Assignment No.: 1

Problem Statement:

Q) Design Department System with the following database .

Create the following database:-

EMPLOYEE (E_lD, E_NAME, SALARY)

WORKS (E-ID, D_ID)

DEPT (D_ID, D_NAME, MANAGER_lD, FLOOR_lD)

Create a table using SQL such that If EMPLOYEE record is deleted, all corresponding records in the

WORKS table also get deleted. Insert at least six tuples in each table so that queries yield some result. 'e_name' can't start with letters A and D and salary must be greater than 10,000.

Write SQL queries for the following:-

1) Find the names of all employee who work on the 10th floor and earn a salary less than Rs. 60,000.

2) Find the names of the dept that the employee Santa Singh works for.

3) Find the names of all employees who works for both cosmetic & packaging dept.

4) Find the name of all the employees who work on the floor where 'Jane Donald' does not work.

5) Find the names of those employees who work on both second and third floor.

6) Find the names of all managers whose salary is greater than 30000.

7) Find the manager name who manages maximum number of employees.

Create an user interface. incorporate the following in your design.

Question 1: Login to the system and design a menu form for the above operations.

Question 2: input, view, modify and delete data in each of the table in separate

forms so that all the integrity constraints are maintained.

Question 3: Input 'Floor_no.' using a vertical scroll bar so that floor no is btween1 to 20

Question 4: Validate the column salary so that it can take only integer values.

SQL Commands:

Table employee:

Creation:

```
SQL> create table employee(
  2  e_id varchar2(5) primary key,
  3  e_name varchar2(25) check(e_name not like 'a%' and e_name not like 'A%' and e_name not like 'd%' or e_name not like 'D%'),
  4  salary number check(salary>10000)
  5  );
```

Table created.

Description:

SQL> desc employee;

Name	Null?	Type
E_ID	NOT NULL	VARCHAR2(5)
E_NAME		VARCHAR2(25)
SALARY		NUMBER(8,2)

Insertion:

```
SQL> insert into employee values('e01','Rajib Mal',40000);
1 row created.
SQL> insert into employee values('e02','Narendra Modi',45000);
1 row created.
SQL> insert into employee values('e03','Vinod Kamli',50000);
1 row created.
SQL> insert into employee values('e04','Shaun Marsh',35000);
1 row created.
SQL> insert into employee values('e05','Steve Jobes',32000);
1 row created.
SQL> insert into employee values('e06','Peter Galvin',65000);
1 row created.
SQL> insert into employee values('e07','Komal Pandey',35000);
```

1 row created.

SQL> insert into employee values('e08','Brett Lee',25000);

1 row created.

SQL> insert into employee values('e09','John Cena',55000);

1 row created.

SQL> insert into employee values('e10','Jame Thomson',15000);

1 row created.

SQL> insert into employee values('e11','Mathew Hayden',23000);

1 row created.

Table dept:

Creation:

```
SQL> create table dept(
  2  d_id varchar2(5) primary key,
  3  d_name varchar2(25),
  4  manager_id varchar(5),
  5  floor_id number(2) check(floor_id>0 and floor_id<21)
  6  );
```

Table created.

Description:

```
SQL> desc dept
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 D_ID                                      NOT NULL VARCHAR2(5)
 D_NAME                                             VARCHAR2(25)
 MANAGER_ID                                         VARCHAR2(5)
 FLOOR_NO                                           NUMBER(2)
```

Insertion:

SQL> insert into dept values('d01','Administration','e02',2);

1 row created.

```
SQL> insert into dept values('d02','Production','e06',10);
```

1 row created.

```
SQL> insert into dept values('d03','Reseach and Development','e01',15);
```

1 row created.

```
SQL> insert into dept values('d04','Marketing','e03',5);
```

1 row created.

```
SQL> insert into dept values('d05','Human Resource','e04',8);
```

1 row created.

```
SQL> insert into dept values('d06','Accounts','e05',12);
```

1 row created.

Table works:

Creation:

```
SQL> create table works
  2  (
  3  e_id varchar2(5),
  4  d_id varchar2(5),
  5  primary key(e_id,d_id),
  6  foreign key(e_id) references employee on delete cascade,
  7  foreign key(d_id) references deptt on delete cascade
  8  );
```

Table created.

Description:

```
SQL> desc works;
```

Name	Null?	Type
E_ID	NOT NULL	VARCHAR2(5)
D_ID	NOT NULL	VARCHAR2(5)

Insertion:

SQL> insert into works values('e11','d03');

1 row created.

SQL> insert into works values('e10','d01');

1 row created.

SQL> insert into works values('e08','d04');

1 row created.

SQL> insert into works values('e09','d05');

1 row created.

SQL> insert into works values('e07','d06');

1 row created.

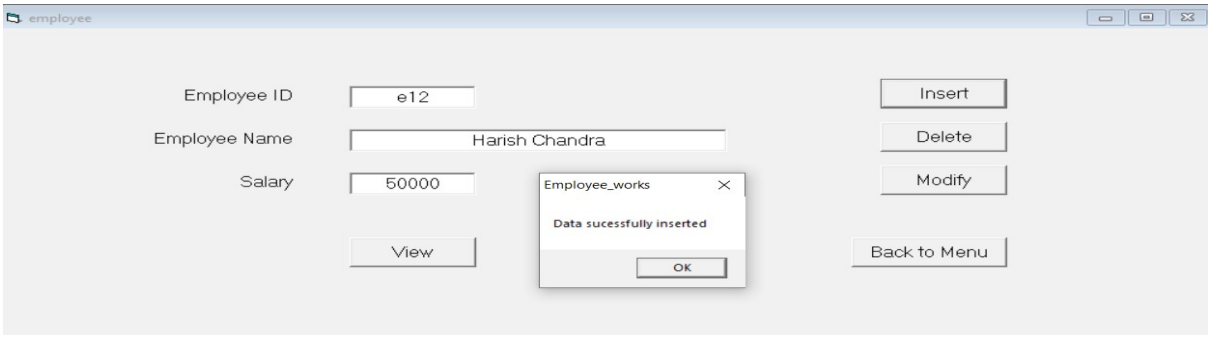
SQL> insert into works values('e04','d02');

1 row created.

