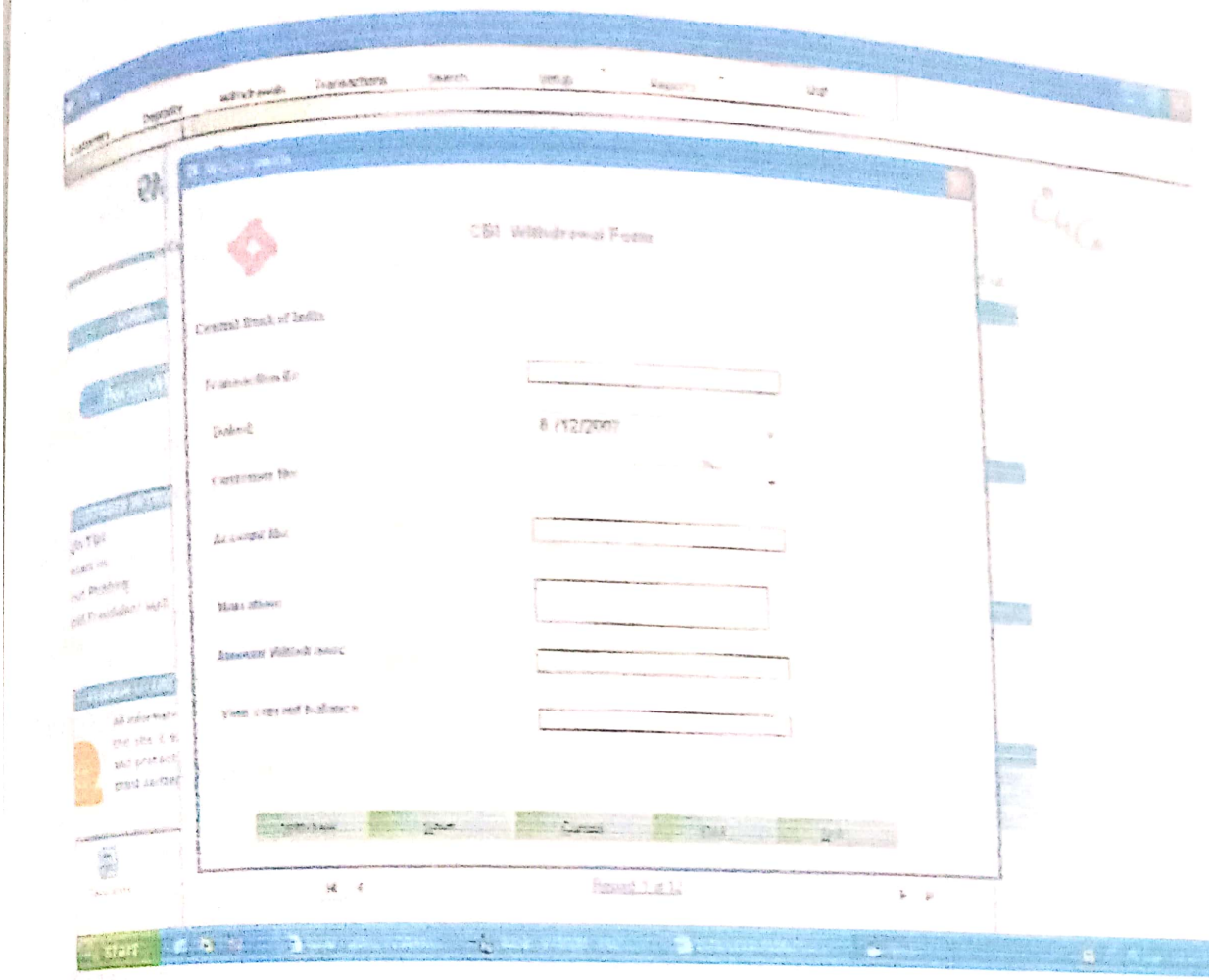
Login



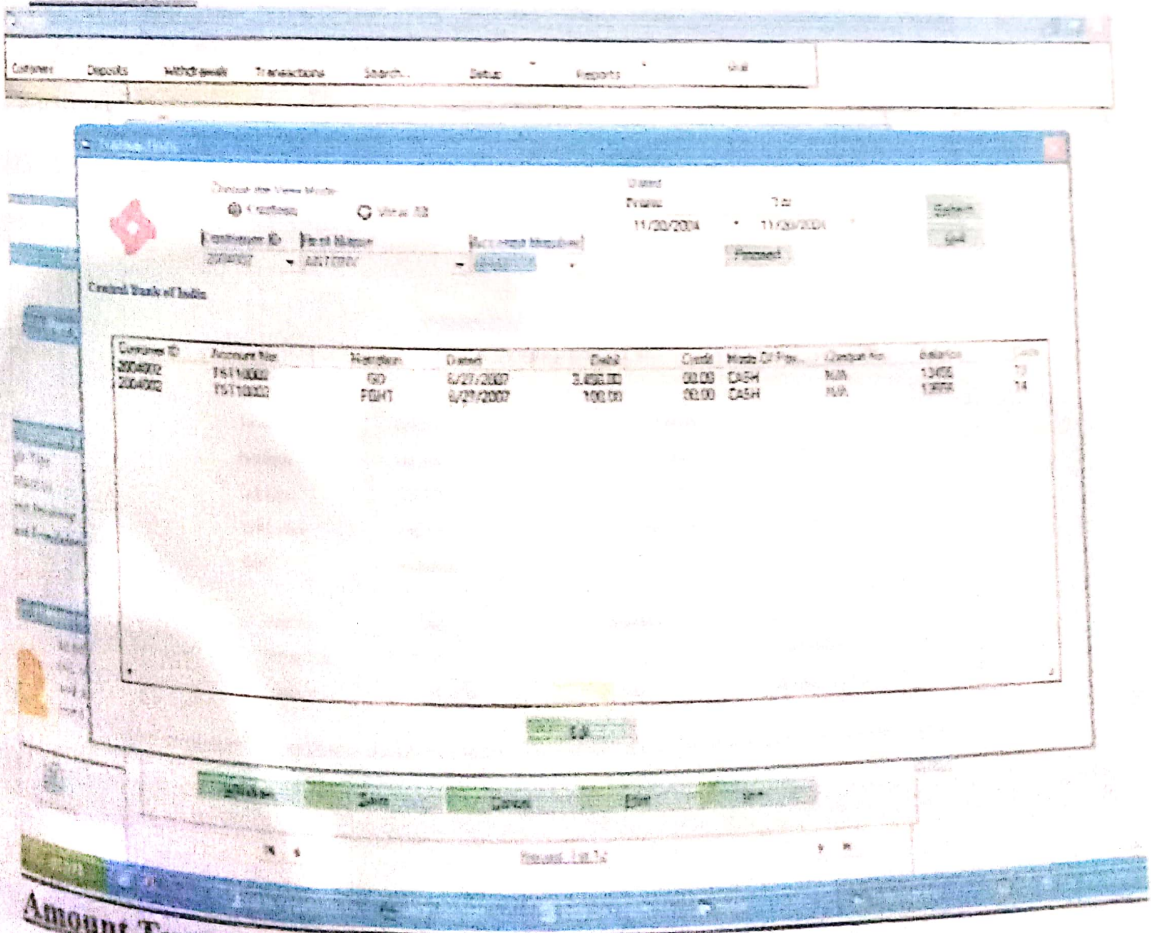
Account Opening Form

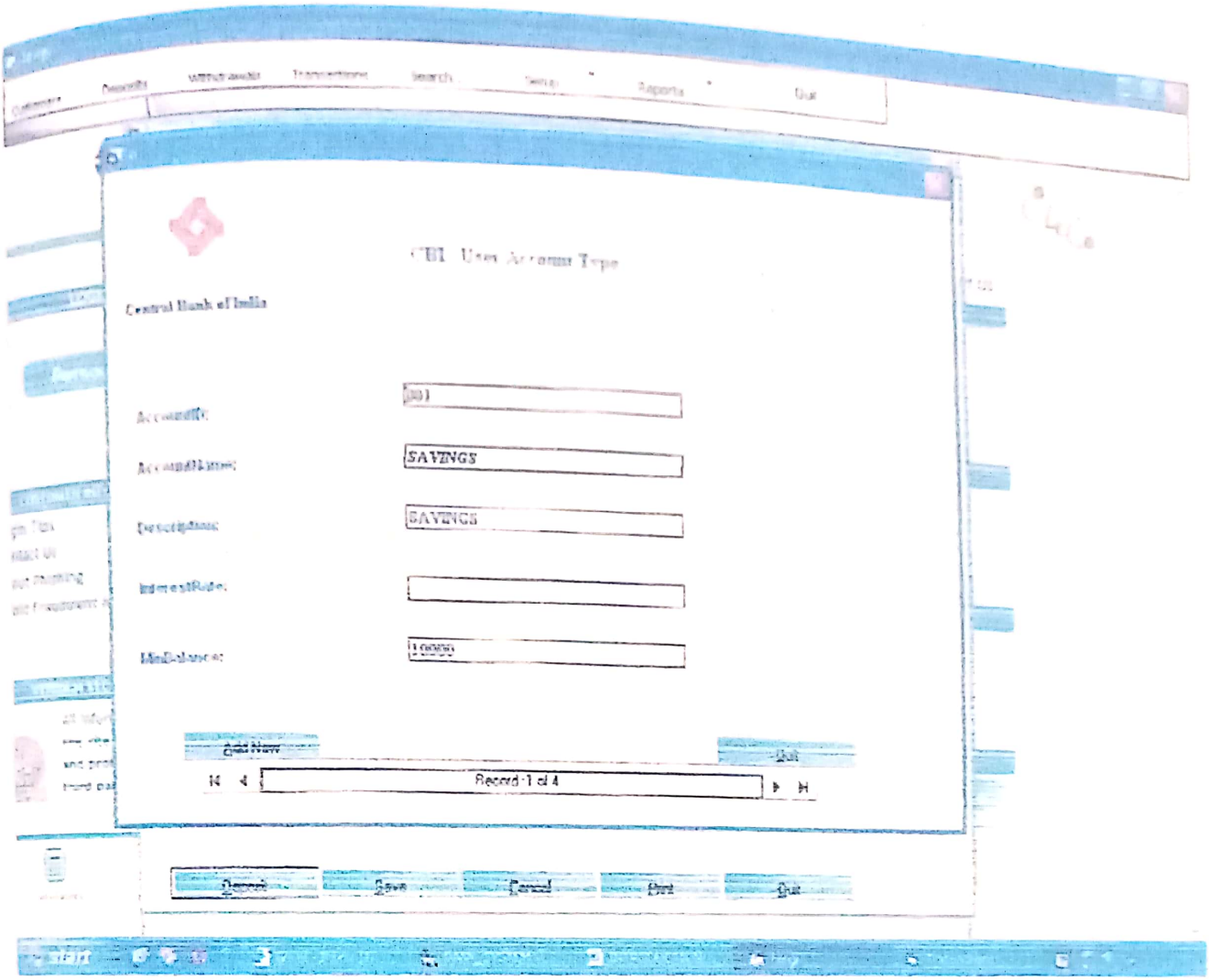


Withdrawal

