

Aim: To study the data definition and data manipulation commands.

Approach and Solution:

SQL Command for creating Tables (Employee, Department, Project) :

```
create table employee(  
2  firstname varchar2(15),  
3  midname char(2),  
4  lastname varchar2(15),  
5  ssnumber char(9),  
6  birthday date,  
7  address varchar2(50),  
8  sex char(1),  
9  salary number(7),  
10 supervisorssn char(9),  
11 departmentnumber number(5));
```

```
create table department(  
2  departmentname varchar2(15),  
3  departmentnumber number(5),  
4  managerssn char(9),  
5  managerstartdate date);
```

```
create table project(  
2  projectname varchar2(15),  
3  projectnumber number(5),  
4  projectlocation varchar2(15),  
5  departmentnumber number(5));
```

```
Windows PowerShell
Enter password:

Connected to:
Oracle Database 11g Express Edition Release 11.2.0.2.0 - 64bit Production

SQL> desc employee
Name                                     Null?      Type
-----
FIRSTNAME                               VARCHAR2(15)
MIDNAME                                 CHAR(2)
LASTNAME                                VARCHAR2(15)
SSNNUMBER                               CHAR(9)
BIRTHDAY                                DATE
ADDRESS                                 VARCHAR2(50)
SEX                                      CHAR(1)
SALARY                                  NUMBER(7)
SUPERVISORSSN                           CHAR(9)
DEPARTMENTNUMBER                         NUMBER(5)

SQL> desc department
Name                                     Null?      Type
-----
DEPARTMENTNAME                          VARCHAR2(15)
DEPARTMENTNUMBER                         NUMBER(5)
MANAGERSSN                              CHAR(9)
MANAGERSTARTDATE                        DATE

SQL> desc project
Name                                     Null?      Type
-----
PROJECTNAME                             VARCHAR2(15)
PROJECTNUMBER                           NUMBER(5)
PROJECTLOCATION                           VARCHAR2(15)
DEPARTMENTNUMBER                         NUMBER(5)

SQL> |
```

1. Insert the data given above in both employee, department and project tables.

Solution: Query- insert into employee values(

- 2 '&firstname',
- 3 '&midname',
- 4 '&lastname',
- 5 '&ssnnumber',
- 6 '&birthday',
- 7 '&address',
- 8 '&sex',

```
9  &salary,  
10 '&supervisorssn',  
11 &departmentnumber);
```

Enter value for firstname: Doug

old 2: '&firstname', new 2:

'Doug', Enter value for

midname: E old 3:

'&midname', new 3: 'E',

Enter value for lastname: Gilbert

old 4: '&lastname', new 4:

'Gilbert',

Enter value for ssnumber: 554433221

old 5: '&ssnumber', new 5:

'554433221', Enter value for birthday:

09-jun-60 old 6: '&birthday', new 6:

'09-jun-60',

Enter value for address: 11 S 59 E, Salt Lake City, UT

old 7: '&address', new 7: '11 S 59 E, Salt Lake City,

UT', Enter value for sex: M old 8: '&sex', new 8:

'M', Enter value for salary: 80000 old 9: &salary,

new 9: 80000,

Enter value for supervisorssn: NULL

old 10: '&supervisorssn', new

10: 'NULL',

Enter value for departmentnumber: 3

old 11: &departmentnumber) new

11: 3)

1 row created.

```

SQL> insert into employee values(
  2 '&firstname',
  3 '&midname',
  4 '&lastname',
  5 '&ssnnumber',
  6 '&birthday',
  7 '&address',
  8 '&sex',
  9 &salary,
  10 '&supervisorssn',
  11 &departmentnumber);
Enter value for firstname: Doug
old 2: '&firstname',
new 2: 'Doug',
Enter value for midname: E
old 3: '&midname',
new 3: 'E',
Enter value for lastname: Gilbert
old 4: '&lastname',
new 4: 'Gilbert',
Enter value for ssnnumber: 554433221
old 5: '&ssnnumber',
new 5: '554433221',
Enter value for birthday: 09-jun-60
old 6: '&birthday',
new 6: '09-jun-60',
Enter value for address: 11 S 59 E, Salt Lake City, UT
old 7: '&address',
new 7: '11 S 59 E, Salt Lake City, UT',
Enter value for sex: M
old 8: '&sex',
new 8: 'M',
Enter value for salary: 80000
old 9: &salary,
new 9: 80000,
Enter value for supervisorssn: NULL
old 10: '&supervisorssn',
new 10: 'NULL',
Enter value for departmentnumber: 3
old 11: &departmentnumber)
new 11: 3)

1 row created.

```

Code for insertomng into ther table :

insert into employee

values('&firstname','&midname','&lastname','&ssnnumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnumber');

SQL> insert into employee

values('&firstname','&midname','&lastname','&ssnnumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnumber');

Enter value for firstname: Joyee Enter

value for midname:

Enter value for lastname: PAN

Enter value for ssnumber: 543216789

Enter value for birthday: 07-feb-78

Enter value for address: 35 S 18 E, Salt Lake City, UT

Enter value for sex: F

Enter value for salary: 70000

Enter value for supervisorssn: NULL Enter

value for departmentnumber: 2

old 1: insert into employee

values('&firstname','&midname','&lastname','&ssnumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnumber')

new 1: insert into employee values('Joyee',' ','PAN','543216789','07-feb-78','35 S 18 E, Salt Lake City, UT','F',70000,'NULL','2')

1 row created.

All the Other Data field were inserted in the same manner Screen Shot of which are pasted below.

```

SQL> insert into employee values('&firstname','&midname','&lastname','&ssnnu
mber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnum
ber');
Enter value for firstname: Joyee
Enter value for midname:
Enter value for lastname: PAN
Enter value for ssnnnumber: 543216789
Enter value for birthday: 07-feb-78
Enter value for address: 35 S 18 E, Salt Lake City, UT
Enter value for sex: F
Enter value for salary: 70000
Enter value for supervisorssn: NULL
Enter value for departmentnumber: 2
old 1: insert into employee values('&firstname','&midname','&lastname','&s
snnnumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmen
tnumber')
new 1: insert into employee values('Joyee',' ','PAN','543216789','07-feb-7
8','35 S 18 E, Salt Lake City, UT','F',70000,'NULL','2')

1 row created.

```

```

Windows PowerShell
SQL> insert into employee values('&firstname','&midname','&lastname','&ssnnu
mber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnum
ber');
Enter value for firstname: Frankin
Enter value for midname:
Enter value for lastname: PANSfgsdathrgyeythgreth
Enter value for ssnnnumber:
Enter value for birthday:
Enter value for address:
Enter value for sex:
Enter value for salary:
Enter value for supervisorssn: fghrdft
Enter value for departmentnumber: ftghrty
old 1: insert into employee values('&firstname','&midname','&lastname','&s
snnnumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmen
tnumber')
new 1: insert into employee values('Frankin',' ','PANSfgsdathrgyeythgreth'
',' ',' ','fghrdft','ftghrty')
insert into employee values('Frankin',' ','PANSfgsdathrgyeythgreth',' ',' ','
',' ','fghrdft','ftghrty')

*
ERROR at line 1:
ORA-00936: missing expression

SQL> insert into employee values('&firstname','&midname','&lastname','&ssnnu
mber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnum
ber');
Enter value for firstname: Frankin
Enter value for midname: T
Enter value for lastname: Wong
Enter value for ssnnnumber: 333445555
Enter value for birthday: 08-dec-45
Enter value for address: 638 Voss, Houseton, TX
Enter value for sex: M
Enter value for salary: 40000
Enter value for supervisorssn: 554433221
Enter value for departmentnumber: 5

```

```

Windows PowerShell
Enter value for departmentnumber: 5
old 1: insert into employee values('&firstname','&midname','&lastname','&ssnnumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnumber')
new 1: insert into employee values('Frankin','T','Wong','333445555','08-dec-45','638 Voss, Houseton, TX','M',40000,'554433221','5')

1 row created.

SQL> insert into employee values('&firstname','&midname','&lastname','&ssnnumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnumber');
Enter value for firstname: Jennifer
Enter value for midname: S
Enter value for lastname: Wallace
Enter value for ssnnumber: 987654321
Enter value for birthday: 20-jun-31
Enter value for address: 291 Berry Bellaire, TX
Enter value for sex: F
Enter value for salary: 43000
Enter value for supervisorssn: 554433221
Enter value for departmentnumber: 4
old 1: insert into employee values('&firstname','&midname','&lastname','&ssnnumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnumber')
new 1: insert into employee values('Jennifer','S','Wallace','987654321','20-jun-31','291 Berry Bellaire, TX','F',43000,'554433221','4')

1 row created.

SQL> insert into employee values('&firstname','&midname','&lastname','&ssnnumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnumber');
Enter value for firstname: John
Enter value for midname: B
Enter value for lastname: Smith
Enter value for ssnnumber: 123456789
Enter value for birthday: 09-jan-55
Enter value for address: 731 Fondren Houston, TX

```

```

Windows PowerShell
Enter value for address: 731 Fondren Houston, TX
Enter value for sex: M
Enter value for salary: 30000
Enter value for supervisorssn: 333445555
Enter value for departmentnumber: 5
old 1: insert into employee values('&firstname','&midname','&lastname','&ssnnumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnumber')
new 1: insert into employee values('John','B','Smith','123456789','09-jan-55','731 Fondren Houston, TX','M',30000,'333445555','5')

1 row created.

SQL> insert into employee values('&firstname','&midname','&lastname','&ssnnumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnumber');