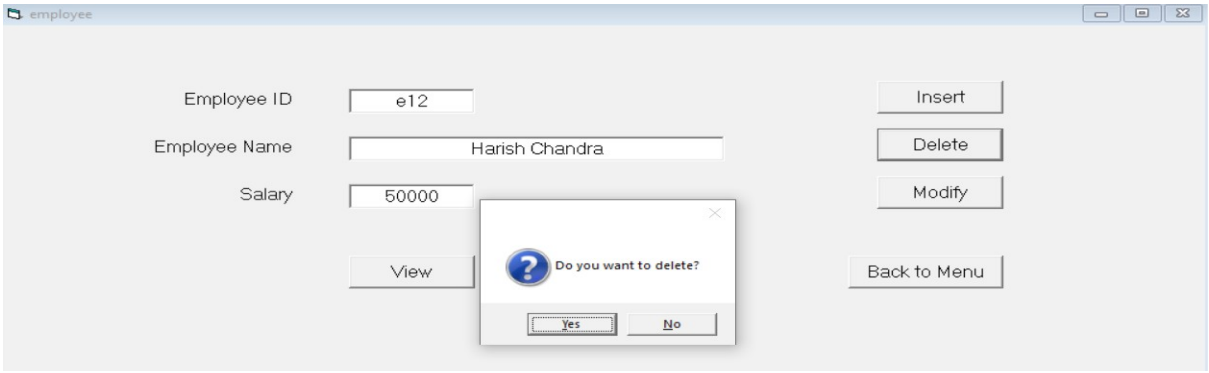
Visual Basic operations:

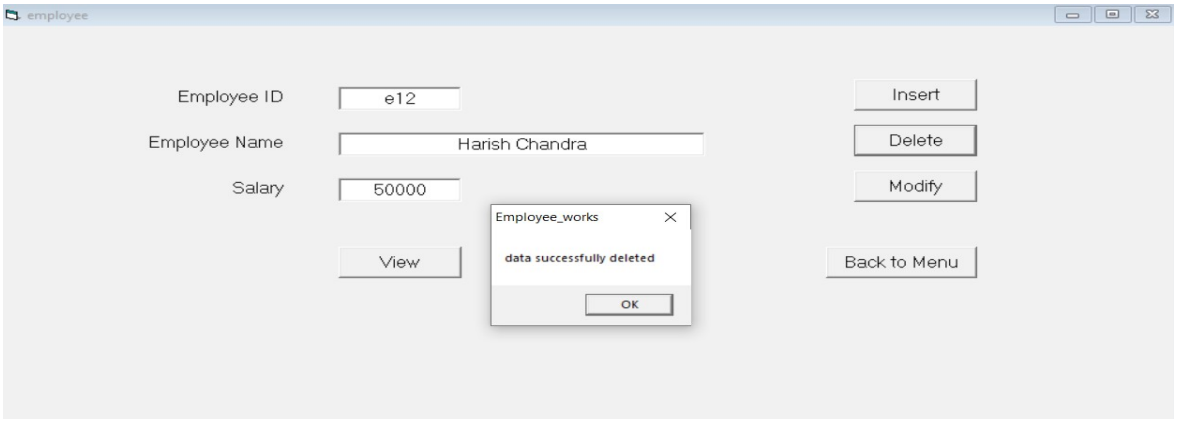
Table Employee form:

Insertion:

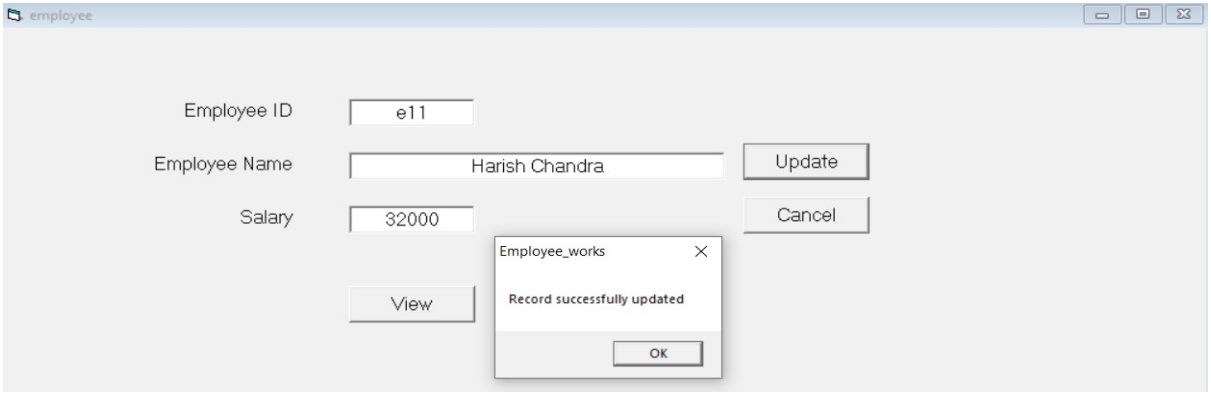


Deletion:

