9921103163

F7

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Week 3 and Week 4

```
mysql> use db;
Database changed
mysql> create table department(
    -> dname varchar(20) NOT NULL,
    ->
    -> dnumber integer NOT NULL,
    -> mgrssn integer NOT NULL);
Query OK, 0 rows affected (1.64 sec)

mysql> show tables;
+--------------+
| Tables_in_db |
+--------------+
| department   |
+--------------+
1 row in set (0.03 sec)

mysql> desc department
    -> ;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| dname   | varchar(20) | NO   |     | NULL    |       |
| dnumber | int         | NO   |     | NULL    |       |
| mgrssn  | int         | NO   |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
3 rows in set (0.07 sec)

mysql> create table department_lacations(
    -> dnumber integer not null,
    -> dlocation varchar(20) not null);
Query OK, 0 rows affected (0.25 sec)
```

```
mysql> create table dependent(
    -> dependentname varchar(20) not null,
    -> sex char not null,
    -> bdate date not null,
    -> relationship varchar(20) not null,
    -> essn integer not null);
Query OK, 0 rows affected (0.98 sec)

mysql> create table employee(
    -> ssn integer not null,
    -> superssn integer null,
    -> fname varchar(20) not null,
    -> minit char null,
    -> lname varchar(20) not null,
    -> address varchar(50) not null,
    -> bdate date null,
    -> salary integer null,
    -> sex char not null,
    -> dno integer null);
Query OK, 0 rows affected (0.64 sec)

mysql> describe employee;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| ssn      | int         | NO   |     | NULL    |       |
| superssn | int         | YES  |     | NULL    |       |
| fname    | varchar(20) | NO   |     | NULL    |       |
| minit    | char(1)     | YES  |     | NULL    |       |
| lname    | varchar(20) | NO   |     | NULL    |       |
| address  | varchar(50) | NO   |     | NULL    |       |
| bdate    | date        | YES  |     | NULL    |       |
| salary   | int         | YES  |     | NULL    |       |
| sex      | char(1)     | NO   |     | NULL    |       |
| dno      | int         | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
10 rows in set (0.03 sec)

mysql>
```

```
mysql> create table employee_project(
    -> ssn integer not null,
    -> pnumber integer not null,
    -> hours integer null);
Query OK, 0 rows affected (0.28 sec)
```

```
mysql> create table locations(
    -> dlocation varchar(20) not null);
Query OK, 0 rows affected (0.37 sec)

mysql> create table project(
    -> pnumber integer not null,
    -> plocations varchar(20) null,
    -> dnum integer null);
Query OK, 0 rows affected (0.24 sec)

mysql> alter table department add primary key(dnumber);
Query OK, 0 rows affected (0.93 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table department_locations add primary key(dnumber,dlocations);
ERROR 1146 (42S02): Table 'db.department_locations' doesn't exist
mysql> show tables;
+----------------------+
| Tables_in_db         |
+----------------------+
| department           |
| department_lacations |
| dependent            |
| employee             |
| employee_project     |
| locations            |
| project              |
+----------------------+
7 rows in set (0.02 sec)

mysql> alter table department_locations add primary key(dnumber,dlocation);
ERROR 1146 (42S02): Table 'db.department_locations' doesn't exist
mysql> desc department_locations;
ERROR 1146 (42S02): Table 'db.department_locations' doesn't exist
mysql> alter table department_lacations add primary key(dnumber,dlocation);
Query OK, 0 rows affected (0.43 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table department_lacations add foreign key(dnumber) references department(dnumber);
Query OK, 0 rows affected (1.15 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table dependent add primary key (dependentname,essn);
Query OK, 0 rows affected (0.44 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table employee add primary key (ssn);
Query OK, 0 rows affected (0.71 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table employee_project add primary key (ssn,pnumber);
Query OK, 0 rows affected (0.51 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table locations add primary key (dlocation);
Query OK, 0 rows affected (0.43 sec)
