**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.

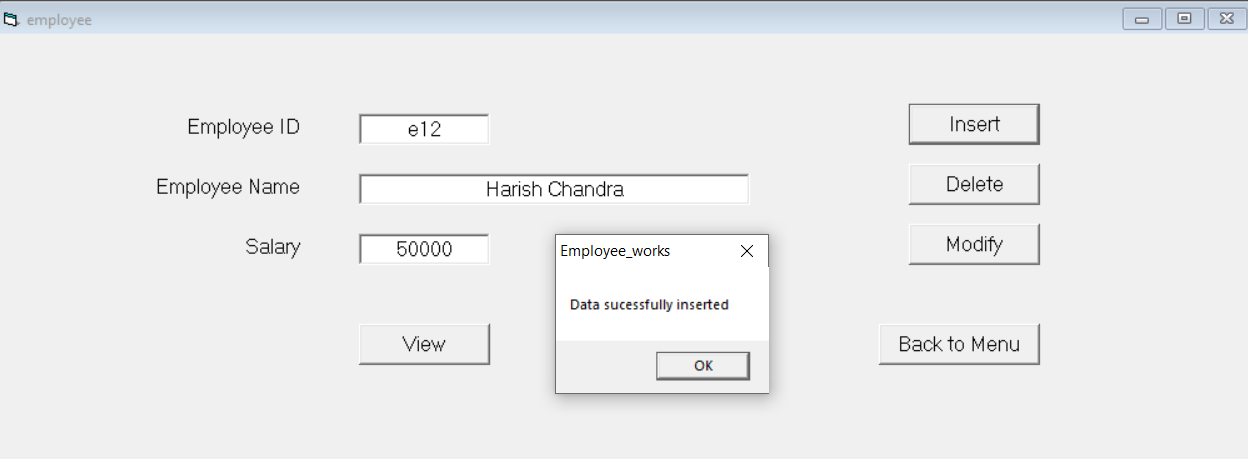
SQL> insert into works values('e04','d02');

1 row created.