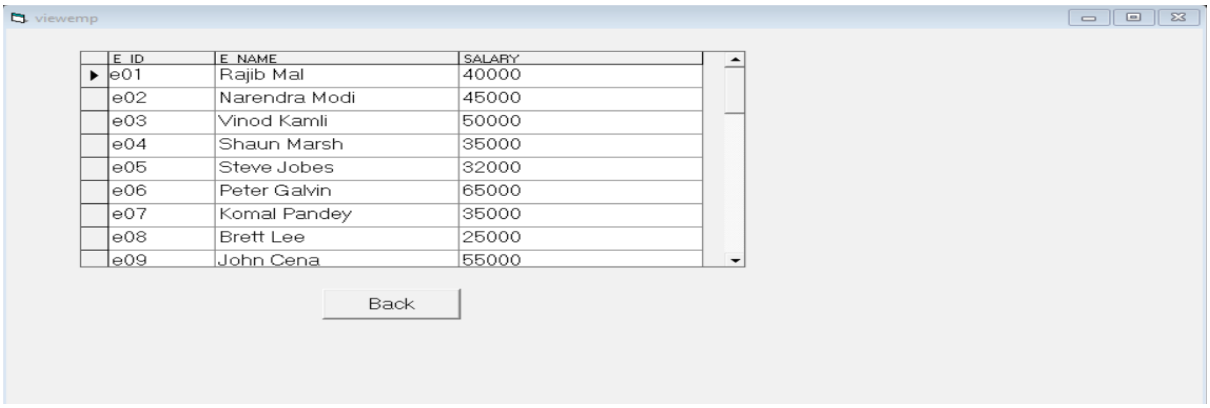




Modify and Update:



View:



Employee codes:

Declaration

Dim cn As ADODB.Connection, rs As ADODB.Recordset, cmd As ADODB.Command, s As String

Back button

```
Private Sub back_Click()
    Unload Me
    menu.Show
End Sub
```

Cancel button

```
Private Sub can_Click()
    id.Text = ""
    nm.Text = ""
    salary.Text = ""
    rs.MoveFirst
    update.Visible = False
    Modify.Visible = True
    insert.Visible = True
    Modify.Visible = True
    delete.Visible = True
```

```
    back.Visible = True
    can.Visible = False
End Sub
```

Clear button

```
Private Sub clear_Click()
    id.Text = ""
    nm.Text = ""
    salary.Text = ""
End Sub
```

Delete button

```
Private Sub delete_Click()
    ib = InputBox("Enter the ID to delete")
    If ib = "" Then
        MsgBox "ID cannot be blank"
    Else
        rs.Find "e_id like '" & ib & "'"
        If rs.EOF = True Then
            MsgBox "No such record found"
        Else
            id.Text = rs("e_id")
            nm.Text = rs("e_name")
            salary.Text = rs("salary")
            If MsgBox("Do you want to delete?", vbQuestion + vbYesNo, App.ProductName) =
vbYes Then
                rs.delete adAffectCurrent
                MsgBox "data successfully deleted"
            End If
        End If
    End If
End Sub
```

Connecting VB and Oracle SQL

```
Private Sub Form_Load()
   Set cn = New ADODB.Connection
   Set cmd = New ADODB.Command
   Set rs = New ADODB.Recordset
   cn.Open "Provider=OraOLEDB.Oracle.1;Password=tiger;Persist Security Info=True;User ID=scott"
   rs.Open "select * from employee", cn, adOpenDynamic, adLockOptimistic
End Sub
```

Insert button

```
Private Sub insert_Click()
   's = "insert into employee values('" + id.Text + "', '" + nm.Text + "', '" + salary.Text + "')"
   If id.Text = "" Then
      MsgBox "ID cannot be blank"
      id.SetFocus
   ElseIf salary.Text < 10000 Then
      MsgBox "Salary must be greater than 10K"
      salary.SetFocus
   Else
      cmd.ActiveConnection = cn
      cmd.CommandText = "insert into employee values('" & id.Text & "', '" & nm.Text & "', '" & salary.Text & "')"
      cmd.Execute
   End If
   'rs.AddNew ([e_id,e_name,salary)] = ['" + id.Text + "', '" + nm.Text + "', '" + salary.Text + "'])
   MsgBox "Data sucessfully inserted"
End Sub
```

Modify button

```
Private Sub Modify_Click()
   ib = InputBox("Enter the ID to update")
   If ib = "" Then
```

```
        MsgBox "ID cannot be left blank"
        id.SetFocus
    Else
        rs.MoveFirst
        rs.Find "e_id like '" & ib & "'"
        If rs.EOF = True Then
            MsgBox "No such record found"
        Else
            update.Visible = True
            Modify.Visible = False
            insert.Visible = False
            Modify.Visible = False
            delete.Visible = False
            back.Visible = False
            can.Visible = True
            id.Text = rs("e_id")
            nm.Text = rs("e_name")
            salary.Text = rs("salary")
        End If
    End If
End Sub
```

Update button

```
Private Sub update_Click()
    If id = "" Then
        MsgBox "ID cannot be left blank"
        id.SetFocus
    Else
        rs("e_id") = id.Text
        rs("e_name") = nm.Text
        rs("salary") = salary.Text
```