Records: 0  Duplicates: 0  Warnings: 0

ysql> alter table project add primary key (pnumber);
uery OK, 0 rows affected (0.67 sec)
ecords: 0  Duplicates: 0  Warnings: 0
```

```
mysql> alter table department add (foreign key(mgrssn) references employee(ssn));
Query OK, 0 rows affected (1.27 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table department_lacations add (foreign key(dnumber)references department(dnumber));
Query OK, 0 rows affected (0.59 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table department_lacations add (foreign key(dlocations)references locations(dlocation));
ERROR 1072 (42000): Key column 'dlocations' doesn't exist in table
mysql> alter table department_lacations add (foreign key(dlocation)references locations(dlocation));
Query OK, 0 rows affected (1.07 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc tables
    -> ;
ERROR 1146 (42S02): Table 'db.tables' doesn't exist
mysql> show tables;
+----------------------+
| Tables_in_db         |
+----------------------+
| department           |
| department_lacations |
| dependent            |
| employee             |
| employee_project     |
| locations            |
| project              |
+----------------------+
7 rows in set (0.02 sec)

mysql>




+----------------------+
7 rows in set (0.02 sec)

mysql> alter table dependent add (foreign key (essn) references employee(ssn));
Query OK, 0 rows affected (0.76 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table employee add(foreign key(superssn) references employee(ssn) on deleter  set null
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your
mysql> alter table employee add(foreign key(superssn) references employee(ssn));
Query OK, 0 rows affected (0.81 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table employee add (FOREIGN KEY(ssn) references employee (ssn));
ERROR 1822 (HY000): Failed to add the foreign key constraint. Missing index for constraint 'employe
mysql> alter table employee add (FOREIGN KEY(dno) references department(dnumber));
Query OK, 0 rows affected (1.16 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table employee_project add(foreign key(ssn) references employee(ssn));
Query OK, 0 rows affected (0.70 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table employee_project add(foreign key(pnumber) references project(pnumber));
Query OK, 0 rows affected (0.79 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table project add(foreign key(dnum) references department(dnumber) on delete  set null
Query OK, 0 rows affected (1.87 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql>
```

```
mysql> alter table department add column mgrstartdate DATE;
Query OK, 0 rows affected (0.49 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc department;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| dname        | varchar(20) | NO   |     | NULL    |       |
| dnumber      | int         | NO   | PRI | NULL    |       |
| mgrssn       | int         | NO   | MUL | NULL    |       |
| mgrstartdate | date        | YES  |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
4 rows in set (0.03 sec)

mysql> SET FOREIGN_KEY_CHECKS=0;
Query OK, 0 rows affected (0.00 sec)

mysql> INSERT INTO department values("Research",5,333445555,"2022-5-17");
Query OK, 1 row affected (0.06 sec)

mysql> SET FOREIGN_KEY_CHECKS=1;
Query OK, 0 rows affected (0.00 sec)

mysql>

ysql> SET FOREIGN_KEY_CHECKS=1;
Query OK, 0 rows affected (0.00 sec)

ysql> SET FOREIGN_KEY_CHECKS=0;
uery OK, 0 rows affected (0.00 sec)

ysql> INSERT INTO department values("Administration",4,98765324,"2022-5-3");
uery OK, 1 row affected (0.06 sec)

ysql> INSERT INTO department values("Headquters",4,98765324,"2021-1-1");
RROR 1062 (23000): Duplicate entry '4' for key 'department.PRIMARY'
ysql> INSERT INTO department values("Headquters",1,98765324,"2021-1-1");
uery OK, 1 row affected (0.06 sec)

ysql> INSERT INTO department values("Software",6,11111100,"2021-3-30");
uery OK, 1 row affected (0.07 sec)

ysql> INSERT INTO department values("Hardware",7,444444100,"1998-3-30");
uery OK, 1 row affected (0.04 sec)

ysql> set foreign_key_check=1;
RROR 1193 (HY000): Unknown system variable 'foreign_key_check'
ysql> set foreign_key_checks=1;
uery OK, 0 rows affected (0.00 sec)

ysql>
```