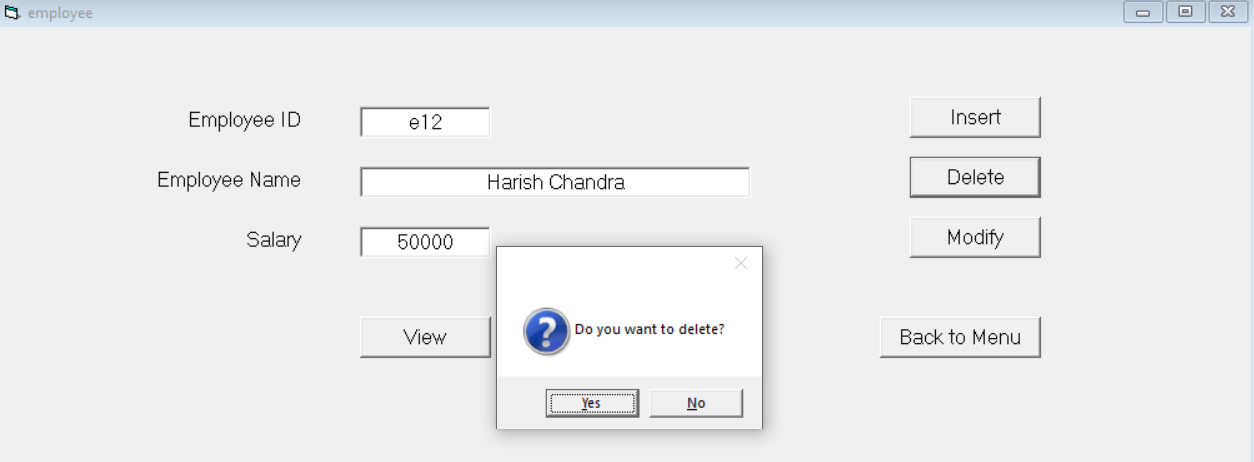
**Visual Basic operations:**

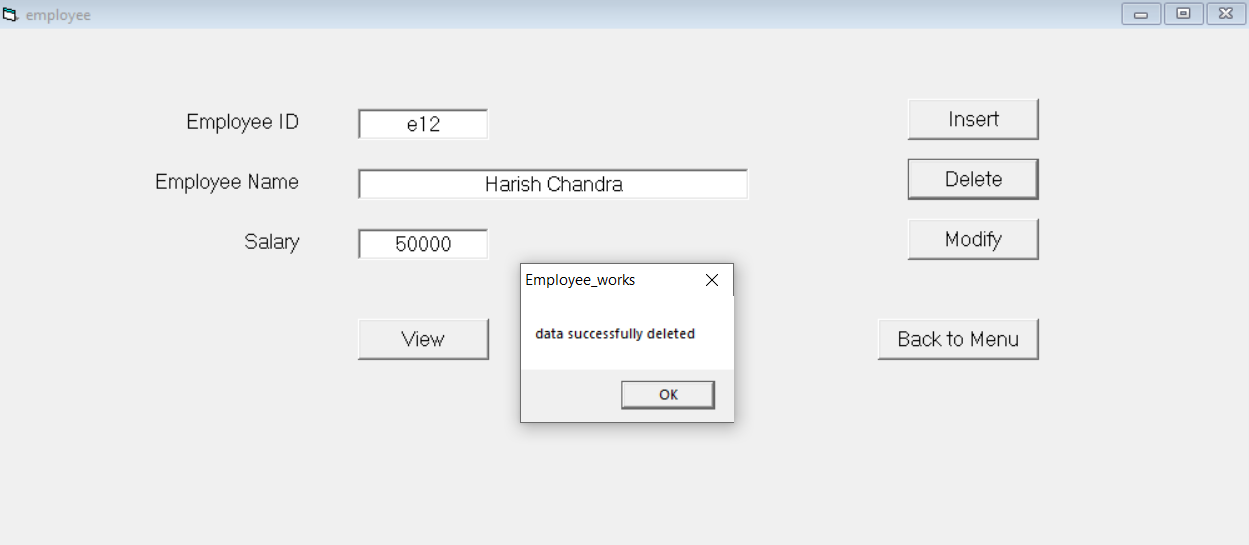
**Table Employee form:**

**Insertion:**