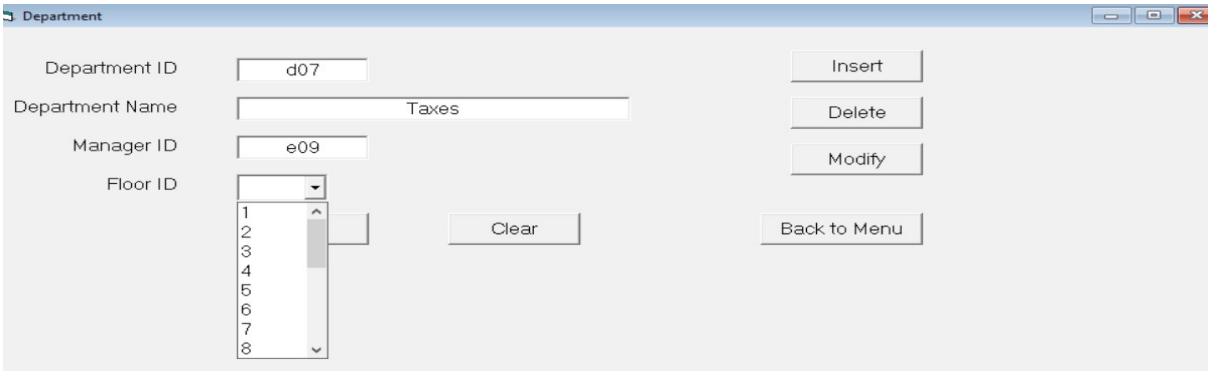
```
        rs.update
        MsgBox "Record successfully updated"
        rs.MoveFirst
        update.Visible = False
        Modify.Visible = True
        insert.Visible = True
        Modify.Visible = True
        delete.Visible = True
        back.Visible = True
        can.Visible = False
    End If
End Sub
```

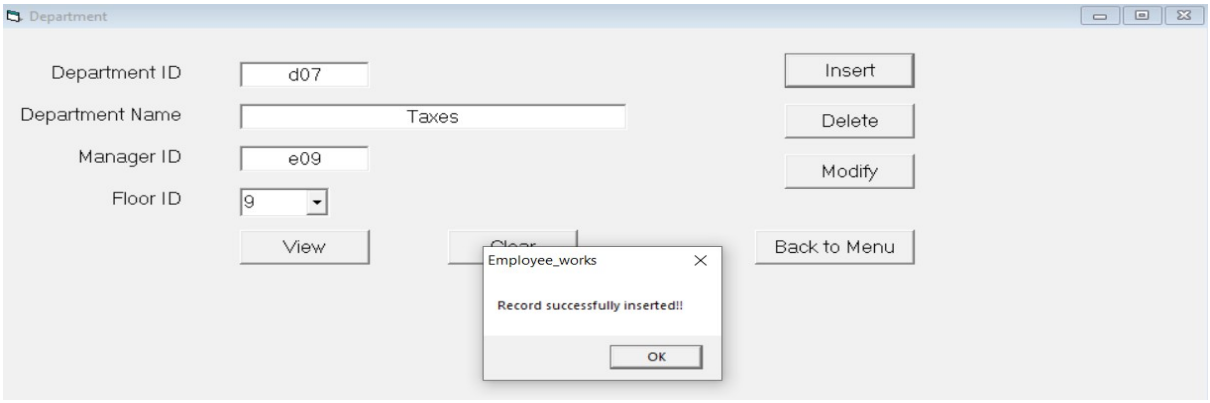
View button

```
Private Sub view_Click()
    Unload Me
    vwemp.Show
End Sub
```

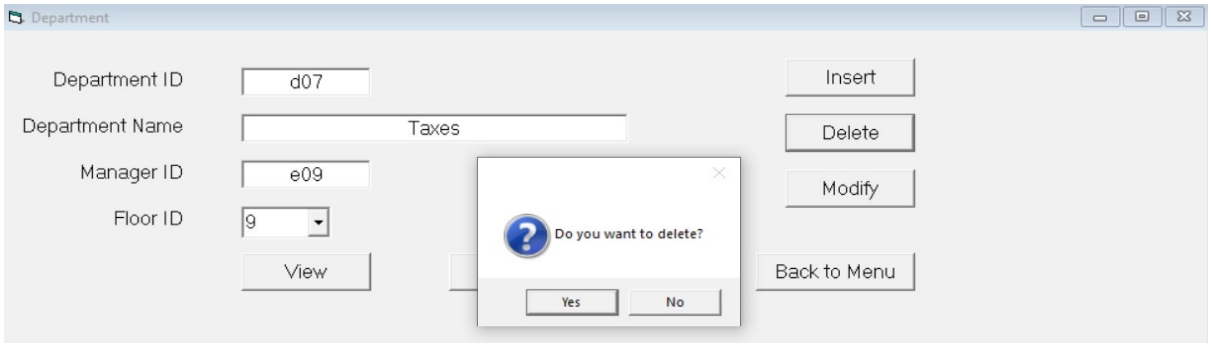
Department form:

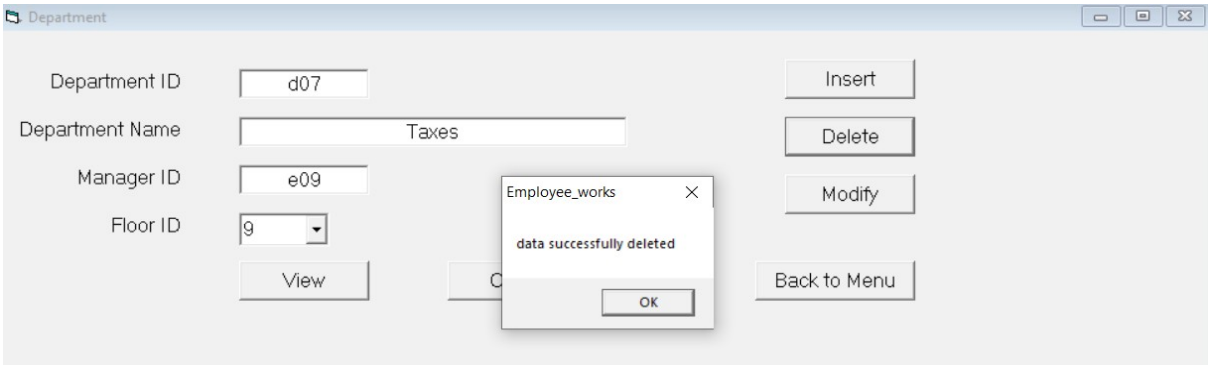
Insertion:



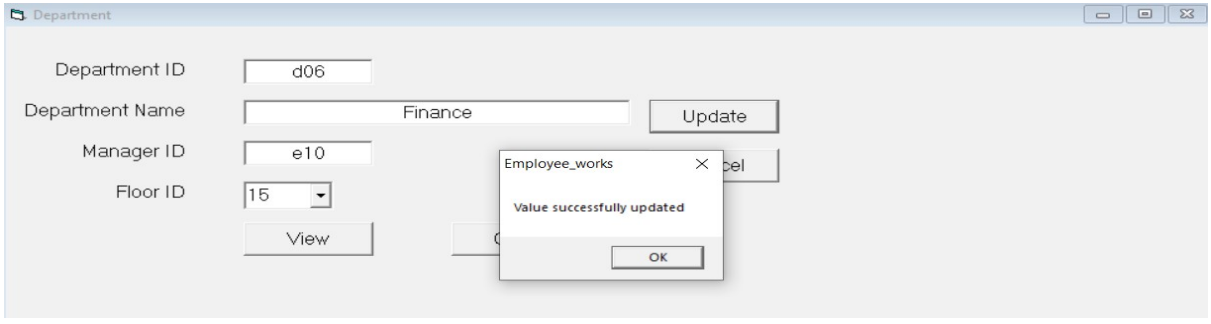


Deletion:

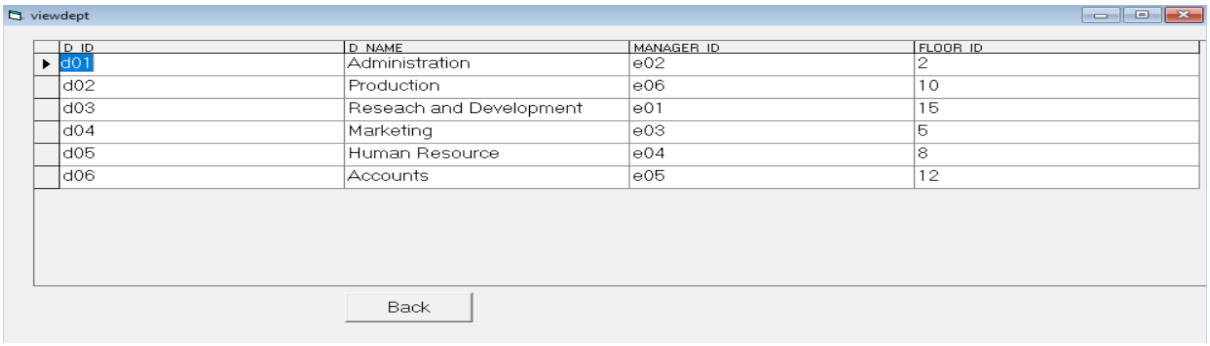




Modify and Update:



View:



Department codes:

Declaration

```
Dim cn As ADODB.Connection, rs As ADODB.Recordset, cmd As ADODB.Command
Dim s As String
```

Back button

```
Private Sub back_Click()
    menu.Show
    Unload Me
End Sub
```

Cancel button

```
Private Sub can_Click()
    id.Text = ""
    nm.Text = ""
    mid.Text = ""
    cmb_fid.Text = ""
    rs.MoveFirst
    update.Visible = False
    Modify.Visible = True
    insert.Visible = True
    Modify.Visible = True
    delete.Visible = True
    back.Visible = True
    can.Visible = False
```

```
End Sub
```

Clear button

```
Private Sub clear_Click()
   id.Text = ""
   nm.Text = ""
   mid.Text = ""
   cmb_fid.Text = ""
End Sub
```

Delete button

```
Private Sub delete_Click()
   ib = InputBox("Enter the ID to delete")
   If ib = "" Then
      MsgBox "ID cannot be blank"
   Else
      rs.Find "d_id like '" & ib & "'"
      If rs.EOF = True Then
         MsgBox "No such record found"
      Else
         id.Text = rs("d_id")
         nm.Text = rs("d_name")
         mid.Text = rs("manager_id")
         cmb_fid.Text = rs("floor_id")
         If MsgBox("Do you want to delete?", vbQuestion + vbYesNo, App.ProductName) =
vbYes Then
            rs.delete adAffectCurrent
            MsgBox "data successfully deleted"
         End If
      End If
   End If
End Sub
```

Connecting VB and Oracle SQL

```
Private Sub Form_Load()
   Set cn = New ADODB.Connection
   Set cmd = New ADODB.Command
   Set rs = New ADODB.Recordset
   cn.Open "Provider=OraOLEDB.Oracle.1;Password=tiger;Persist Security Info=True;User ID=scott"
   rs.Open "select * from dept", cn, adOpenDynamic, adLockOptimistic
   i = 1
   Do While i <= 20
      cmb_fid.AddItem i
      i = i + 1
   Loop
End Sub
```

Modify button

```
Private Sub Modify_Click()
    ib = InputBox("Enter the ID to update")
   If ib = "" Then
      MsgBox "ID cannot be left blank"
      id.SetFocus
   Else
      rs.MoveFirst
      rs.Find "d_id like '" & ib & "'"
      If rs.EOF = True Then
         MsgBox "No such record found"
      Else
         update.Visible = True
         Modify.Visible = False
         insert.Visible = False
         Modify.Visible = False
         delete.Visible = False
```

```
            back.Visible = False
            can.Visible = True
            id.Text = rs("d_id")
            nm.Text = rs("d_name")
            mid.Text = rs("manager_id")
            cmb_fid.Text = rs("floor_id")
        End If
    End If
End Sub
```