```



```
Windows PowerShell
SQL> insert into employee values('&firstname','&midname','&lastname','&ssnnu
mber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnum
ber');
Enter value for firstname: Joyce
Enter value for midname: A
Enter value for lastname: English
Enter value for ssnumber: 453453453
Enter value for birthday: 31-jul-62
Enter value for address: 5631 Rice, Houston, TX
Enter value for sex: F
Enter value for salary: 25000
Enter value for supervisorssn: 333445555
Enter value for departmentnumber: 5
old 1: insert into employee values('&firstname','&midname','&lastname','&s
snumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmen
tnumber')
new 1: insert into employee values('Joyce','A','English','453453453','31-j
ul-62','5631 Rice, Houston, TX','F',25000,'333445555','5')

1 row created.

SQL> insert into employee values('&firstname','&midname','&lastname','&ssnnu
mber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnum
ber');
Enter value for firstname: James
Enter value for midname: E
Enter value for lastname: Brog
Enter value for ssnumber: 888665555
Enter value for birthday: 10-nov-27
Enter value for address: 450 Stone Houston, TX
Enter value for sex: M
Enter value for salary: 55000
Enter value for supervisorssn: 543216789
Enter value for departmentnumber: 1
old 1: insert into employee values('&firstname','&midname','&lastname','&s
snumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmen
tnumber')
new 1: insert into employee values('James','E','Brog','888665555','10-nov-
27','450 Stone Houston, TX','M',55000,'543216789','1')
```



```
Windows PowerShell
1 row created.

SQL> insert into employee values('&firstname','&midname','&lastname','&ssnu
mber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnum
ber');
Enter value for firstname: Alicia
Enter value for midname: J
Enter value for lastname: Zeyala
Enter value for ssnumber: 999887777
Enter value for birthday: 19-jul-58
Enter value for address: 3321 Castle Spring, TX
Enter value for sex: F
Enter value for salary: 25000
Enter value for supervisorssn: 987654321
Enter value for departmentnumber: 4
old 1: insert into employee values('&firstname','&midname','&lastname','&s
snumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmen
tnumber')
new 1: insert into employee values('Alicia','J','Zeyala','999887777','19-j
ul-58','3321 Castle Spring, TX','F',25000,'987654321','4')

1 row created.

SQL> insert into employee values('&firstname','&midname','&lastname','&ssnu
mber','&birthday','&address','&sex','&salary','&supervisorssn','&departmentnum
ber');
Enter value for firstname: Ahmad
Enter value for midname: V
Enter value for lastname: Jabbar
Enter value for ssnumber: 987987987
Enter value for birthday: 29-mar-59
Enter value for address: 980 Dallas Houston, TX
Enter value for sex: M
Enter value for salary: 25000
Enter value for supervisorssn: 987654321
Enter value for departmentnumber: 4
old 1: insert into employee values('&firstname','&midname','&lastname','&s
snumber','&birthday','&address','&sex','&salary','&supervisorssn','&departmen
tnumber')
```

Inserting data into Department Table:

Queries and Commands:

```
SQL> insert into department values('&dname',&depno,&mgrssn,&mgrstartdate');
Enter value for dname: Manufacture
Enter value for depno: 1
Enter value for mgrssn: 888665555 Enter value for mgrstartdate: 19-jun-71 old 1:
insert into department values('&dname',&depno,&mgrssn,&mgrstartdate') new
1: insert into department values('Manufacture',1,'888665555','19-jun-71')
1 row created.
```

```
SQL> insert into department values('&dname',&depno,&mgrssn,&mgrstartdate');
Enter value for dname: Administration
Enter value for depno: 2
Enter value for mgrssn: 543216789 Enter value for mgrstartdate: 04-jan-99 old 1:
insert into department values('&dname',&depno,&mgrssn,&mgrstartdate') new
1: insert into department values('Administration',2,'543216789','04-jan-99')
1 row created.
```

```
SQL> insert into department values('&dname',&depno,&mgrssn,&mgrstartdate');
Enter value for dname: Headquarter
Enter value for depno: 3
Enter value for mgrssn: 554433221 Enter value for mgrstartdate: 22-sep-55 old 1:
insert into department values('&dname',&depno,&mgrssn,&mgrstartdate') new
1: insert into department values('Headquarter',3,'554433221','22-sep-55')

1 row created.
```

```
SQL> insert into department values('&dname',&depno,&mgrssn,&mgrstartdate'); Enter value for
dname: Finance
Enter value for depno: 4
Enter value for mgrssn: 987654321 Enter value for mgrstartdate: 01-jan-85 old 1:
insert into department values('&dname',&depno,&mgrssn,&mgrstartdate') new
1: insert into department values('Finance',4,'987654321','01-jan-85')

1 row created.
```

```
SQL> insert into department values('&dname',&depno,'&mgrssn','&mgrstartdate');
```

Enter value for dname: Research

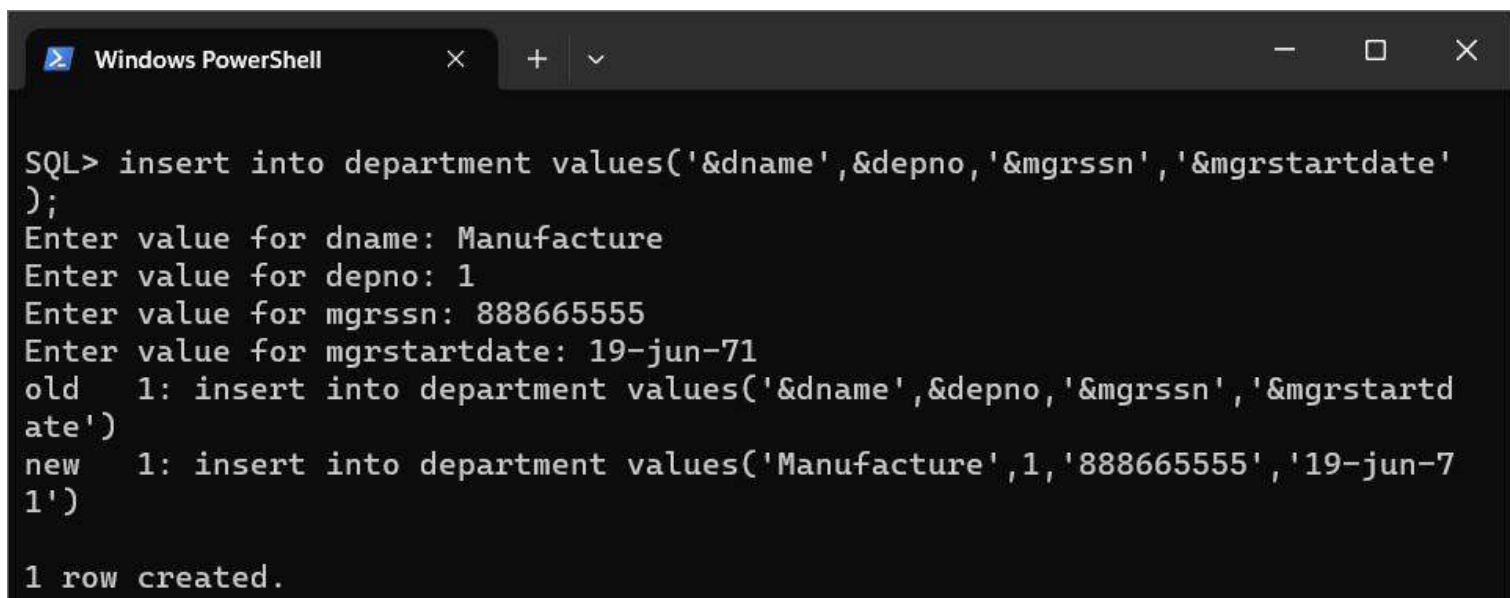
Enter value for depno: 5

Enter value for mgrssn: 333445555 Enter value for mgrstartdate: 22-may-78 old 1:

```
insert into department values('&dname',&depno,'&mgrssn','&mgrstartdate') new
```

```
1: insert into department values('Research',5,'333445555','22-may-78')
```

1 row created.



```
Windows PowerShell
SQL> insert into department values('&dname',&depno,'&mgrssn','&mgrstartdate'
);
Enter value for dname: Manufacture
Enter value for depno: 1
Enter value for mgrssn: 888665555
Enter value for mgrstartdate: 19-jun-71
old 1: insert into department values('&dname',&depno,'&mgrssn','&mgrstartd
ate')
new 1: insert into department values('Manufacture',1,'888665555','19-jun-7
1')

1 row created.
```

```

Windows PowerShell
SQL> insert into department values('&dname',&depno,'&mgrssn','&mgrstartdate'
);
Enter value for dname: Administration
Enter value for depno: 2
Enter value for mgrssn: 543216789
Enter value for mgrstartdate: 04-jan-99
old 1: insert into department values('&dname',&depno,'&mgrssn','&mgrstartd
ate')
new 1: insert into department values('Administration',2,'543216789','04-ja
n-99')

1 row created.

SQL> insert into department values('&dname',&depno,'&mgrssn','&mgrstartdate'
);
Enter value for dname: Headquarter
Enter value for depno: 3
Enter value for mgrssn: 554433221
Enter value for mgrstartdate: 22-sep-55
old 1: insert into department values('&dname',&depno,'&mgrssn','&mgrstartd
ate')
new 1: insert into department values('Headquarter',3,'554433221','22-sep-5
5')

1 row created.

SQL> insert into department values('&dname',&depno,'&mgrssn','&mgrstartdate'
);
Enter value for dname: Finance
Enter value for depno: 4
Enter value for mgrssn: 987654321
Enter value for mgrstartdate: 01-jan-85
old 1: insert into department values('&dname',&depno,'&mgrssn','&mgrstartd
ate')
new 1: insert into department values('Finance',4,'987654321','01-jan-85')

1 row created.

SQL> insert into department values('&dname',&depno,'&mgrssn','&mgrstartdate'

```

```

Windows PowerShell
SQL> insert into department values('&dname',&depno,'&mgrssn','&mgrstartdate'
);
Enter value for dname: Research
Enter value for depno: 5
Enter value for mgrssn: 333445555
Enter value for mgrstartdate: 22-may-78
old 1: insert into department values('&dname',&depno,'&mgrssn','&mgrstartd
ate')
new 1: insert into department values('Research',5,'333445555','22-may-78')

1 row created.

SQL> select * from department
2 ;

DNAME          DEPNO MGRSSN      MGRSTARTD
-----
Manufacture      1 888665555 19/JUN/71
Administration   2 543216789 04/JAN/99
Headquarter      3 554433221 22/SEP/55
Finance          4 987654321 01/JAN/85
Research         5 333445555 22/MAY/78

```

Inserting data field into Project Table:

Commands and Queries:

```
SQL> insert into project
values('&projectname',&projectnumber,'&projectlocation',&departmentnumber);

Enter value for projectname: ProjectA

Enter value for projectnumber: 3388

Enter value for projectlocation: Houston Enter

value for departmentnumber: 1

old 1: insert into project
values('&projectname',&projectnumber,'&projectlocation',&departmentnumber) new

1: insert into project values('ProjectA',3388,'Houston',1)

1 row created.
```

```
SQL> insert into project
values('&projectname',&projectnumber,'&projectlocation',&departmentnumber);

Enter value for projectname: ProjectB

Enter value for projectnumber: 1945

Enter value for projectlocation: Salt Lake City Enter

value for departmentnumber: 3

old 1: insert into project
values('&projectname',&projectnumber,'&projectlocation',&departmentnumber) new

1: insert into project values('ProjectB',1945,'Salt Lake City',3)

1 row created.
```

```
SQL> insert into project
values('&projectname',&projectnumber,'&projectlocation',&departmentnumber);

Enter value for projectname: ProjectC

Enter value for projectnumber: 6688

Enter value for projectlocation: Houston

Enter value for departmentnumber: 5

old 1: insert into project
values('&projectname',&projectnumber,'&projectlocation',&departmentnumber)
```

```
new 1: insert into project values('ProjectC',6688,'Houston',5)
```