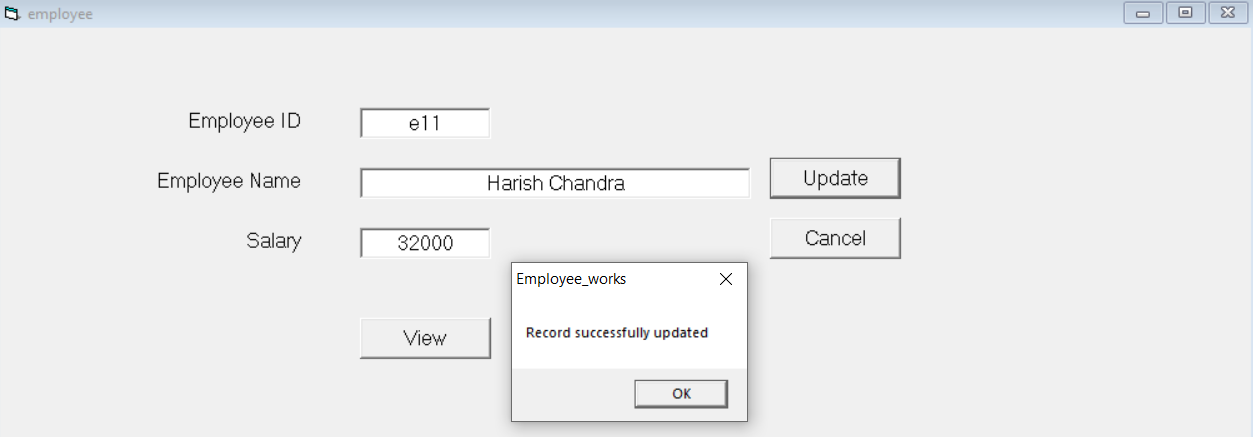
****

**Deletion:**

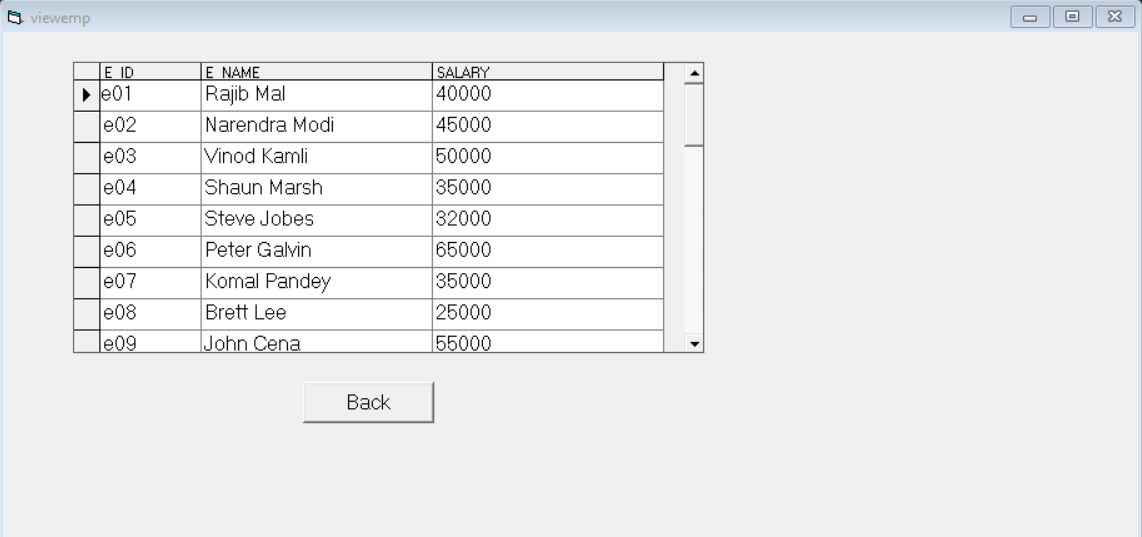
****



**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()