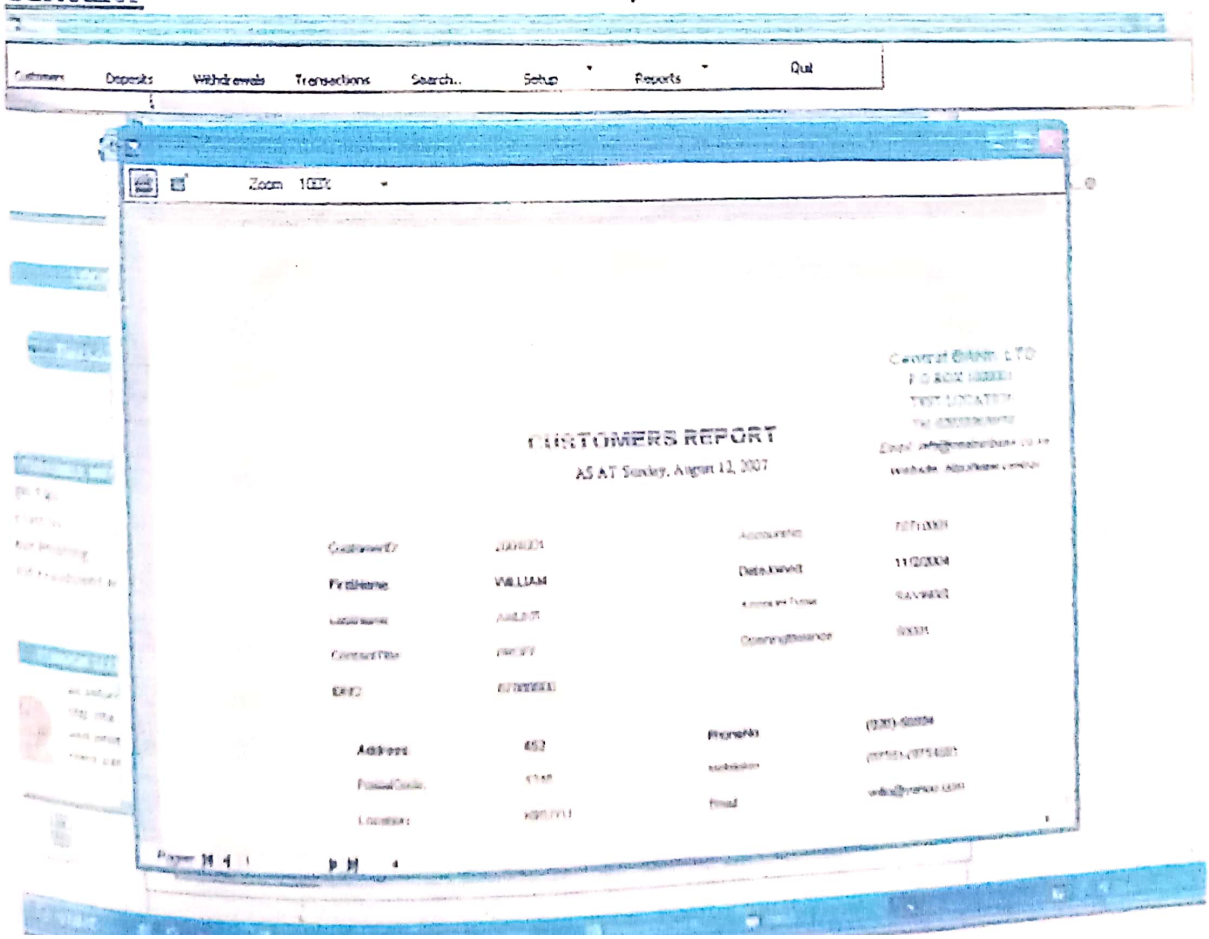


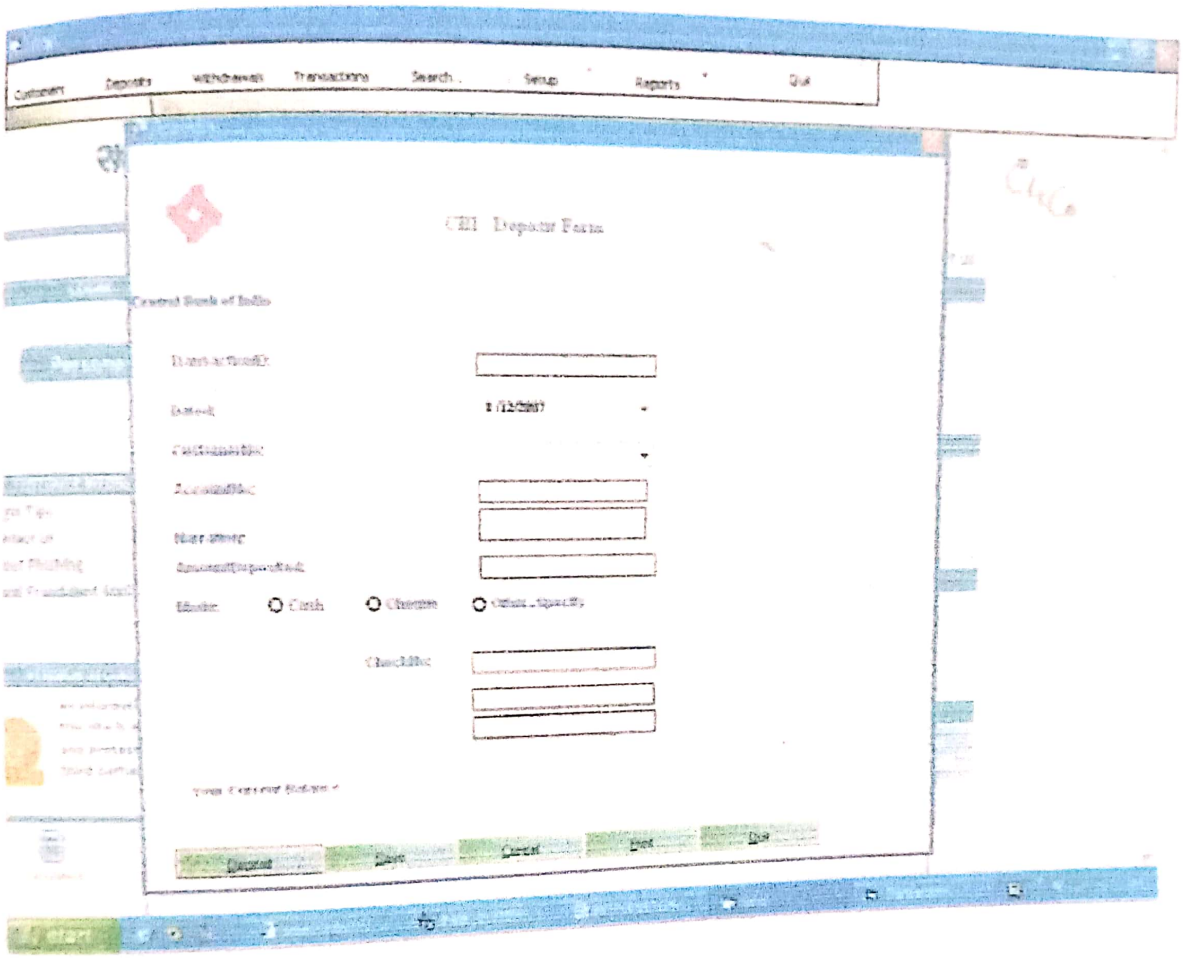
Transaction





Customer





Account type(Current)

"Banking System" keeps the day by day fully record as a complete banking. It can keep the information of Account type, account opening form, Deposit, Withdrawal, and Searching the transaction Transaction report, Individual account opening form, Group Account. The exciting part of this project is; it displays Transaction reports, Statistical Summary of Account type and Interest Information.

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