1 row created.

```
SQL> insert into project  
values('&projectname',&projectnumber,'&projectlocation',&departmentnumber);
```

Enter value for projectname: ProjectD

Enter value for projectnumber: 2423

Enter value for projectlocation: Bellaire Enter

value for departmentnumber: 4

```
old 1: insert into project  
values('&projectname',&projectnumber,'&projectlocation',&departmentnumber) new
```

```
1: insert into project values('ProjectD',2423,'Bellaire',4)
```

1 row created.

```
SQL> insert into project  
values('&projectname',&projectnumber,'&projectlocation',&departmentnumber);
```

Enter value for projectname: ProjectE

Enter value for projectnumber: 7745

Enter value for projectlocation: Sugarland Enter

value for departmentnumber: 5

```
old 1: insert into project  
values('&projectname',&projectnumber,'&projectlocation',&departmentnumber) new
```

```
1: insert into project values('ProjectE',7745,'Sugarland',5)
```

1 row created.

```
SQL> insert into project  
values('&projectname',&projectnumber,'&projectlocation',&departmentnumber);
```

Enter value for projectname: ProjectF

Enter value for projectnumber: 1566

Enter value for projectlocation: Salt Lake City Enter

value for departmentnumber: 3

old 1: insert into project

values('&projectname',&projectnumber,'&projectlocation',&departmentnumber)

new 1: insert into project values('ProjectF',1566,'Salt Lake City',3)

1 row created.

SQL> insert into project

values('&projectname',&projectnumber,'&projectlocation',&departmentnumber);

Enter value for projectname: ProjectG

Enter value for projectnumber: 1234

Enter value for projectlocation: New York Enter

value for departmentnumber: 2

old 1: insert into project

values('&projectname',&projectnumber,'&projectlocation',&departmentnumber)

new 1: insert into project values('ProjectG',1234,'New York',2)

1 row created.

SQL> insert into project

values('&projectname',&projectnumber,'&projectlocation',&departmentnumber);

Enter value for projectname: ProjectH

Enter value for projectnumber: 3467

Enter value for projectlocation: Stafford Enter

value for departmentnumber: 4

old 1: insert into project

values('&projectname',&projectnumber,'&projectlocation',&departmentnumber)

new 1: insert into project values('ProjectH',3467,'Stafford',4)

1 row created.

SQL> insert into project

values('&projectname',&projectnumber,'&projectlocation',&departmentnumber);

Enter value for projectname: ProjectI

Enter value for projectnumber: 4345

Enter value for projectlocation: Chicago Enter

value for departmentnumber: 1

old 1: insert into project

values('&projectname',&projectnumber,'&projectlocation',&departmentnumber)

new 1: insert into project values('ProjectI',4345,'Chicago',1)

1 row created.

SQL> insert into project

values('&projectname',&projectnumber,'&projectlocation',&departmentnumber);

Enter value for projectname: ProjectJ

Enter value for projectnumber: 2212

Enter value for projectlocation: San Francisco Enter

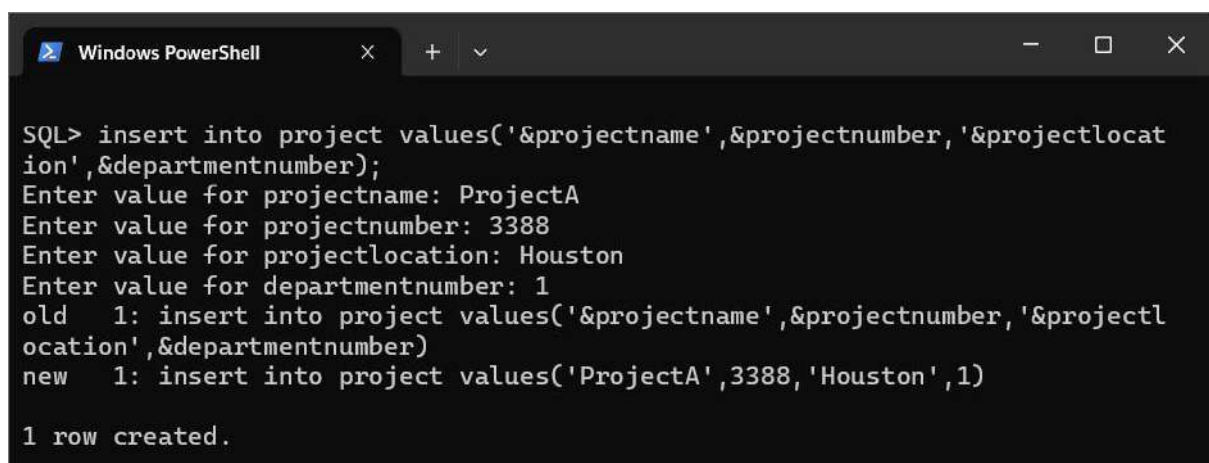
value for departmentnumber: 2

old 1: insert into project

values('&projectname',&projectnumber,'&projectlocation',&departmentnumber) new

1: insert into project values('ProjectJ',2212,'San Francisco',2)

1 row created.



```
Windows PowerShell
SQL> insert into project values('&projectname',&projectnumber,'&projectlocation',&departmentnumber);
Enter value for projectname: ProjectA
Enter value for projectnumber: 3388
Enter value for projectlocation: Houston
Enter value for departmentnumber: 1
old 1: insert into project values('&projectname',&projectnumber,'&projectlocation',&departmentnumber)
new 1: insert into project values('ProjectA',3388,'Houston',1)

1 row created.
```

```
Windows PowerShell
SQL> insert into project values('&projectname',&projectnumber,&projectlocation',&departmentnumber);
Enter value for projectname: ProjectB
Enter value for projectnumber: 1945
Enter value for projectlocation: Salt Lake City
Enter value for departmentnumber: 3
old 1: insert into project values('&projectname',&projectnumber,&projectlocation',&departmentnumber)
new 1: insert into project values('ProjectB',1945,'Salt Lake City',3)

1 row created.

SQL> insert into project values('&projectname',&projectnumber,&projectlocation',&departmentnumber);
Enter value for projectname: ProjectC
Enter value for projectnumber: 6688
Enter value for projectlocation: Houston
Enter value for departmentnumber: 5
old 1: insert into project values('&projectname',&projectnumber,&projectlocation',&departmentnumber)
new 1: insert into project values('ProjectC',6688,'Houston',5)

1 row created.

SQL> insert into project values('&projectname',&projectnumber,&projectlocation',&departmentnumber);
Enter value for projectname: ProjectD
Enter value for projectnumber: 2423
Enter value for projectlocation: Bellaire
Enter value for departmentnumber: 4
old 1: insert into project values('&projectname',&projectnumber,&projectlocation',&departmentnumber)
new 1: insert into project values('ProjectD',2423,'Bellaire',4)

1 row created.

SQL> insert into project values('&projectname',&projectnumber,&projectlocation',&departmentnumber);
Enter value for projectname: ProjectE
```

```
Windows PowerShell
Enter value for projectnumber: 7745
Enter value for projectlocation: Sugarland
Enter value for departmentnumber: 5
old 1: insert into project values('&projectname',&projectnumber,&projectl
ocation',&departmentnumber)
new 1: insert into project values('ProjectE',7745,'Sugarland',5)

1 row created.

SQL> insert into project values('&projectname',&projectnumber,&projectlocat
ion',&departmentnumber);
Enter value for projectname: ProjectF
Enter value for projectnumber: 1566
Enter value for projectlocation: Salt Lake City
Enter value for departmentnumber: 3
old 1: insert into project values('&projectname',&projectnumber,&projectl
ocation',&departmentnumber)
new 1: insert into project values('ProjectF',1566,'Salt Lake City',3)

1 row created.

SQL> insert into project values('&projectname',&projectnumber,&projectlocat
ion',&departmentnumber);
Enter value for projectname: ProjectG
Enter value for projectnumber: 1234
Enter value for projectlocation: New York
Enter value for departmentnumber: 2
old 1: insert into project values('&projectname',&projectnumber,&projectl
ocation',&departmentnumber)
new 1: insert into project values('ProjectG',1234,'New York',2)

1 row created.

SQL> insert into project values('&projectname',&projectnumber,&projectlocat
ion',&departmentnumber);
Enter value for projectname: ProjectH
Enter value for projectnumber:
Enter value for projectlocation: 3467
Enter value for departmentnumber: Stafford
```

```

Windows PowerShell
old 1: insert into project values('&projectname',&projectnumber,'&projectl
ocation',&departmentnumber)
new 1: insert into project values('ProjectH',, '3467',Stafford)
insert into project values('ProjectH',, '3467',Stafford)
*
ERROR at line 1:
ORA-00936: missing expression

SQL> insert into project values('&projectname',&projectnumber,'&projectlocat
ion',&departmentnumber);
Enter value for projectname: ProjectH
Enter value for projectnumber: 3467
Enter value for projectlocation: Stafford
Enter value for departmentnumber: 4
old 1: insert into project values('&projectname',&projectnumber,'&projectl
ocation',&departmentnumber)
new 1: insert into project values('ProjectH',3467,'Stafford',4)

1 row created.

SQL> insert into project values('&projectname',&projectnumber,'&projectlocat
ion',&departmentnumber);
Enter value for projectname: ProjectI
Enter value for projectnumber: 4345
Enter value for projectlocation: Chicago
Enter value for departmentnumber: 1
old 1: insert into project values('&projectname',&projectnumber,'&projectl
ocation',&departmentnumber)
new 1: insert into project values('ProjectI',4345,'Chicago',1)

1 row created.

SQL> insert into project values('&projectname',&projectnumber,'&projectlocat
ion',&departmentnumber);
Enter value for projectname: ProjectJ
Enter value for projectnumber: 2212
Enter value for projectlocation: San Francisco
Enter value for departmentnumber: 2

```

```

old 1: insert into project values('&projectname',&projectnumber,'&projectl
ocation',&departmentnumber)
new 1: insert into project values('ProjectJ',2212,'San Francisco',2)

1 row created.

SQL> select * from project;

PROJECTNAME      PROJECTNUMBER  PROJECTLOCATION  DEPARTMENTNUMBER
-----
ProjectA          3388 Houston          1
ProjectB          1945 Salt Lake City 3
ProjectC          6688 Houston          5
ProjectD          2423 Bellaire        4
ProjectE          7745 Sugarland        5
ProjectF          1566 Salt Lake City 3
ProjectG          1234 New York         2
ProjectH          3467 Stafford         4
ProjectI          4345 Chicago          1
ProjectJ          2212 San Francisco    2

10 rows selected.