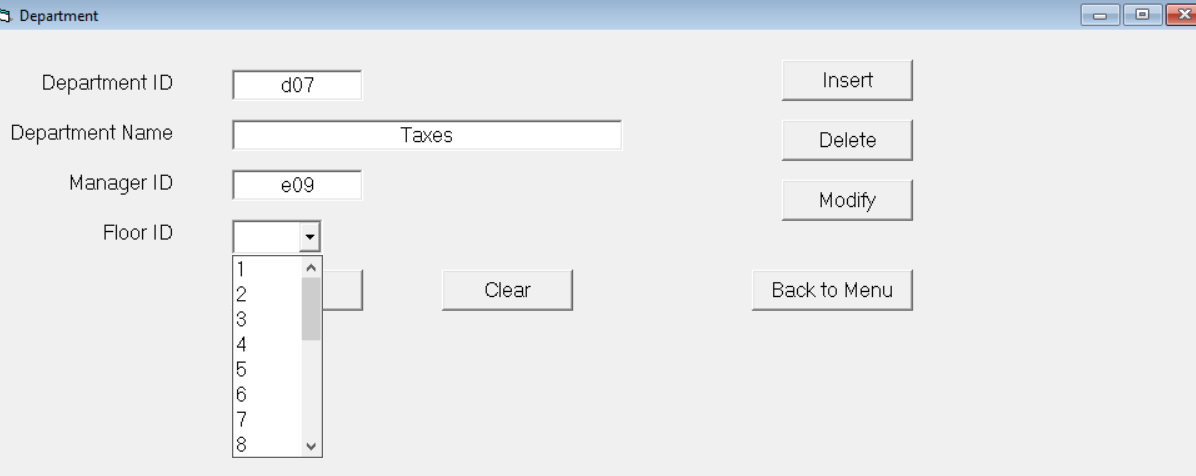
Unload Me

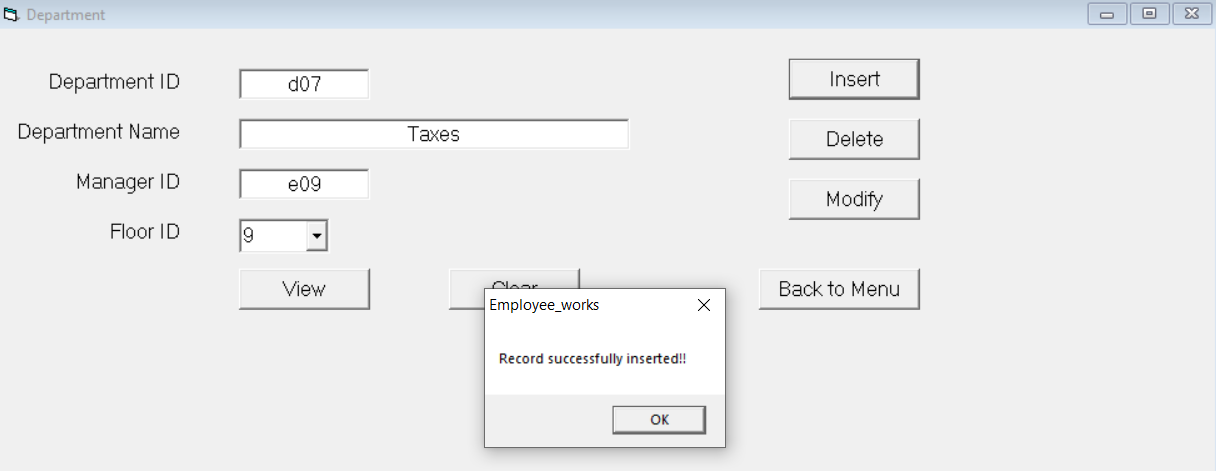
vwemp.Show

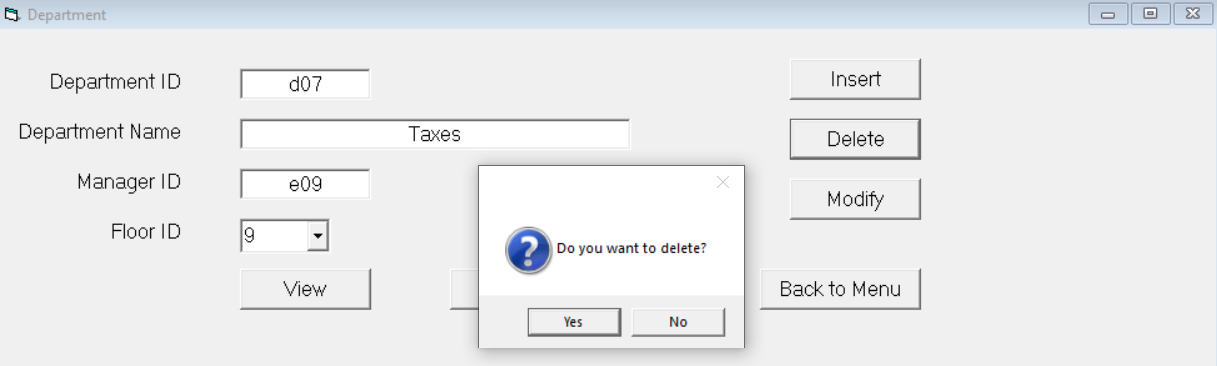
End Sub