Inplace of copying screenshots, I am directly pasting all queries which I has run on MySQL command line client-

Firstly I create all tables and insert data in all tables by using below written commands-

```
use db;
show tables;
CREATE TABLE DEPARTMENT(
dname VARCHAR(20) NOT NULL ,
dnumber INTEGER NOT NULL ,
mgrssn INTEGER NULL,
mgrstartdate date);

CREATE TABLE DEPARTMENT_LOCATIONS(
dnumber INTEGER NOT NULL ,
dlocation VARCHAR(20) NOT NULL );

CREATE TABLE DEPENDENT(
dependentname VARCHAR(20) NOT NULL ,
sex CHAR NULL ,
bdate DATE NULL ,
relationship VARCHAR(20) NULL ,
essn INTEGER NOT NULL);

CREATE TABLE EMPLOYEE(
ssn INTEGER NOT NULL ,
superssn INTEGER NULL ,
fname VARCHAR(20) NULL ,
minit CHAR NULL ,
lname VARCHAR(20) NOT NULL ,
address VARCHAR(50) NULL ,
bdate DATE NULL ,
salary INTEGER NULL ,
sex CHAR NULL ,
dno INTEGER NULL);
```

```sql
CREATE TABLE EMPLOYEE_PROJECT(
ssn INTEGER NOT NULL ,
pnumber INTEGER NOT NULL ,
hours INTEGER NULL );


CREATE TABLE LOCATIONS (
dlocation VARCHAR(20) NOT NULL );


CREATE TABLE PROJECT(
pnumber INTEGER NOT NULL ,
pname VARCHAR(20) NULL ,
plocation VARCHAR(20) NULL ,
dnum INTEGER NULL );

describe department;
insert into department values('Research',5,333445555,'1978-05-22');
insert into department values('Administration',5,333445555,'1985-01-01');
insert into department values('Headquaters',1,888665555,'1971-06-19');
insert into department values('Software',6,111111100,'1999-05-15');
insert into department values('Hardware',7,444444400,'1998-05-15');

insert into project values(1,'ProductX','Bellaire',5);
insert into project values(2,'ProductY','Sugarland',5);
insert into project values(3,'ProductZ','Houston',5);
insert into project values(10,'Computerization','Stafford',4);
insert into project values(20,'Reorgation','Houston',1);
insert into project values(30,'Newbenefits','Stafford',4);
insert into project values(61,'OperatingSystems','Jacksonville',6);
insert into project values(62,'DatabaseSystems','Birmingham',6);
insert into project values(63,'Middleware','Jackson',6);
insert into project values(91,'InkjetPrinters','Phoenix',7);
insert into project values(92,'LaserPrinters','LasVegas',7);

insert into department_locations values(1,'Houston');
insert into department_locations values(4,'Stafford');
insert into department_locations values(5,'Bellaire');
insert into department_locations values(5,'Sugarland');
insert into department_locations values(5,'Houston');
```

insert into department_locations values(6,'Atlanta');
insert into department_locations values(6,'Sacramento');
insert into department_locations values(7,'Milwaukee');
insert into department_locations values(8,'Chicago');
insert into department_locations values(8,'Dallas');
insert into department_locations values(8,'Philadephia');
insert into department_locations values(8,'Seattle');

insert into dependent values('Alice','F','1976-04-05','Daughter',333445555);
insert into dependent values('Theodore','M','1973-10-25','Son',333445555);
insert into dependent values('Joy','F','1948-05-03','Spouse',333445555);
insert into dependent values('Abner','M','1932-02-29','Spouse',987654321);
insert into dependent values('Michael','M','1978-01-01','Son',123456789);
insert into dependent values('Alice','F','1978-012-31','Daughter',123456789);
insert into dependent values('Elizabeth','F','1957-05-05','Spouse',123456789);