```


2. *Display all the employees' information.*

Query: select * from employee ;

```
SQL> select * from employee;
```

FIRSTNAME	MI	LASTNAME	SSNNUMBER	BIRTHDAY	ADDRESS	S	SALARY	SUPERVISO	DEPARTMENTNUMBER
Doug	E	Gilbert	554433221	09/JUN/60	11 S 59 E, Salt Lake City, UT	M	80000	NULL	3
Joyee		PAN	543216789	07/FEB/78	35 S 18 E, Salt Lake City, UT	F	70000	NULL	2
Frankin	T	Wong	333445555	08/DEC/45	638 Voss, Houseton, TX	M	40000	554433221	5
Jennifer	S	Wallace	987654321	20/JUN/31	291 Berry Bellaire, TX	F	43000	554433221	4
John	B	Smith	123456789	09/JAN/55	731 Fondren Houston, TX	M	30000	333445555	5
Ramesh	K	Narayan	666884444	15/SEP/52	975 Fire Oak Humble, TX	M	38000	333445555	5
Joyce	A	English	453453453	31/JUL/62	5631 Rice, Houston, TX	F	25000	333445555	5
James	E	Brog	888665555	10/NOV/27	450 Stone Houston, TX	M	55000	543216789	1
Alicia	J	Zeyala	999887777	19/JUL/58	3321 Castle Spring, TX	F	25000	987654321	4
Ahmad	V	Jabbar	987987987	29/MAR/59	980 Dallas Houston, TX	M	25000	987654321	4

10 rows selected.

```
SQL> |
```

3. *Display Employee name with his SSN and Supervisor SSN.*

Query: select firstname, midname, lastname, ssnnnumber, supervisorssn from employee;

FIRSTNAME MI LASTNAME SSNNUMBER SUPERVISO

```
----- Doug
E Gilbert      554433221 NULL
Joyee         PAN      543216789 NULL
Frankin       T Wong    333445555 554433221
Jennifer      S Wallace  987654321 554433221
John          B Smith   123456789 333445555
Ramesh        K Narayan  666884444 333445555
Joyce         A English  453453453 333445555
James         E Brog     888665555 543216789
Alicia        J Zeyala   999887777 987654321
Ahmad         V Jabbar   987987987 987654321
```

10 rows selected.


```
SQL> select firstname, midname, lastname, ssnnumber, supervisorssn from employee;
```

FIRSTNAME	MI	LASTNAME	SSNNUMBER	SUPERVISO
Doug	E	Gilbert	554433221	NULL
Joyee		PAN	543216789	NULL
Frankin	T	Wong	333445555	554433221
Jennifer	S	Wallace	987654321	554433221
John	B	Smith	123456789	333445555
Ramesh	K	Narayan	666884444	333445555
Joyce	A	English	453453453	333445555
James	E	Brog	888665555	543216789
Alicia	J	Zeyala	999887777	987654321
Ahmad	V	Jabbar	987987987	987654321

10 rows selected.

4. *Display the employee names whose bdate is '29-MAR-1959'.*

Query:

```
SQL> select * from employee where birthday = '29-mar-59';
```

```
SQL> select * from employee where birthday = '29-mar-59';
```

FIRSTNAME	MI	LASTNAME	SSNNUMBER	BIRTHDAY	ADDRESS	S	SALARY	SUPERVISO	DEPARTMENTNUMBER
Ahmad	V	Jabbar	987987987	29/MAR/59	980 Dallas Houston, TX	M	25000	987654321	4

SQL> |

5. *Display salary of the employees without duplications.*

Query : select DISTINCT(salary) from employee;

```
SQL> select DISTINCT(salary) from employee;
```

SALARY
38000
43000
55000
30000
40000
80000
25000
70000

8 rows selected.

6. **Display the MgrSSN, MgrStartDate of the manager of 'Finance' department.**

Query: SQL> select mgrssn, mgrstartdate from department WHERE dname='Finance';

```
SQL> select mgrssn, mgrstartdate from department WHERE dname='Finance';

MGRSSN      MGRSTARTD
-----
987654321    01/JAN/85

SQL> |
```

7. **Modify the department number of an employee having fname as 'Joyce' to 5.**

Query: UPDATE employee SET departmentnumber = 5 where firstname='Joyce';

```
SQL> UPDATE employee SET departmentnumber = 5 where firstname='Joyce';
```

```
1 row updated.
```

```
SQL> select * from employee;
```

FIRSTNAME	MI	LASTNAME	SSNNUMBER	BIRTHDAY	ADDRESS	S	SALARY	SUPERVISO	DEPARTMENTNUMBER
Doug	E	Gilbert	554433221	09/JUN/60	11 S 59 E, Salt Lake City, UT	M	80000	NULL	3
Joyee		PAN	543216789	07/FEB/78	35 S 18 E, Salt Lake City, UT	F	70000	NULL	2
Frankin	T	Wong	333445555	08/DEC/45	638 Voss, Houseton, TX	M	40000	554433221	5
Jennifer	S	Wallace	987654321	20/JUN/31	291 Berry Bellaire, TX	F	43000	554433221	4
John	B	Smith	123456789	09/JAN/55	731 Fondren Houston, TX	M	30000	333445555	5
Ramesh	K	Narayan	666884444	15/SEP/52	975 Fire Oak Humble, TX	M	38000	333445555	5
Joyce	A	English	453453453	31/JUL/62	5631 Rice, Houston, TX	F	25000	333445555	5
James	E	Brog	888665555	10/NOV/27	450 Stone Houston, TX	M	55000	543216789	1
Alicia	J	Zeyala	999887777	19/JUL/58	3321 Castle Spring, TX	F	25000	987654321	4
Ahmad	V	Jabbar	987987987	29/MAR/59	980 Dallas Houston, TX	M	25000	987654321	4

```
10 rows selected.
```

8. **Alter Table department add column DepartmentPhoneNum of NUMBER data type and insert values into this column only.**

Query : alter table department ADD Departmentphonenum number(10);

Table altered.

```
SQL> UPDATE department SET departmentphonenum = 9988776655 WHERE depno = 1;
```

```
1 row updated.
```

```
SQL> UPDATE department SET departmentphonenum = 9778776655 WHERE depno = 2;
```

```
1 row updated.
```

```
SQL> UPDATE department SET departmentphonenum = 9711111655 WHERE depno = 3;
```

```
1 row updated.
```

SQL> UPDATE department SET departmentphonenum = 9711223345 WHERE depno = 4;

1 row updated.

SQL> UPDATE department SET departmentphonenum = 9716353636 WHERE depno = 5;

1 row updated.

DNAME	DEPNO	MGRSSN	MGRSTARTD	DEPARTMENTPHONENUM
Manufacture	1	888665555	19/JUN/71	
Administration	2	543216789	04/JAN/99	
Headquarter	3	554433221	22/SEP/55	
Finance	4	987654321	01/JAN/85	
Research	5	333445555	22/MAY/78	

SQL> select * from department;

DNAME	DEPNO	MGRSSN	MGRSTARTD	DEPARTMENTPHONENUM
Manufacture	1	888665555	19/JUN/71	9988776655
Administration	2	543216789	04/JAN/99	9778776655
Headquarter	3	554433221	22/SEP/55	9711111655
Finance	4	987654321	01/JAN/85	9711223345
Research	5	333445555	22/MAY/78	9716353636

SQL> |

9. Alter table orders modify the size of DepartmentPhoneNum.

Query : alter table department

2 MODIFY departmentphonenum number(12);

Table altered.

SQL> select * from department

2 ORDER BY departmentphonenum;

```
SQL> select * from department;
```

DNAME	DEPNO	MGRSSN	MGRSTARTD	DEPARTMENTPHONENUM
Manufacture	1	888665555	19/JUN/71	9988776655
Administration	2	543216789	04/JAN/99	9778776655
Headquarter	3	554433221	22/SEP/55	9711111655
Finance	4	987654321	01/JAN/85	9711223345
Research	5	333445555	22/MAY/78	9716353636

```
SQL> alter table department
2 MODIFY departmentphonenum number(12);
```

Table altered.

```
SQL> select * from department
2 ORDER BY departmentphonenum;
```

DNAME	DEPNO	MGRSSN	MGRSTARTD	DEPARTMENTPHONENUM
Headquarter	3	554433221	22/SEP/55	9711111655
Finance	4	987654321	01/JAN/85	9711223345
Research	5	333445555	22/MAY/78	9716353636
Administration	2	543216789	04/JAN/99	9778776655
Manufacture	1	888665555	19/JUN/71	9988776655

10. *Modify the field name DepartmentPhoneNum of departments table to PhNo.*

Query : SQL> alter table department RENAME COLUMN departmentphonenum to phno; Table altered.

```
SQL> alter table department RENAME COLUMN departmentphonenum to phno;
```

Table altered.

```
SQL> select * from department;
```

DNAME	DEPNO	MGRSSN	MGRSTARTD	PHNO
Manufacture	1	888665555	19/JUN/71	9988776655
Administration	2	543216789	04/JAN/99	9778776655
Headquarter	3	554433221	22/SEP/55	9711111655
Finance	4	987654321	01/JAN/85	9711223345
Research	5	333445555	22/MAY/78	9716353636

```
SQL> |
```

11. *Rename Table Department as DEPT.*

Query :

alter table department RENAME TO dept;

Table altered.

```
SQL> alter table department RENAME TO dept;

Table altered.

SQL> select * from dept;
```

DNAME	DEPNO	MGRSSN	MGRSTARTD	PHNO
Manufacture	1	888665555	19/JUN/71	9988776655
Administration	2	543216789	04/JAN/99	9778776655
Headquarter	3	554433221	22/SEP/55	9711111655
Finance	4	987654321	01/JAN/85	9711223345
Research	5	333445555	22/MAY/78	9716353636

```
SQL> |
```