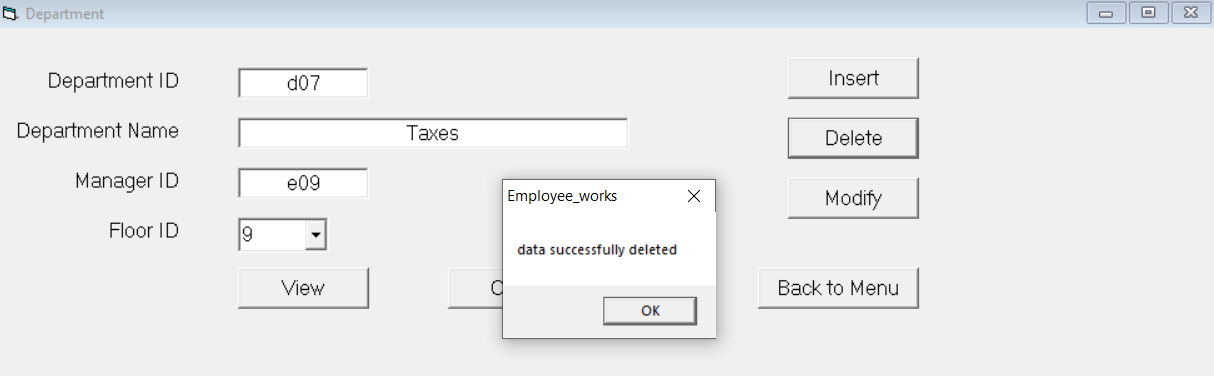
**Department form:**

**Insertion:**

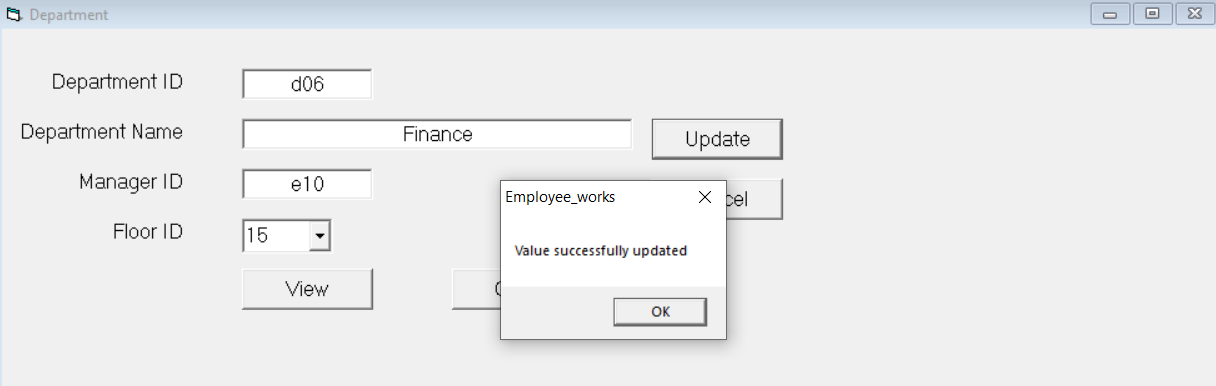
****

****

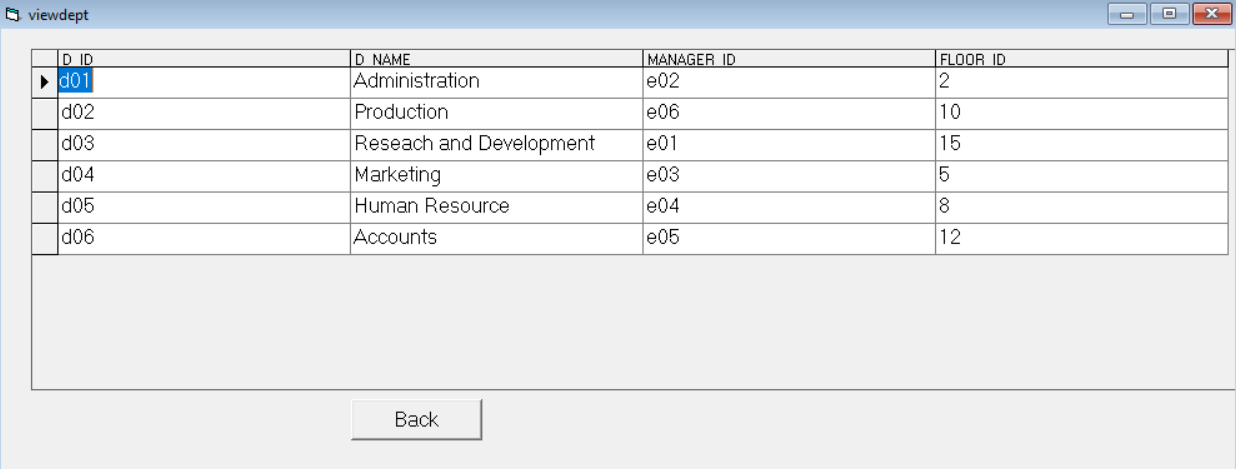
**Deletion:**

****

**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

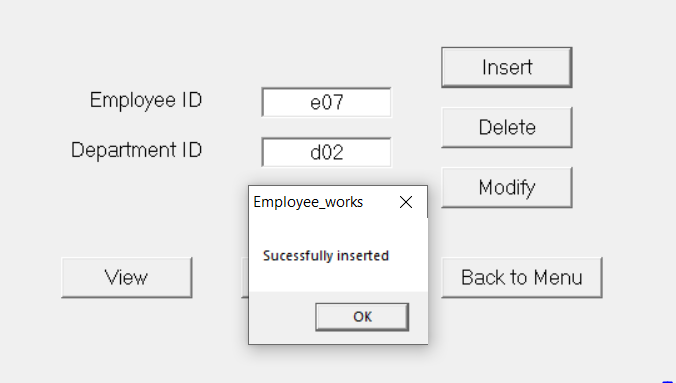
MsgBox "Record successfully inserted!!"