insert into employee values(123456789,33345555,'John','B','Smith','731 Fondren, Houston,TX','1965-01-09',30000,'M',5);
insert into employee values(33345555,888665555,'Franklin','T','Wong','638 Voss,Houston,TX','1955-12-08',40000,'M',5);
insert into employee values(999887777,987654321,'Alicia','J','Zelaya','3321 Castle, Spring,TX','1968-01-19',25000,'F',4);
insert into employee values(987654321,888665555,'Jennifer','S','Wallace','291,Berry,Bellaire,TX','1941-06-20',43000,'F',4);
insert into employee values(666884444,33345555,'Ramesh','K','Narayan','975 Fire Oak,Humble,TX','1962-09-15',38000,'M',5);
insert into employee values(453453453,33345555,'Joyce','A','English','5631,Rice, Houston,TX','1972-07-31',25000,'F',5);
insert into employee values(987987987,987654321,'Ahmad','V','Jabbar','980 Dallas, Houston,TX','1969-03-29',25000,'M',4);
insert into employee values(888665555,NULL,'James','E','Borg','450 Stone, Houston,TX','1937-11-10',55000,'M',1);

Now I apply key constraints to all tables as per requirement by using below given cammands-

```sql
ALTER TABLE DEPARTMENT
ADD PRIMARY KEY (dnumber);

ALTER TABLE DEPARTMENT_LOCATIONS
ADD PRIMARY KEY (dnumber,dlocation);


ALTER TABLE DEPENDENT
ADD PRIMARY KEY (dependentname,essn);

ALTER TABLE EMPLOYEE
ADD PRIMARY KEY (ssn);

ALTER TABLE EMPLOYEE_PROJECT
ADD PRIMARY KEY (ssn,pnumber);

ALTER TABLE LOCATIONS
ADD PRIMARY KEY (dlocation);

ALTER TABLE PROJECT
ADD PRIMARY KEY (pnumber);

set foreign_key_checks=0;

ALTER TABLE DEPARTMENT
ADD (FOREIGN KEY(mgrssn) REFERENCES EMPLOYEE(ssn));

set foreign_key_checks=1;

ALTER TABLE EMPLOYEE
ADD (FOREIGN KEY (superssn) REFERENCES EMPLOYEE(ssn) ON DELETE SET
NULL);

ALTER TABLE EMPLOYEE
ADD ( FOREIGN KEY (dno) REFERENCES DEPARTMENT(dnumber) ON DELETE SET
NULL);

ALTER TABLE EMPLOYEE_PROJECT
ADD ( FOREIGN KEY (ssn) REFERENCES EMPLOYEE(ssn));

ALTER TABLE EMPLOYEE_PROJECT
ADD ( FOREIGN KEY (pnumber) REFERENCES PROJECT(pnumber));

ALTER TABLE PROJECT
ADD ( FOREIGN KEY (dnum) REFERENCES DEPARTMENT(dnumber) ON DELETE SET
NULL);
```

Exercise questions based on above table-

Ans 1-

select Bdate as birthdate,Address from employee where Fname='John' and Minit='B' and Lname='Smith';

```
mysql> select Bdate as birthdate,Address from employee where Fname='John' and Minit='B' and Lname='Smith';
+------------+-----------------------+
| birthdate  | Address               |
+------------+-----------------------+
| 1965-01-09 | 731 Fondren, Houston,TX |
+------------+-----------------------+
1 row in set (0.00 sec)

mysql>
```