12. Alter Table department remove column DepartmentPhoneNum.

Query : SQL> alter table department

2 DROP COLUMN phno;

DNAME	DEPNO	MGRSSN	MGRSTARTD
Manufacture	1	888665555	19/JUN/71
Administration	2	543216789	04/JAN/99
Headquarter	3	554433221	22/SEP/55
Finance	4	987654321	01/JAN/85
Research	5	333445555	22/MAY/78

13. Create a table COPYOFDEPT as a copy of the table DEPT.

Query:

SQL> CREATE TABLE copyofdept AS select * from dept;

Table created.

```
SQL> CREATE TABLE copyofdept AS select * from dept;

Table created.

SQL> select * from copyofdept;
```

DNAME	DEPNO	MGRSSN	MGRSTARTD
Manufacture	1	888665555	19/JUN/71
Administration	2	543216789	04/JAN/99
Headquarter	3	554433221	22/SEP/55
Finance	4	987654321	01/JAN/85
Research	5	333445555	22/MAY/78

```
SQL> |
```

14. Delete all the rows from COPYOF DEPT table.

Query: SQL> DELETE FROM copyofdept WHERE depno BETWEEN 1 AND 5;

5 rows deleted.

```
SQL> DELETE FROM copyofdept WHERE depno BETWEEN 1 AND 5;

5 rows deleted.

SQL> SELECT * FROM copyofdept;

no rows selected

SQL> |
```


15. Remove COPYOF DEPT table.

Query: SQL> DROP table copyofdept;

Table dropped.

```
SQL> DROP table copyofdept;
```

```
Table dropped.
```

```
SQL> |
```

DATABASE MANAGEMENT SYSTEMS LAB Experiment-2

Aim: To know how **Constraints** are used to make the table consistent.

Software Used: SQL Plus.

0.) Write query to build such tables with required constraints.

Table Name: Employee

Attribute	Data Type	Constraint
First Name	Varchar (15)	Not Null
Mid Name	Char(2)	
Last Name	Varchar (15)	Not Null
SSN Number	Char (9)	Primary Key
Birthday	Date	
Address	Varchar (50)	
Sex	Char(1)	Sex In (M,F,m,f)
Salary	Number (7)	Default 800
Supervisor SSN	Char (9)	Foreign Key Employee (SSN) on delete set null
Department number	Number(5)	Foreign key to department number of department table on delete cascade

Table Name : Department

Attribute	Data type	Constraint
Department Name	Varchar(15)	Not Null
Department number	INT(5)	Primary key
Manager SSN	Char (9)	Foreign key-Employee (SSN) on delete set null
Manage start date	Date	

Table Name : Dept_locations

Attribute	Data type	Constraint
Department Number	Number(5)	Department (dep no) onDelete Cascade
Department Location	Varchar (15)	

Table Name: Project

Attribute	Data type	Constraint
Project Name	Varchar2(15)	Not Null
Project number	Number(5)	Primary key
Project Location	Varchar2(50)	
Department Number	Number(5)	Foreign Key –Department (dep no) on delete set null

Table Name: Works_On

The combination of Employee SSN and Project Number must be a Primary Key

Attribute	Data type	Constraint
Employee SSN	Char (9)	Foreign Key Employee (SSN) on delete cascade
Project number	INT(5)	Foreign Key project (Pnumber) on delete cascade
Hours	Decimal (3,1)	Not null

Name: Dependent

The combination of Employee SSN and Dependent Name must be a Primary Key.

Attribute	Datatype	Constraint
Employee	Char (9)	Foreign Key- Employee (SSN) on Delete Cascade
Dependent Name	Varchar(15)	
Sex	Char(1)	Check Sex in (M,F,m,f)
Birthday	Date	
Relationship	Varchar(8)	

Data for table - Dept_Locations

Dep No	D Location
1	Houston
1	Chicago
2	New York
2	San Francisco
3	Salt Lake City
4	Stafford
4	Bellaire
5	Sugarland
5	Houston

Data for Table - Works_On

ESSN	Pno	Hours
123456789	3388	32.5
123456789	1945	7.5
666884444	3388	40.0
453453453	77	20.0
453453453	22	20.0
333445555	77	10.0
333445555	6688	10.0
333445555	43	35.0
333445555	22	28.5
999887777	1	11.5
999887777	12	13.0
543216789	22	17.0
554433221	1945	21.5

Data for Table - Dependent

ESSN	Dependent_name	Sex	Bdate	Relationship
333445555	Alice	F	05-Apr-76	Daughter
333445555	Theodore	M	25-Oct-73	Son
333445555	Joy	F	03-May-48	Spouse
987654321	Abner	M	29-Feb-32	Spouse
123456789	Alice	F	31-Dec-78	Daughter
123456789	Elizabeth	F	05-may-57	Spouse

A) Creating table Employee:**Query:** create tableemployee_BCT0358(
2 fname varchar(15) not null,
3 midname char(2),
4 lname varchar(15) not null,
5 ssnumber char(9) not null primary key,
6 birthday date,
7 address varchar(50),
8 sex char(1) CHECK(sex='M' or sex='F' or sex='m' or sex='f'),
9 salary number(7) default 800,
10 supervisorssn char(9),
11 deptnumber number(5),
12 CONSTRAINT emp_supssn_fk FOREIGN KEY(supervisorssn)
REFERENCES employee_BCT0358(ssnumber)on delete set null);

Table created.

```
SQL> create table employee_BCT0358(  
2    fname varchar(15) not null,  
3    midname char(2),  
4    lname varchar(15) not null,  
5    ssnumber char(9) not null primary key,  
6    birthday date,  
7    address varchar(50),  
8    sex char(1) CHECK(sex='M' or sex='F' or sex='m' or sex='f'),  
9    salary number(7) default 800,  
10   supervisorssn char(9),  
11   deptnumber number(5),  
12   CONSTRAINT emp_supssn_fk FOREIGN KEY(supervisorssn) REFERENCES emp  
loyee_BCT0358(ssnumber)on delete set null);
```

Table created.

SQL> desc employee_BCT0358;

Name	Null?	Type
-----	-----	-----
FNAME	NOT NULL	VARCHAR2(15)
MIDNAME		CHAR(2)
LNAME	NOT NULL	VARCHAR2(15)
SSNUMBER	NOT NULL	CHAR(9)
BIRTHDAY		DATE
ADDRESS		VARCHAR2(50)
SEX		CHAR(1)
SALARY		NUMBER(7)
SUPERVISORSSN		CHAR(9)
DEPTNUMBER		NUMBER(5)

Foreign key for the field Department number to department number field of the Table Department will be applied once after the table Department is created below.

B) Creating table Department:

Query:

```
SQL> create table department_BCT0358(
2   deptname varchar(15) not null,
3   deptnumber number(5) not null primary key,
4   mgrssn char(9),
5   mgrstartdate date,
6   CONSTRAINT dept_mgrssn_fk FOREIGN KEY(mgrssn)
   REFERENCES
employee_BCT0358(ssnnumber) on delete set null); Table
created.
```

```
SQL> create table department_BCT0358(
2   deptname varchar(15) not null,
3   deptnumber number(5) not null primary key,
4   mgrssn char(9),
5   mgrstartdate date,
6   CONSTRAINT dept_mgrssn_fk FOREIGN KEY(mgrssn) REFERENCES employee_BCE02
11(ssnnumber) on delete set null);

Table created.

SQL> desc department_BCT0358;
Name                               Null?    Type
-----
DEPTNAME                           NOT NULL VARCHAR2(15)
DEPTNUMBER                         NOT NULL NUMBER(5)
MGRSSN                             CHAR(9)
MGRSTARTDATE                       DATE
```

FK for Department Number Query:

```
SQL> ALTER TABLE employee_BCT0358 2 ADD
FOREIGN KEY(deptnumber) REFERENCES
department_BCT0358(deptnumber);
```

Table altered.

```
SQL> ALTER TABLE employee_BCT0358
2 ADD FOREIGN KEY(deptnumber) REFERENCES department_BCT0358(deptnumber);

Table altered.
```

C) Creating table Query:

```
SQL> create table dept_location_BCT0358(  
2 deptnumber number(5),  
3 deptloc varchar(15),  
4 CONSTRAINT deploc_depno_fk FOREIGN KEY(deptnumber)  
REFERENCES departmen  
t_BCT0358(deptnumber)on delete cascade);
```

Table created.

```
SQL> create table dept_location_BCT0358(  
2 deptnumber number(5),  
3 deptloc varchar(15),  
4 CONSTRAINT deploc_depno_fk FOREIGN KEY(deptnumber) REFERENCES departmen  
t_BCT0358(deptnumber)on delete cascade);  
  
Table created.  
  
SQL> desc dept_location_BCT0358;  
Name Null? Type  
-----  
DEPTNUMBER NUMBER(5)  
DEPTLOC VARCHAR2(15)  
  
SQL> |
```


D) Creating table

Project:

```
create table project_BCT0358(  
2 projectname varchar(15) not null,  
3 projectnum number(5) not null primary key,  
4 projectloc varchar(50),  
5 deptno number(5),  
6 CONSTRAINT deptno_deptnumber_fk FOREIGN KEY(deptno)  
REFERENCES departme  
nt_BCT0358(deptnumber)on delete set null);
```

Table created.

```
SQL> desc project_BCT0358;  
Name                               Null?    Type  
-----  
PROJECTNAME                        NOT NULL VARCHAR2(15)  
PROJECTNUM                          NOT NULL  NUMBER(5)  
PROJECTLOC                          VARCHAR2(50)  
DEPTNO                             NUMBER(5)
```

E)Creating table Works_on_BCT0358:

```
SQL> create table works_on_BCT0358(  
2   employeessn char(9),  
3   projectnum number(5),  
4   hours decimal(3,1) not null,  
5   CONSTRAINT emplyssn_fk FOREIGN KEY(employeessn)  
   REFERENCES employee_BCT0358(ssnnu mber)on delete  
   cascade,  
6   CONSTRAINT project_fk FOREIGN KEY(projectnum)  
   REFERENCES project_BCT0358(projectnum)on delete cascade);
```

Table created.

```
SQL> desc works_on_BCT0358;  
Name                               Null?      Type  
-----  
EMPLOYEESSN                        CHAR(9)  
PROJECTNUM                         NUMBER(5)  
HOURS                             NOT NULL  NUMBER(3,1)  
SQL> |
```