Update button

```
Private Sub update_Click()
    If id = "" Then
        MsgBox "ID cannot be left blank"
        id.SetFocus
    Else
        rs("d_id") = id.Text
        rs("d_name") = nm.Text
        rs("manager_id") = mid.Text
        rs("floor_id") = cmb_fid.Text
        rs.update
        MsgBox "Value successfully updated"
        rs.MoveFirst
        update.Visible = False
        Modify.Visible = True
        insert.Visible = True
        Modify.Visible = True
        delete.Visible = True
        back.Visible = True
        can.Visible = False
    End If
End Sub
```

View button

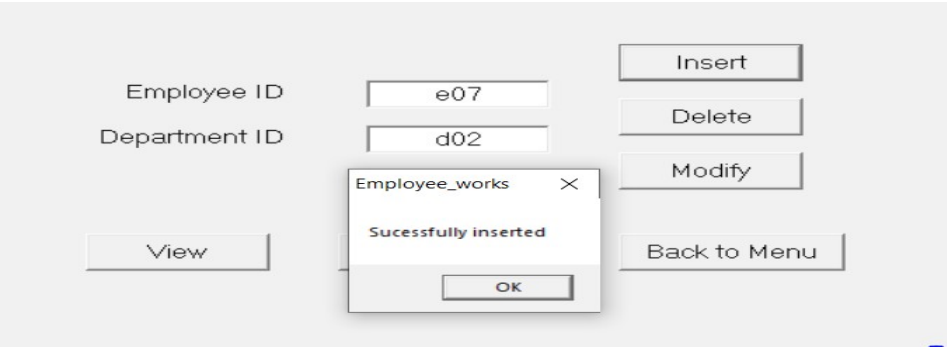
```
Private Sub vw_Click()
    vwdept.Show
    Unload Me
End Sub
```

Insert button

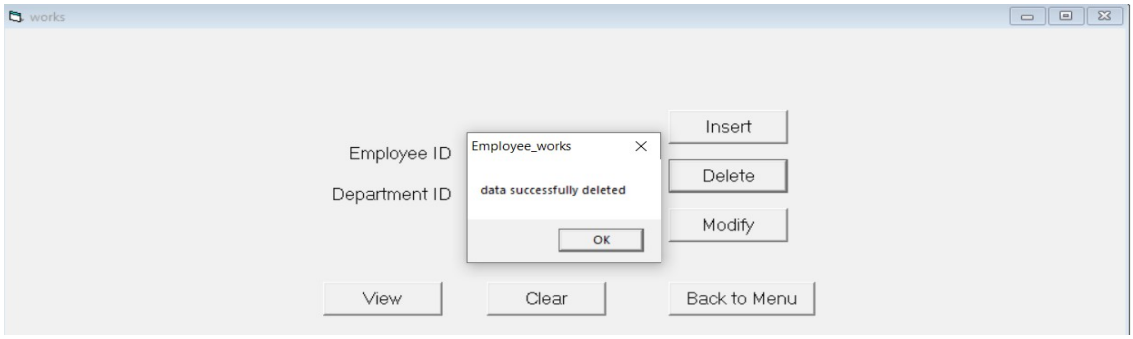
```
Private Sub insert_Click()
    If id.Text = "" Then
        MsgBox "ID cannot be blank"
        id.SetFocus
    Else
        s = "insert into dept values('" & id.Text & "','" & nm.Text & "', '" & mid.Text & "','" & cmb_fid.Text & "')"
        cmd.ActiveConnection = cn
        cmd.CommandText = s
        cmd.Execute
        MsgBox "Record successfully inserted!!"
    End If
End Sub
```

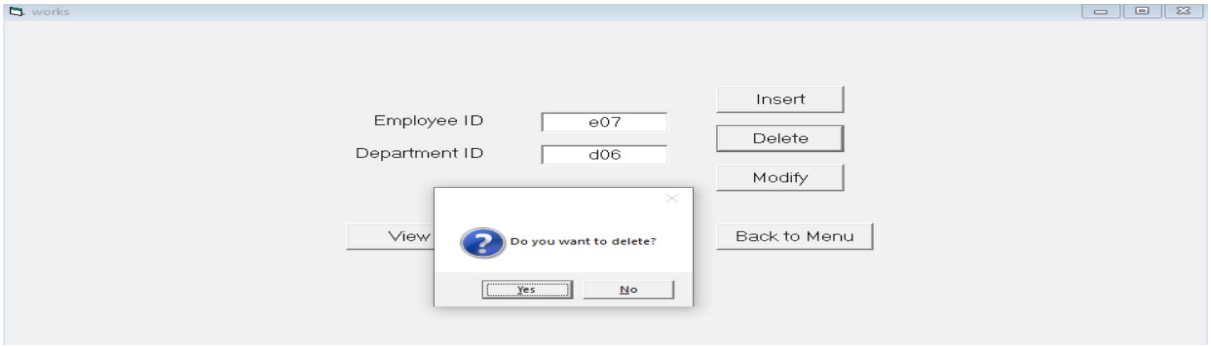
Works form:

Insertion:

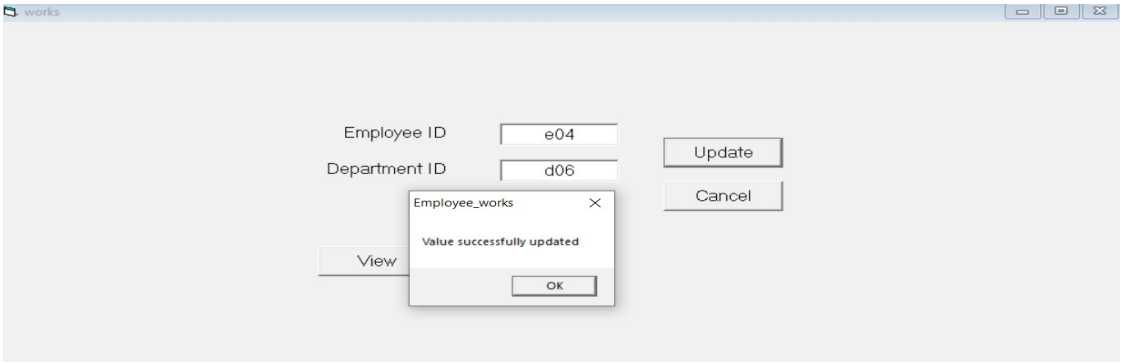


Deletion:

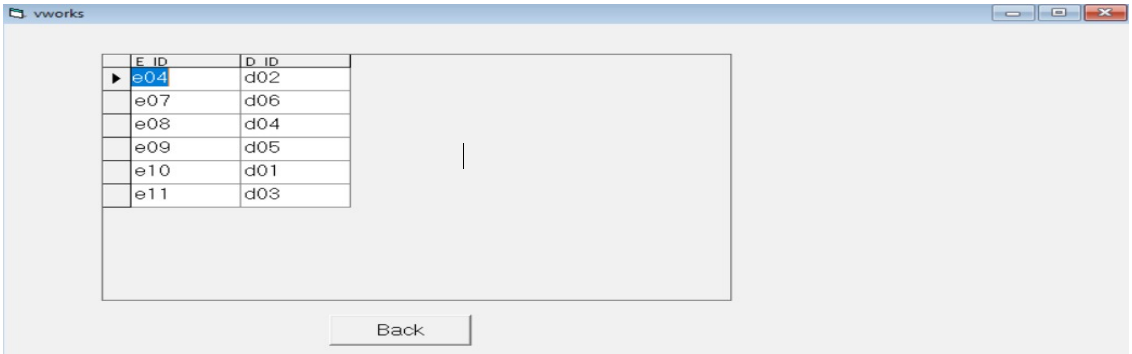




Modify and Update



View:



Works codes:

Declaration

```
Dim cn As ADODB.Connection, rs As ADODB.Recordset, cmd As ADODB.Command, s As String
```

Back button

```
Private Sub back_Click()
    menu.Show
    Unload Me
End Sub
```

Cancel button

```
Private Sub can_Click()
    eid.Text = ""
    did.Text = ""
    rs.MoveFirst
    update.Visible = False
    Modify.Visible = True
    insert.Visible = True
    Modify.Visible = True
    delete.Visible = True
    back.Visible = True
    can.Visible = False
End Sub
```

Clear button

```
Private Sub clear_Click()
    eid.Text = ""
    did.Text = ""
End Sub
```

Delete button

```
Private Sub delete_Click()
    ib = InputBox("Enter the ID to delete")
```

```
    If ib = "" Then
        MsgBox "ID cannot be blank"
    Else
        rs.Find "e_id like '" & ib & "'"
        If rs.EOF = True Then
            MsgBox "No such record found"
        Else
            eid.Text = rs("e_id")
            did.Text = rs("d_id")
            If MsgBox("Do you want to delete?", vbQuestion + vbYesNo, App.ProductName) =
vbYes Then
                rs.delete adAffectCurrent
                eid.Text = ""
                did.Text = ""
                MsgBox "data successfully deleted"
            End If
        End If
    End If
End Sub
```

Connecting VB and Oracle SQL:

```
Private Sub Form_Load()
    Set cn = New ADODB.Connection
    Set rs = New ADODB.Recordset
    cn.Open "Provider=OraOLEDB.Oracle.1;Password=tiger;Persist Security Info=True;User
ID=scott"
    rs.Open "select * from works", cn, adOpenDynamic, adLockOptimistic
End Sub
```

Insert button

```
Private Sub insert_Click()
    If eid.Text = "" Or did.Text = "" Then
```

```
        MsgBox "ID cannot be left blank"
        eid.SetFocus
    Else
        s = "insert into works values('" + eid.Text + "', '" + did.Text + "')"
        cn.Execute s
        MsgBox "Sucessfully inserted"
    End If
End Sub
```

Modify button

```
Private Sub Modify_Click()
    ib = InputBox("Enter the Employee ID to update")
    If ib = "" Then
        MsgBox "ID cannot be left blank"
        eid.SetFocus
    Else
        rs.MoveFirst
        rs.Find "e_id like '" & ib & "'"
        If rs.EOF = True Then
            MsgBox "No such record found"
        Else
            update.Visible = True
            Modify.Visible = False
            insert.Visible = False
            Modify.Visible = False
            delete.Visible = False
            back.Visible = False
            can.Visible = True
            eid.Text = rs("e_id")
            did.Text = rs("d_id")
        End If
    End If
```

```
End Sub
```

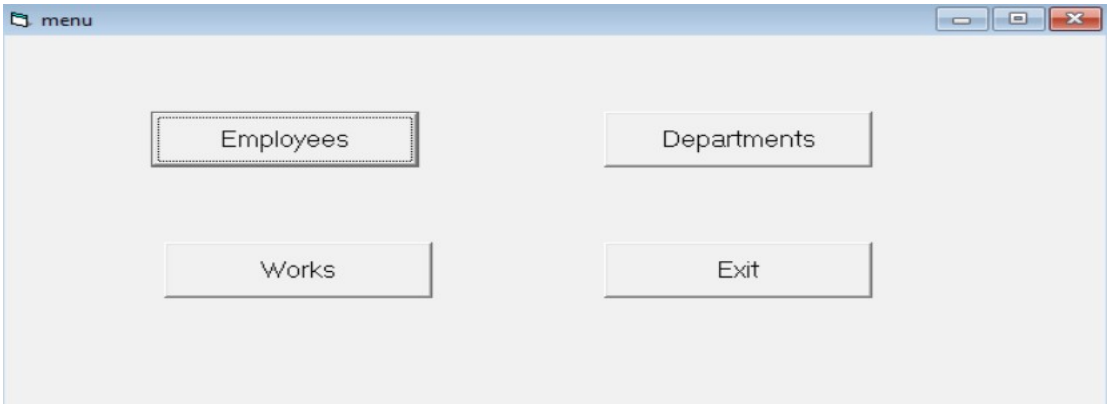
Update button

```
Private Sub update_Click()
   If eid = "" Then
      MsgBox "ID cannot be left blank"
      eid.SetFocus
   Else
      rs("e_id") = eid.Text
      rs("d_id") = did.Text
      rs.update
      MsgBox "Value successfully updated"
      rs.MoveFirst
      update.Visible = False
      Modify.Visible = True
      insert.Visible = True
      Modify.Visible = True
      delete.Visible = True
      back.Visible = True
      can.Visible = False
   End If
End Sub
```