Ans2-

select Fname,Minit,Lname,address from employee where Dno in(select Dnumber from department where Dname='Research');

```
mysql> select Fname,Minit,Lname,address from employee where Dno in(select Dnumber from department where Dname='Research');
+----------+-------+---------+-----------------------+
| Fname    | Minit | Lname   | address               |
+----------+-------+---------+-----------------------+
| Franklin | T     | Wong    | 638 Voss,Houston,TX   |
| John     | B     | Smith   | 731 Fondren, Houston,TX |
| Joyce    | A     | English | 5631,Rice, Houston,TX |
| Ramesh   | K     | Narayan | 975 Fire Oak,Humble,TX |
+----------+-------+---------+-----------------------+
4 rows in set (0.05 sec)

mysql>
```

Ans 3-

select project.Pnumber as Project_Number,project.Dnum as Controlling_Department_Number,project.Plocation,employee.Lname,employee.Address,employee.Bdate from project inner join employee where project.Plocation='Stafford' and project.Dnum=employee.Dno;

```
mysql> select project.Pnumber as Project_Number,project.Dnum as Controlling_Department_Number,project.Plocation,employee.Lname,employee.Address,employee.Bdate from project
inner join employee where project.Plocation='Stafford' and project.Dnum=employee.Dno;
+----------------+-------------------------------+-----------+---------+---------------------------+------------+
| Project_Number | Controlling_Department_Number | Plocation | Lname   | Address                   | Bdate      |
+----------------+-------------------------------+-----------+---------+---------------------------+------------+
|             10 |                             4 | Stafford  | Wallace | 291,Berry,Bellaire,TX     | 1941-06-20 |
|             10 |                             4 | Stafford  | Jabbar  | 980 Dallas, Houston,TX    | 1969-03-29 |
|             10 |                             4 | Stafford  | Zelaya  | 3321 Castle, Spring,TX    | 1968-01-19 |
|             30 |                             4 | Stafford  | Wallace | 291,Berry,Bellaire,TX     | 1941-06-20 |
|             30 |                             4 | Stafford  | Jabbar  | 980 Dallas, Houston,TX    | 1969-03-29 |
|             30 |                             4 | Stafford  | Zelaya  | 3321 Castle, Spring,TX    | 1968-01-19 |
+----------------+-------------------------------+-----------+---------+---------------------------+------------+
6 rows in set (0.00 sec)

mysql>
```

Ans 4-

select * from employee where Address like '%Houston%';

```
mysql> select * from employee where Address like '%Houston%';
+-----------+-----------+----------+-------+---------+------------------------+------------+--------+-----+-----+
| ssn       | superssn  | fname    | minit | lname   | address                | bdate      | salary | sex | dno |
+-----------+-----------+----------+-------+---------+------------------------+------------+--------+-----+-----+
|  33345555 | 888665555 | Franklin | T     | Wong    | 638 Voss,Houston,TX    | 1955-12-08 |  40000 | M   |   5 |
| 123456789 |  33345555 | John     | B     | Smith   | 731 Fondren, Houston,TX| 1965-01-09 |  30000 | M   |   5 |
| 453453453 |  33345555 | Joyce    | A     | English | 5631,Rice, Houston,TX  | 1972-07-31 |  25000 | F   |   5 |
| 888665555 |      NULL | James    | E     | Borg    | 450 Stone, Houston,TX  | 1937-11-10 |  55000 | M   |   1 |
| 987987987 | 987654321 | Ahmad    | V     | Jabbar  | 980 Dallas, Houston,TX | 1969-03-29 |  25000 | M   |   4 |
+-----------+-----------+----------+-------+---------+------------------------+------------+--------+-----+-----+
5 rows in set (0.00 sec)

mysql>
```