F) Creating table DEPENDENT:**Query:**

```
create table dependent_BCT0358(  
2 employee char(9),  
3 dependentname varchar(15),  
4 sex char(1) check(sex='m' or sex='f' or sex='F' or sex='M'),  
5 birthday date,  
6 relationship varchar(8),  
7 CONSTRAINT emply_ssn_fk FOREIGN KEY(employee)  
  REFERENCES employee_BCT0358(ssnnumber) on delete  
  cascade);
```

Table created.

```
SQL> create table dependent_BCT0358(  
2 employee char(9),  
3 dependentname varchar(15),  
4 sex char(1) check(sex='m' or sex='f' or sex='F' or sex='M'),  
5 birthday date,  
6 relationship varchar(8),  
7 CONSTRAINT emply_ssn_fk FOREIGN KEY(employee) REFERENCES employee_BCT0358(ssnnumber) on delete cascade);
```

Table created.

```
SQL> desc dependent_BCT0358;
```

Name	Null?	Type
EMPLOYEE		CHAR(9)
DEPENDENTNAME		VARCHAR2(15)
SEX		CHAR(1)
BIRTHDAY		DATE
RELATIONSHIP		VARCHAR2(8)

```
SQL> |
```

DATA FOR TABLE – dept_locations:

Query:

```
SQL> insert into dept_location_BCT0358 values(1,'Houston'); insert  
into dept_location_BCT0358 values(1,'Houston')
```

*

ERROR at line 1:

ORA-02291: integrity constraint (SURAJVIT.DEPLOC_DEPNO_FK) violated -
parent key not found

```
SQL> insert into dept_location_BCT0358 values(1,'Houston');  
insert into dept_location_BCE0211 values(1,'Houston')  
*  
ERROR at line 1:  
ORA-02291: integrity constraint (VIVEKVIT.DEPLOC_DEPNO_FK) violated - parent  
key not found
```

Interpretation : The following Query while entering data into the dept_location table throws error as the attribute DEPT_NO is a foreign key linked to the table DEPARTMENT_BCT0358, and that table doesn't contain any data to match with the foreign key.

Therefore, entering data into the DEPARTMENT_BCT0358 table first referring to the data provided for the Department table in Exercise 1.

Query:

```
insert into department_BCT0358 values('Manufacture',1,null,'19-jun-71');
```

1 row created.

```
SQL> insert into department_BCT0358  
values('Administration',2,null,'04jan-99');
```

1 row created.

```
SQL> insert into department_BCT0358 values('Headquarter',3,null,'22sep-55');
```

1 row created.

```
SQL> insert into department_BCT0358 values('Finance',4,null,'01-jan-85');
```

1 row created.

```
SQL> insert into department_BCT0358 values('Research',5,null,'22-may-78');
```

1 row created.

```
SQL> insert into department_BCT0358 values('Manufacture',1,null,'19-jun-71');
1 row created.
SQL> insert into department_BCT0358 values('Administration',2,null,'04-jan-99');
1 row created.
SQL> insert into department_BCT0358 values('Headquarter',3,null,'22-sep-55');
1 row created.
SQL> insert into department_BCT0358 values('Finance',4,null,'01-jan-85');
1 row created.
SQL> insert into department_BCT0358 values('Research',5,null,'22-may-78');
1 row created.
SQL> select * from department_BCT0358;
```

DEPTNAME	DEPTNUMBER	MGRSSN	MGRSTARTD
Manufacture	1		19/JUN/71
Administration	2		04/JAN/99
Headquarter	3		22/SEP/55
Finance	4		01/JAN/85
Research	5		22/MAY/78

Now, we can proceed with entering the values into the **dept_location_BCT0358** table.

Query:

```
SQL> insert into dept_location_BCT0358 values(1,'Houston');
```

1 row created.

```
SQL> insert into dept_location_BCT0358 values(1,'Chicago');
```

1 row created.

```
SQL> insert into dept_location_BCT0358 values(2,'New York');
```

1 row created.

```
SQL> insert into dept_location_BCT0358 values(2,'San Francisco');
```

1 row created.

```
SQL> insert into dept_location_BCT0358 values(3,'Salt Lake City');
```

1 row created.

```
SQL> insert into dept_location_BCT0358 values(4,'Stafford');
```

1 row created.

```
SQL> insert into dept_location_BCT0358 values(4,'Bellaire');
```

1 row created.

```
SQL> insert into dept_location_BCT0358 values(5,'Sugarland');
```

1 row created.

```
SQL> insert into dept_location_BCT0358 values(5,'Houston');
```

1 row created.

```
SQL> BCT0358: insert into dept_location_BCT0358 values(1, 'Houston');
1 row created.

SQL> insert into dept_location_BCT0358 values(1, 'Chicago');
1 row created.

SQL> insert into dept_location_BCT0358 values(2, 'New York');
1 row created.

SQL> insert into dept_location_BCT0358 values(2, 'San Francisco');
1 row created.

SQL> insert into dept_location_BCT0358 values(3, 'Salt Lake City');
1 row created.

SQL> insert into dept_location_BCT0358 values(4, 'Stafford');
1 row created.

SQL> insert into dept_location_BCT0358 values(4, 'Bellaire');
1 row created.

SQL> insert into dept_location_BCT0358 values(5, 'Sugarland');
1 row created.
```

```
DEPTNUMBER DEPTLOC
-----
1 Houston
1 Chicago
2 New York
2 San Francisco
3 Salt Lake City
4 Stafford
4 Bellaire
5 Sugarland
5 Houston

9 rows selected.

SQL> |
```


Entering Data for Table Works_On:**Query:**

```
insert into works_on_BCT0358 values('123456789',3388,32.5); insert  
into works_on_BCT0358 values('123456789',3388,32.5)* ERROR at  
line 1:
```

ORA-02291: integrity constraint (SURAJVIT.PROJECT_FK) violated - parent key not found.

Interpretation: The following query throws error because both the field in the table are a foreign key for the table employee_BCT0358 and Project_BCT0358 tables and both are empty. So we have to first enter data into those table:

Query:

```
insert into employee_BCT0358 values('Joyce',' ','Pan','123456789','07-feb-  
78','Salt Lake City Houston','m',70000,'123456789',null);  
insert into employee_BCT0358 values('Joyce',' ','Pan','123456789','07-  
feb78','Salt Lake City Houston','m',70000,'123456789',null) ERROR at line  
1:
```

ORA-00001: unique constraint

(SURAJVIT.SYS_C007148) violated

```
SQL> insert into employee_BCT0358 values('Joyce',' ','Pan','123456789','07-feb-78','  
Salt Lake City Houston','m',70000,'123456789',null);  
insert into employee_BCT0358 values('Joyce',' ','Pan','123456789','07-feb-78','Salt  
Lake City Houston','m',70000,'123456789',null)  
*  
ERROR at line 1:  
ORA-00001: unique constraint  
(VIVEKVIT.SYS_C007148) violated
```

Interpretation: there could be no two ssn number be same as it is set as a primary key which is always unique.

Query:

```
SQL> insert into employee_BCT0358
values('Doug','E','Gilbert','123456789','19-jun-20','Salt Lake City
Houston','m',80000,'123456789',null);
```

```
1 row created. insert into employee_BCT0358 values('Joyce','
','Pan','666884444','07-feb78','Salt Lake City
Houston','m',70000,'666884444',null);
```

1 row created.

```
SQL>
```

```
SQL> insert into employee_BCT0358
values('Frankin','T','Wong','453453453','08-dec-45','Voss Houston,
UT','m',40000,'453453453',null);
```

1 row created.

```
SQL> insert into employee_BCT0358
values('Jennifer','S','Wallace','333445555','20-jun-31','Berry Bellaire,
TX','m',43000,'333445555',null);
```

1 row created.

```
SQL> insert into employee_BCT0358
values('John','B','Smith','999887777','09-jan-45','Fondren Houstun,
TX','m',30000,'999887777',null);
```

1 row created.

```
SQL> insert into employee_BCT0358
values('Ramesh','K','Narayan','543216789','15-sep-52','Fire Oak Humble,
TX','m',38000,'543216789',null);
```

1 row created.

```
SQL> insert into employee_BCT0358
values('James','E','Brog','554433221','10-nov-27','Stone Houston,
TX','m',55000,'554433221',null);
```

1 row created.

```
SQL> insert into employee_BCT0358 values('Joyce',' ','Pan','666884444','07-feb-78','Salt Lake City Houston','m',70000,'666884444',null);
1 row created.

SQL>
SQL> insert into employee_BCT0358 values('Frankin','T','Wong','453453453','08-dec-45','Voss Houston, UT','m',40000,'453453453',null);
1 row created.

SQL> insert into employee_BCT0358 values('Jennifer','S','Wallace','333445555','20-jun-31','Berry Bellaire, TX','m',43000,'333445555',null);
1 row created.

SQL> insert into employee_BCT0358 values('John','B','Smith','999887777','09-jan-45','Fondren Houston, TX','m',30000,'999887777',null);
1 row created.

SQL> insert into employee_BCT0358 values('Ramesh','K','Narayan','543216789','15-sep-52','Fire Oak Humble, TX','m',38000,'543216789',null);
1 row created.

SQL> insert into employee_BCT0358 values('James','E','Brog','554433221','10-nov-27','Stone Houston, TX','m',55000,'554433221',null);
1 row created.

SQL> set linesize 150;
SQL> select * from employee_BCT0358;
```

FNAME	MI	LNAME	SSNNUMBER	BIRTHDAY	ADDRESS	S	SALARY	SUPERVISO	DEPTNUMBER
Doug	E	Gilbert	123456789	19/JUN/20	Salt Lake City Houston	m	80000	123456789	
Joyce		Pan	666884444	07/FEB/78	Salt Lake City Houston	m	70000	666884444	
Frankin	T	Wong	453453453	08/DEC/45	Voss Houston, UT	m	40000	453453453	
Jennifer	S	Wallace	333445555	20/JUN/31	Berry Bellaire, TX	m	43000	333445555	
John	B	Smith	999887777	09/JAN/45	Fondren Houston, TX	m	30000	999887777	
Ramesh	K	Narayan	543216789	15/SEP/52	Fire Oak Humble, TX	m	38000	543216789	
James	E	Brog	554433221	10/NOV/27	Stone Houston, TX	m	55000	554433221	

```
7 rows selected.
```

In the following table the Attribute Department number is set null and will be altered to the value once the department table is filled as we now can't enter values to it as it will throw error 'parent key not found'.