End If

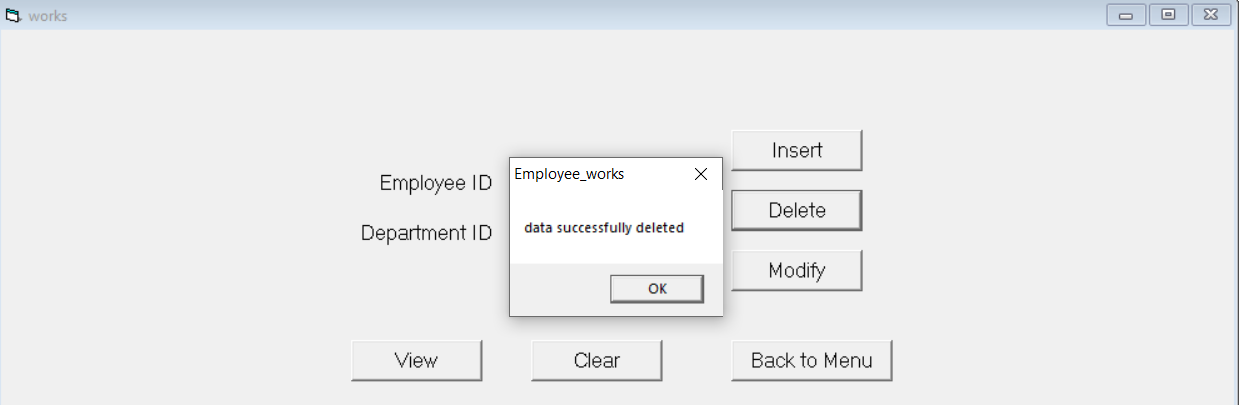
End Sub

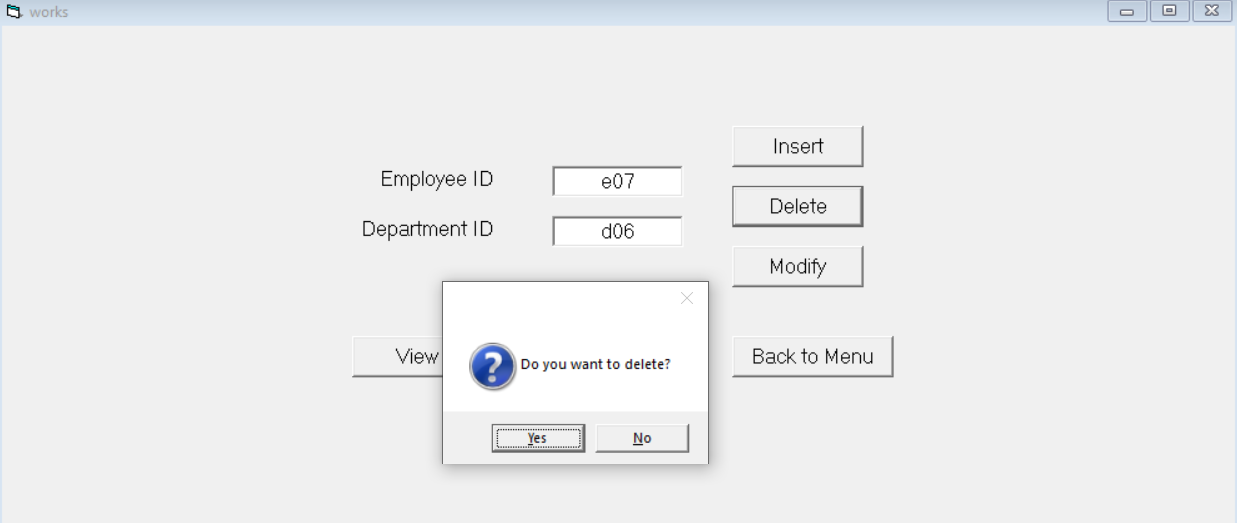
**Works form:**

**Insertion:**

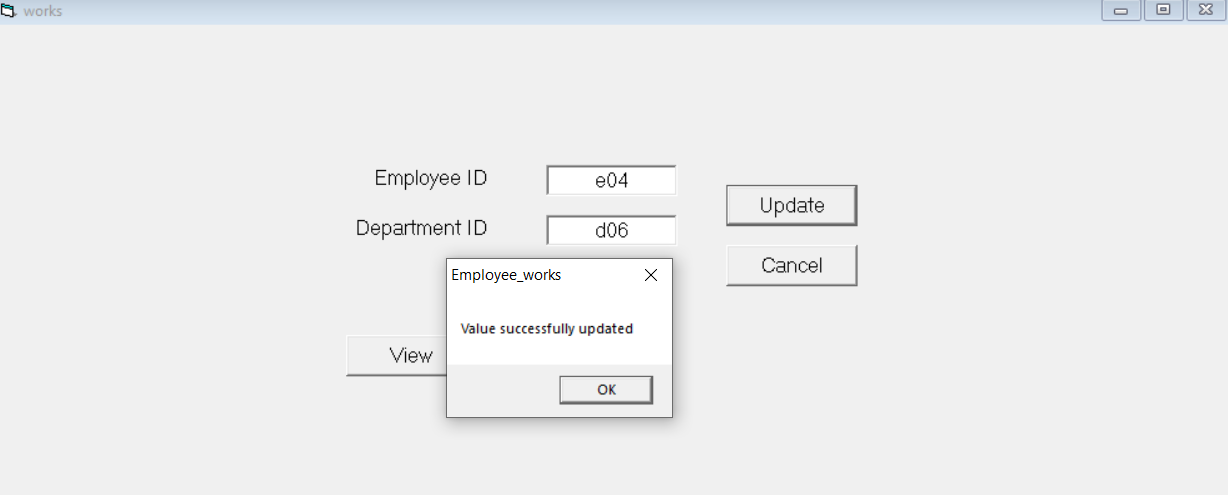
****

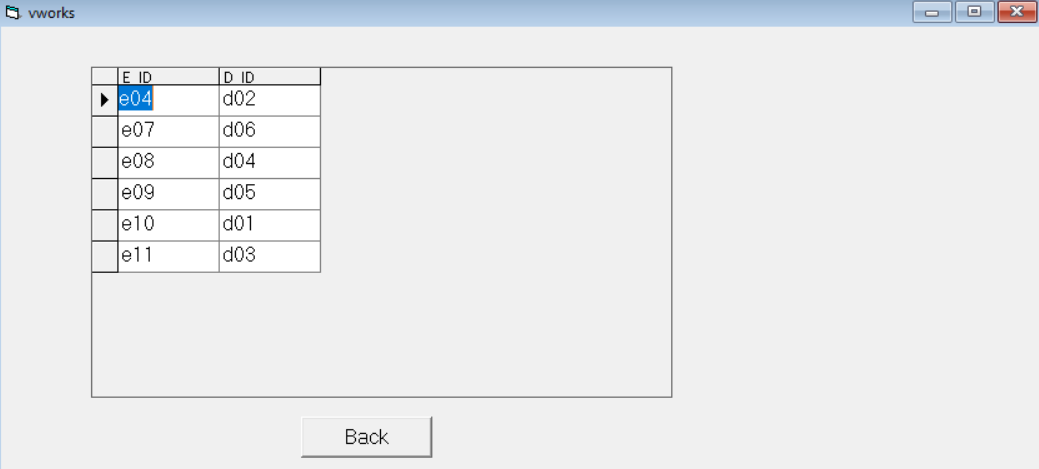
**Deletion:**

****

****

**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**