View button

```
Private Sub vw_Click()
   vworks.Show
   Unload Me
End Sub
```

Menu form:



Menu codes:

Exit button

```
Private Sub cmd_Click()
    Unload Me
End Sub
```

Department button

```
Private Sub cmddept_Click()
    dept.Show
    Unload Me
End Sub
```

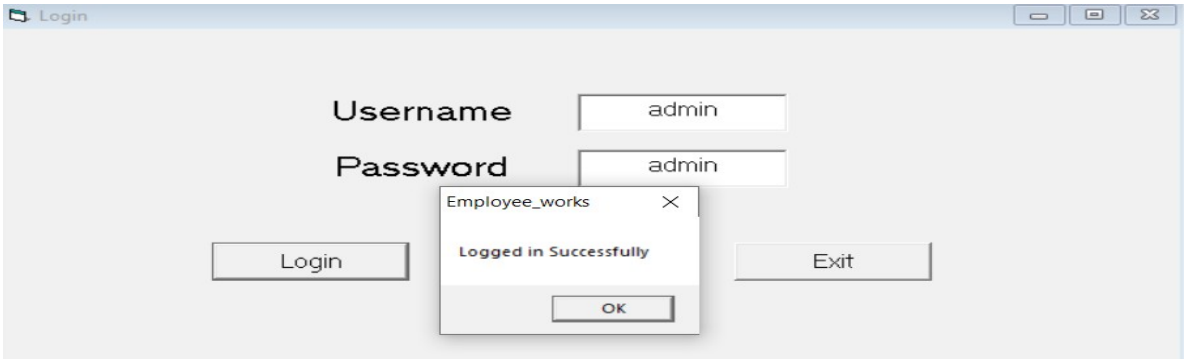
Employee button

```
Private Sub cmdemp_Click()
    employee.Show
    Unload Me
End Sub
```

Works button

```
Private Sub cmdworks_Click()
    works.Show
    Unload Me
End Sub
```

Login:



Login codes:

Clear button:

```
Private Sub clr_Click()
   t1.Text = ""
   t2.Text = ""
End Sub
```

Exit button

```
Private Sub exit_Click()
   Unload Me
End Sub
```

Login button

```
Private Sub Login_Click()
   If t1.Text = "admin" And t2.Text = "admin" Then
      MsgBox "Logged in Successfully"
      Unload Me
      menu.Show
   Else
      MsgBox "Wrong Username or Password"
```

```
      t1.SetFocus
   End If
End Sub
```

SQL Queries:

1) Find the names of all employee who work on the 10th floor and earn a salary less than Rs.60,000.

```
SQL> select e_name from employee e, dept d, works w where e.e_id=w.e_id and
w.d_id=d.d_id and floor_id=10 and salary<60000;

E_NAME
------------------------
Narendra Modi
```

2) Find the names of the dept that the employee Santa Singh works for.

```
SQL> select d_name from dept d, employee e, works w where d.d_id=w.d_id and
e.e_id=w.e_id and e_name like 'Santa Singh';

D_NAME
-------------------------
Production
Finance
```

3) Find the names of all employees who works for both cosmetic & packaging dept.

```
SQL> select e_name from employee e, dept d, works w where e.e_id=w.e_id and
d.d_id=w.d_id and d_name like 'Cosmetics' intersect (select e_name from employee e, dept
d, works w where e.e_id=w.e_id and d.d_id=w.d_id and d_name like 'Packaging');

E_NAME
-------------------------
Komal Pandey
```

4) Find the name of all the employees who work on the floor where 'Jane Donald' does not work.

```
SQL> select distinct e_name from employee e, dept d, works w where e.e_id=w.e_id and
w.d_id=d.d_id and floor_id not in (select floor_id from employee e, dept d, works w where
e.e_id=w.e_id and d.d_id=w.d_id and e_name='Jane Donald');
```

E_NAME

Brett Lee

Jame Thomson

John Cena

5) Find the names of those employees who work on both second and third floor.

SQL> select e_name from employee e, dept d, works w where e.e_id=w.e_id and d.d_id=w.d_id and floor_id=2 intersect (select e_name from employee e, dept d, works w where e.e_id=w.e_id and d.d_id=w.d_id and floor_id=3);

E_NAME

Jame Thomson

6) Find the names of all managers whose salary is greater than 30000.

SQL> select e_name from employee where e_id in(select manager_id from dept d, works w where d.d_id=w.d_id) and salary>30000;

E_NAME

Vinod Kamli

Narendra Modi

Rajib Mal

Shaun Marsh

7) Find the manager name who manages maximum number of employees.

SQL> select e_name from employee where e_id in(select manager_id from dept where d_id in(select d_id from works group by d_id having count(d_id) in(select max(count(d_id)) from works group by d_id)));

E_NAME

Jame Thomson

Peter Galvin