Inserting values to Project Table:

Query:

SQL> insert into project_BCT0358 values('Alpha',11,'Delhi',1);

1 row created.

SQL> insert into project_BCT0358 values('Beta',12,'Chennai',2);

1 row created.

SQL> insert into project_BCT0358 values('Gamma',13,'Jamshedpur',3);

1 row created.

SQL> insert into project_BCT0358 values('Rocket',14,'Mumbai',4);

1 row created.

SQL> insert into project_BCT0358 values('Delta',15,'Vrindavan',5);

1 row created.

```
SQL> insert into project_BCT0358 values('Alpha',11,'Delhi',1);
1 row created.
SQL> insert into project_BCT0358 values('Beta',12,'Chennai',2);
1 row created.
SQL> insert into project_BCT0358 values('Gamma',13,'Jamshedpur',3);
1 row created.
SQL> insert into project_BCT0358 values('Rocket',14,'Mumbai',4);
1 row created.
SQL> insert into project_BCT0358 values('Delta',15,'Vrindavan',5);
1 row created.
SQL> select * from project_BCT0358;
PROJECTNAME      PROJECTNUM PROJECTLOC      DEPTNO
-----
Alpha            11 Delhi            1
Beta             12 Chennai          2
Gamma            13 Jamshedpur        3
Rocket           14 Mumbai           4
Delta            15 Vrindavan         5
SQL> |
```

] Entering

Entering data on data to WorksOn_BCT0358 :**Query:**

```
SQL> insert into project_BCT0358 values('Alpha',1,'Delhi',1);
```

1 row created.

```
SQL> insert into project_BCT0358 values('Beta',1945,'Chennai',2);
```

1 row created.

```
SQL> insert into project_BCT0358 values('Gamma',77,'Jamshedpur',3);
```

1 row created.

```
SQL> insert into project_BCT0358 values('Rocket',22,'Mumbai',4);
```

1 row created.

```
SQL> insert into project_BCT0358 values('Delta',6688,'Vrindavan',5);
```

1 row created.

```
SQL> insert into project_BCT0358 values('Super',43,'NCR',5);
```

1 row created.

```
SQL> insert into project_BCT0358 values('King',12,'BlueSky',2);
```

1 row created.

```
SQL> insert into project_BCT0358 values('Alpha',1,'Delhi',1);
1 row created.

SQL> insert into project_BCT0358 values('Beta',1945,'Chennai',2);
1 row created.

SQL> insert into project_BCT0358 values('Gamma',77,'Jamshedpur',3);
1 row created.

SQL> insert into project_BCT0358 values('Rocket',22,'Mumbai',4);
1 row created.

SQL> insert into project_BCT0358 values('Delta',6688,'Vrindavan',5);
1 row created.

SQL> insert into project_BCT0358 values('Super',43,'NCR',5);
1 row created.

SQL> insert into project_BCT0358 values('King',1,'BlueSky',3);
insert into project_BCE0211 values('King',1,'BlueSky',3)
*
ERROR at line 1:
ORA-00001: unique constraint (SURAJVIT.SYS_C007158) violated

SQL> insert into project_BCT0358 values('King',1,'BlueSky',5);
insert into project_BCT0358 values('King',1,'BlueSky',5)
*
ERROR at line 1:
ORA-00001: unique constraint (SURAJVIT.SYS_C007158) violated

SQL> insert into project_BCT0358 values('King',12,'BlueSky',2);
1 row created.
```

PROJECTNAME	PROJECTNUM	PROJECTLOC	DEPTNO
Alpha	1	Delhi	1
Betaws selected.	1945	Chennai	2
Gamma	77	Jamshedpur	3
Rocket	22	Mumbai	4
Delta	6688	Vrindavan	5
Super	43	NCR	5

Query:

```
SQL> insert into project_BCT0358 values('NighStar',3388,'Dubai',4);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('123456789',3388,32.5);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('123456789',1945,7.5);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('666884444',3388,40.0);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('453453453',77,20.0);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('453453453',22,20.0);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('333445555',77,10.0);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('333445555',6688,10.0);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('333445555',43,35.0);
```


1 row created.

```
SQL> insert into works_on_BCT0358 values('333445555',43,35.0);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('333445555',22,28.5);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('999887777',1,11.5);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('999887777',12,13.0);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('543216789',22,17.0);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('554433221',1945,21.5);
```

1 row created.

```
SQL> insert into works_on_BCT0358 values('453453453',77,20.0);
1 row created.

SQL> insert into works_on_BCT0358 values('453453453',22,20.0);
1 row created.

SQL> insert into works_on_BCT0358 values('333445555',77,10.0);
1 row created.

SQL> insert into works_on_BCT0358 values('333445555',6688,10.0);
1 row created.

SQL> insert into works_on_BCT0358 values('333445555',43,35.0);
1 row created.

SQL> insert into works_on_BCT0358 values('333445555',43,35.0);
1 row created.

SQL> insert into works_on_BCT0358 values('333445555',22,28.5);
1 row created.

SQL> insert into works_on_BCT0358 values('999887777',1,11.5);
1 row created.

SQL> insert into works_on_BCT0358 values('999887777',12,13.0);
1 row created.

SQL> insert into works_on_BCT0358 values('543216789',22,17.0);
1 row created.
```

```
SQL> select * from works_on_BCT0358;
```

EMPLOYEES	PROJECTNUM	HOURS
-----	-----	-----
123456789	3388	32.5
123456789	1945	7.5
666884444	3388	40
453453453	77	20
453453453	22	20
333445555	77	10
333445555	6688	10
333445555	43	35
333445555	43	35
333445555	22	28.5
999887777	1	11.5

EMPLOYEES	PROJECTNUM	HOURS
-----	-----	-----
999887777	12	13
543216789	22	17
554433221	1945	21.5

```
14 rows selected.
```

Completing the Employee table with Employee_BCT0358 table :**Query:**

```
SQL> UPDATE employee_BCT0358
```

```
2 SET deptnumber=1
```

```
3 WHERE fname='Doug';
```

1 row updated.

```
SQL> UPDATE employee_BCT0358
```

```
2 SET deptnumber=1
```

```
3 WHERE fname='Joyce';
```

1 row updated.

```
SQL> UPDATE employee_BCT0358
```

```
2 SET deptnumber=2
```

```
3 WHERE fname='Frankin';
```

1 row updated.

```
SQL>
```

```
SQL> UPDATE employee_BCT0358
```

```
2 SET deptnumber=3
```

```
3 WHERE fname='Jennifer';
```

1 row updated.

```
SQL> UPDATE employee_BCT0358
```

```
2 SET deptnumber=4
```

```
3 WHERE fname='John';
```

1 row updated.

```
SQL> UPDATE employee_BCT0358
```

```
2 SET deptnumber=4
```

```
3 WHERE fname='Ramesh';
```

1 row updated.

SQL> UPDATE employee_BCT0358

2 SET deptnumber=5

3 WHERE fname='James';

1 row updated.

```
SQL>
SQL> UPDATE employee_BCT0358
  2 SET deptnumber=3
  3 WHERE fname='Jennifer';

1 row updated.

SQL> UPDATE employee_BCT0358
  2 SET deptnumber=4
  3 WHERE fname='John';

1 row updated.

SQL> UPDATE employee_BCT0358
  2 SET deptnumber=4
  3 WHERE fname='Ramesh';

1 row updated.

SQL> UPDATE employee_BCT0358
  2 SET deptnumber=5
  3 WHERE fname='James';

1 row updated.

SQL> select * from employee_BCT0358;
```

FNAME	MI	LNAME	SSNNUMBER	BIRTHDAY	ADDRESS	S	SALARY	SUPERVISOR	DEPTNUMBER
Doug	E	Gilbert	123456789	19/JUN/20	Salt Lake City Houston	n	80000	123456789	1
Joyce		Pan	666884444	07/FEB/78	Salt Lake City Houston	n	70000	666884444	1
Franklin	T	Wong	453453453	08/DEC/45	Voss Houston, UT	n	40000	453453453	2
Jennifer	S	Wallace	333445555	20/JUN/31	Berry Bellaire, TX	n	43000	333445555	3
John	B	Smith	999887777	09/JAN/45	Fondren Houston, TX	n	30000	999887777	4
Ramesh	K	Narayan	543216789	15/SEP/52	Fire Oak Humble, TX	n	38000	543216789	4
James	E	Brog	554433221	10/NOV/27	Stone Houston, TX	n	55000	554433221	5

Inserting values into DEPENDENT_BCT0358 :

Query: insert into dependent_BCT0358

values('333445555','Alice','F','05-apr-76','Daughter');

1 row created.

SQL> insert into dependent_BCT0358

values('333445555','Theodore','M','25-oct-73','Son');

1 row created.

```
SQL> insert into dependent_BCT0358 values('333445555','Joy','F','03may-48','Spouse');
```

1 row created.

```
SQL> insert into dependent_BCT0358 values('987654321','Abner','M','29feb-32','Spouse');
```

```
insert into dependent_BCT0358 values('987654321','Abner','M','29-feb32','Spouse')
```

*

ERROR at line 1:

ORA-02291: integrity constraint

(SURAJVIT.EMPLY_SSN_FK) violated - parent key not

Found

Interpretation: Here the employee ssn is the foreign key for the table which doesn't match with the employee table therefore an error occurred while filling into the table.

```
SQL> insert into dependent_BCT0358 val','Abner','M','29-feb-32','Spouse'); ERROR:
```