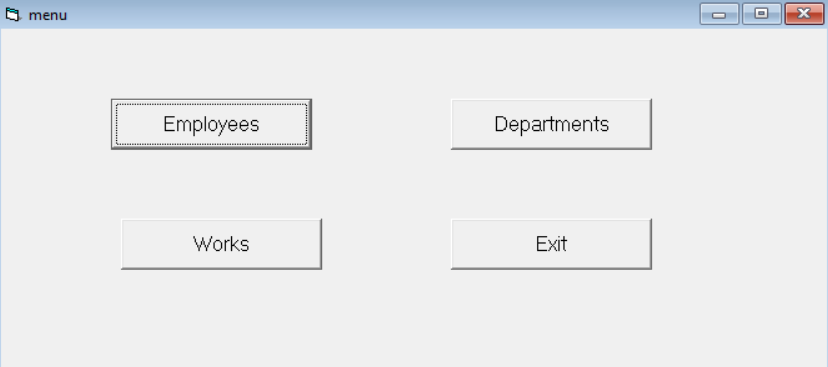
Private Sub vw\_Click()

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

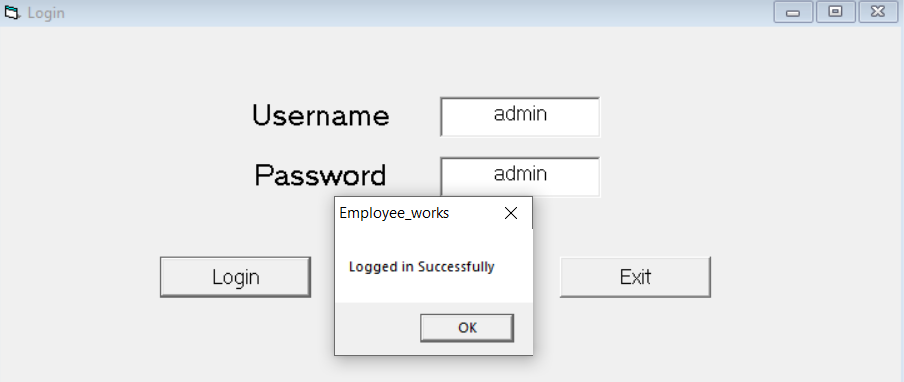
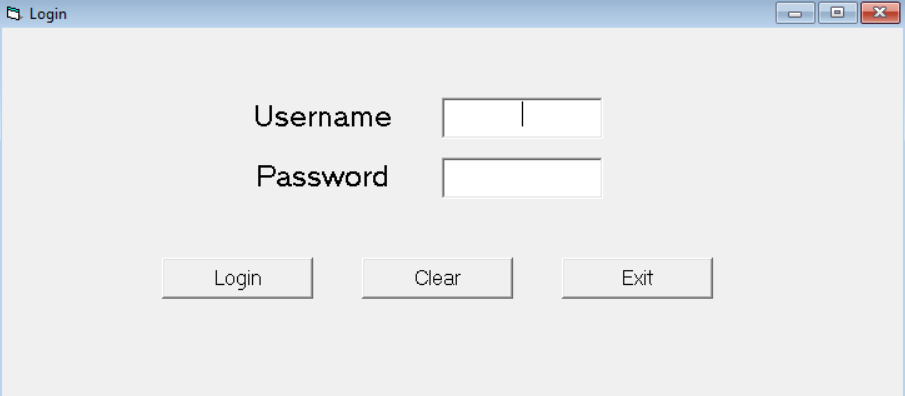
**Works button**

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