ORA-01756: quoted string not properly terminated

```
SQL> insert into dependent_BCT0358 values('123456789','Alice','F','31dec-78','Daughter'); 1 row created.
```

```
SQL> insert into dependent_BCT0358 values('123456789','Elizabeth','F','05-may-57','Spouse'); 1 row created.
```

```
SQL> insert into dependent_BCT0358 values('333445555','Alice','F','05-apr-76','Daughter');
1 row created.

SQL> insert into dependent_BCE0211 values('333445555','Theodore','M','25-oct-73','Son');
1 row created.

SQL> insert into dependent_BCT0358 values('333445555','Joy','F','03-may-48','Spouse');
1 row created.

SQL> insert into dependent_BCT0358 values('987654321','Abner','M','29-feb-32','Spouse');
insert into dependent_BCT0358 values('987654321','Abner','M','29-feb-32','Spouse')
*
ERROR at line 1:
ORA-02291: integrity constraint
(SURAJVIT.EMPLOY_SSN_FK) violated - parent key not
found

SQL> insert into dependent_BCT0358 val','Abner','M','29-feb-32','Spouse');
ERROR:
ORA-01756: quoted string not properly terminated

SQL> insert into dependent_BCT0358 values('123456789','Alice','F','31-dec-78','Daughter');
SQL> insert into dependent_BCT0358 val','Abner','M','29-feb-32','Spouse');
ERROR:
ORA-01756: quoted string not properly terminated

SQL> insert into dependent_BCT0358 values('123456789','Alice','F','31-dec-78','Daughter');
1 row created.

SQL> insert into dependent_BCT0358 values('123456789','Elizabeth','F','05-may-57','Spouse');
1 row created.

SQL> select * from dependent_BCE0211;

EMPLOYEE  DEPENDENTNAME  S BIRTHDAY  RELATION
-----
333445555  Alice          F 05/APR/76  Daughter
333445555  Theodore      M 25/OCT/73  Son
333445555  Joy           F 03/MAY/48  Spouse
123456789  Alice         F 31/DEC/78  Daughter
123456789  Elizabeth     F 05/MAY/57  Spouse

SQL> |
```


Execute the following Query on the Db to display and discuss the integrity constraints violated by any of the following operations

1. Insert ('Robert', 'F', 'Scott', '943775543', '21-JUN-42', '2365 Newcastle Rd, Bellaire, TX', M, 58000, '888665555', 1) into EMPLOYEE.
2. Insert ('677678989', null, '40.0') into WORKS_ON.
3. Insert ('453453453', 'John', M, '12-DEC-60', 'SPOUSE') into DEPENDENT
4. Delete the WORKS_ON tuples with ESSN= '333445555'.
5. Modify the MGRSSN and MGRSTARTDATE of the DEPARTMENT tuple with DNUMBER=5 to '123456789' and '01-OCT-88', respectively.

1. Answer ⑦ Query:

```
SQL> insert into employee_BCT0358
values('Robert','F','Scott','943775543','21-jun-42','2365 Newcastle
Rd,Bellaire,TX','M',58000,'888665555',null);
insert into employee_BCT0358
values('Robert','F','Scott','943775543','21-jun-42','2365 Newcastle
Rd,Bellaire,TX','M',58000,'888665555',null)
*
```

ERROR at line 1:

ORA-02291: integrity constraint (SURAJVIT.EMPLY_SUPSSN_FK)
violated - parent key not found

Interpretation: The following command is totally invalid because the **supervisorssn** attribute is the **FOREIGN KEY** for the **SSNNumber** of the employee, which means the foreign key exists within the table, so data entered in **supervisor ssn** and **ssn number** of employee can't be different, but here in the query both are different so the query is wrong.

2. Answer ⑦ Query: insert into works_on_BCT0358
values('677678989',null,40.0); insert into works_on_BCT0358
values('677678989',null,40.0) *

ERROR at line 1:

ORA-02291: integrity constraint (SURAJVIT.EMPLOYSSN_FK) violated - parent key not found.

Interpretation: The **employessn** number is not listed in the employee table, and the **ssnnumber** of employee table is the **FOREIGN KEY reference** for the first field of **works_on table**.

Therefore, this query throws **Error**.

3. Answer ⑦ Query: insert into dependent_BCT0358 values('453453453','Jhon','M','12dec-60','spouse');

1 row created.

```
SQL> insert into dependent_BCT0358 values('453453453','Jhon','M','12-dec-60','spouse'
);
1 row created.
SQL> select * from dependent_BCT0358;

EMPLOYEE  DEPENDENTNAME  S BIRTHDAY  RELATION
-----
333445555 Alice          F 05/APR/76 Daughter
333445555 Theodore     M 25/OCT/73 Son
333445555 Joy          F 03/MAY/48 Spouse
123456789 Alice          F 31/DEC/78 Daughter
123456789 Elizabeth    F 05/MAY/57 Spouse
453453453 Jhon           M 12/DEC/60 spouse

6 rows selected.
SQL> |
```

4. Answer ⑦ Query:

SQL> delete from works_on_BCT0358 where employeessn='333445555';

5 rows deleted.

```
SQL> delete from works_on_BCT0358 where employeeessn='333445555';  
5 rows deleted.
```

```
SQL> select *from works_on_BCT0358;
```

EMPLOYEES	PROJECTNUM	HOURS
-----	-----	-----
123456789	3388	32.5
123456789	1945	7.5
666884444	3388	40
453453453	77	20
453453453	22	20
999887777	1	11.5
999887777	12	13
543216789	22	17
554433221	1945	21.5

```
9 rows selected.
```

```
SQL> |
```

5. Answer ⑦ Query:

```
SQL> UPDATE department_BCT0358 SET mgrssn='123456789'  
WHERE deptnumber=5;
```

1 row updated.

```
SQL> UPDATE department_BCT0358 SET mgrstartdate='01-oct-88'  
WHERE deptnumber=5;
```

1 row updated.

```
SQL> UPDATE department_BCT0358 SET mgrssn='123456789' WHERE deptnumber=5;  
1 row updated.  
SQL> UPDATE department_BCT0358 SET mgrstartdate='01-oct-88' WHERE deptnumber=5;  
1 row updated.  
SQL>
```

```
SQL> select * from department_BCT0358;
```

DEPTNAME	DEPTNUMBER	MGRSSN	MGRSTARTD
Manufacture	1	123456789	19/JUN/71
Administration	2	666884444	04/JAN/99
Headquarter	3	453453453	22/SEP/55
Finance	4	333445555	01/JAN/85
Research	5	123456789	01/OCT/88

```
SQL> |
```

Alter the tables to

1. Add Foreign Keys using Alter Table [if not done earlier].
2. Drop Foreign key defined on SuperSSN and add it using Alter table command.
3. Make name of Project as Unique and sex of employee as not null.
4. Make Address as a new type containing door no, street, city, State, Continent.
5. Make salary of employee to accept real values.

1. Already Added.

2. Query:

```
ALTER TABLE employee_BCT0358  
DROP CONSTRAINT emply_supssn_fk FOREIGN KEY;
```

To add the Constraint again through ALTER command we use :

Query:

```
ALTER TABLE employee_BCT0358 ADD CONSTRAINT  
emply_supervisroSSN_fk FOREIGN KEY (supervisorssn)  
REFERENCES employee_BCT0358(ssnnumber) on delete  
cascade;
```

```
SQL> Table altered.
```

```
SQL> ALTER TABLE employee_BCT0358
2 ADD FOREIGN KEY(deptnumber) REFERENCES department_BCE0211(deptnumber);
Table altered.
```

3.

Query:

```
SQL> ALTER TABLE project_BCT0358
2 ADD CONSTRAINT proj_name_uq UNIQUE(projectname);
```

Table altered.

```
SQL> ALTER TABLE project_BCT0358
2 ADD CONSTRAINT proj_name_uq UNIQUE(projectname);
Table altered.
SQL> |
```

```
SQL> ALTER TABLE employee_BCT0358 MODIFY(sex not null);
```

Table altered.

```
SQL> ALTER TABLE employee_BCT0358 MODIFY(sex not null);
Table altered.
SQL> select * from employee_BCT0358;
```

FNAME	MI	LNAME	SSNUMBER	BIRTHDAY	ADDRESS
S	SALARY	SUPERVISOR	DEPTNUMBER		
Doug	m	E Gilbert	123456789	19/JUN/20	Salt Lake City Houston
Joyce	m	Pan	666884444	07/FEB/78	Salt Lake City Houston
Franklin	m	T Wong	453453453	08/DEC/45	Voss Houston, UT
Jennifer	m	S Wallace	333445555	20/JUN/31	Berry Bellaire, TX
John	m	B Smith	999887777	09/JAN/45	Fondren Houston, TX
Ramesh	m	K Narayan	543216789	15/SEP/52	Fire Oak Humble, TX
James	m	E Brog	554433221	10/NOV/27	Stone Houston, TX

7 rows selected.

4. Query:

```
SQL> create table address_BCT0358(
2 emplyssn char(9) ,
3 door_ni number(3), 4 street varchar2(30),
5 city varchar2(10),
6 state varchar2(10),
```

- 7 continent varchar(10),
- 8 CONSTRAINT emply_ssn_fk1 FOREIGN KEY(emplyssn) REFERENCES employee_BCT0358(ssnnumber));

Table created.

```
SQL> create table address_BCT0358(
  2   emplyssn char(9) ,
  3   door_ni number(3),
  4   street varchar2(30),
  5   city varchar2(10),
  6   state varchar2(10),
  7   continent varchar(10),
  8   CONSTRAINT emply_ssn_fk1 FOREIGN KEY(emplyssn) REFERENCES employee_BCT0358(ssnnumbe
r));
```

Table created.

```
SQL> insert into address_BCT0358 values('123456789',11,' ','Salt lake','Houston','UT');
```

1 row created.

```
SQL> select * from address_BCT0358;
```

EMPLYSSN	DOOR_NI	STREET	CITY	STATE	CONTINENT
123456789	11		Salt lake	Houston	UT

```
SQL> |
```

5. Query:

```
SQL> ALTER table employee_BCT0358 ADD CHECK (salary >= 0);
```

Table altered.

```
SQL> ALTER table employee_BCT0358 ADD CHECK (salary >= 0);
```

Table altered.

```
SQL>                                     ghff
```

```
SP2-0042: unknown command "ghff" - rest of line ignored.
```

```
SQL> select * from employee_BCT0358;
```

FNAME	MI	LNAME	SSNNUMBER	BIRTHDAY	ADDRESS	S	SALARY	SUPERVISOR	DEPTNUMBER
Doug	E	Gilbert	123456789	19/JUN/20	Salt Lake City Houston	m	80000	123456789	1
Joyce		Pan	666884444	07/FEB/78	Salt Lake City Houston	m	70000	666884444	1
Frankin	T	Wong	453453453	08/DEC/45	Voss Houston, UT	m	40000	453453453	2
Jennifer	S	Wallace	333445555	20/JUN/31	Berry Bellaire, TX	m	43000	333445555	3
John	B	Smith	999887777	09/JAN/45	Fondren Houston, TX	m	30000	999887777	4
Ramesh	K	Narayan	543216789	15/SEP/52	Fire Oak Humble, TX	m	38000	543216789	4
James	E	Brog	554433221	10/NOV/27	Stone Houston, TX	m	55000	554433221	5

7 rows selected.

```
SQL>
```

+++++