Ans 5-

Initial salaries-

```
mysql> select * from employee;
+-----------+-----------+----------+-------+---------+------------------------+------------+--------+-----+-----+
| ssn       | superssn  | fname    | minit | lname   | address                | bdate      | salary | sex | dno |
+-----------+-----------+----------+-------+---------+------------------------+------------+--------+-----+-----+
|  33345555 | 888665555 | Franklin | T     | Wong    | 638 Voss,Houston,TX    | 1955-12-08 |  40000 | M   |   5 |
| 123456789 |  33345555 | John     | B     | Smith   | 731 Fondren, Houston,TX| 1965-01-09 |  30000 | M   |   5 |
| 453453453 |  33345555 | Joyce    | A     | English | 5631,Rice, Houston,TX  | 1972-07-31 |  25000 | F   |   5 |
| 666884444 |  33345555 | Ramesh   | K     | Narayan | 975 Fire Oak,Humble,TX | 1962-09-15 |  38000 | M   |   5 |
| 888665555 |      NULL | James    | E     | Borg    | 450 Stone, Houston,TX  | 1937-11-10 |  55000 | M   |   1 |
| 987654321 | 888665555 | Jennifer | S     | Wallace | 291,Berry,Bellaire,TX  | 1941-06-20 |  43000 | F   |   4 |
| 987987987 | 987654321 | Ahmad    | V     | Jabbar  | 980 Dallas, Houston,TX | 1969-03-29 |  25000 | M   |   4 |
| 999887777 | 987654321 | Alicia   | J     | Zelaya  | 3321 Castle, Spring,TX | 1968-01-19 |  25000 | F   |   4 |
+-----------+-----------+----------+-------+---------+------------------------+------------+--------+-----+-----+
8 rows in set (0.00 sec)

mysql>
```

Updated salaries-

```
mysql> update employee set salary=salary+(0.1*salary) where Dno in(select Dnum from project where Pnumber=1);
Query OK, 4 rows affected (0.04 sec)
Rows matched: 4  Changed: 4  Warnings: 0

mysql> select * from employee;
+-----------+-----------+----------+-------+---------+-------------------------+------------+--------+------+------+
| ssn       | superssn  | fname    | minit | lname   | address                 | bdate      | salary | sex  | dno  |
+-----------+-----------+----------+-------+---------+-------------------------+------------+--------+------+------+
|  33345555 | 888665555 | Franklin | T     | Wong    | 638 Voss,Houston,TX     | 1955-12-08 |  44000 | M    |    5 |
| 123456789 |  33345555 | John     | B     | Smith   | 731 Fondren, Houston,TX | 1965-01-09 |  33000 | M    |    5 |
| 453453453 |  33345555 | Joyce    | A     | English | 5631,Rice, Houston,TX   | 1972-07-31 |  27500 | F    |    5 |
| 666884444 |  33345555 | Ramesh   | K     | Narayan | 975 Fire Oak,Humble,TX  | 1962-09-15 |  41800 | M    |    5 |
| 888665555 |      NULL | James    | E     | Borg    | 450 Stone, Houston,TX   | 1937-11-10 |  55000 | M    |    1 |
| 987654321 | 888665555 | Jennifer | S     | Wallace | 291,Berry,Bellaire,TX   | 1941-06-20 |  43000 | F    |    4 |
| 987987987 | 987654321 | Ahmad    | V     | Jabbar  | 980 Dallas, Houston,TX  | 1969-03-29 |  25000 | M    |    4 |
| 999887777 | 987654321 | Alicia   | J     | Zelaya  | 3321 Castle, Spring,TX  | 1968-01-19 |  25000 | F    |    4 |
+-----------+-----------+----------+-------+---------+-------------------------+------------+--------+------+------+
8 rows in set (0.00 sec)

mysql>
```

Ans 6-

select * from employee where Dno=5 and salary between 30000 and 40000;

```
mysql> select * from employee where Dno=5 and salary between 30000 and 40000;
+-----------+-----------+-------+-------+-------+-------------------------+------------+--------+------+------+
| ssn       | superssn  | fname | minit | lname | address                 | bdate      | salary | sex  | dno  |
+-----------+-----------+-------+-------+-------+-------------------------+------------+--------+------+------+
| 123456789 |  33345555 | John  | B     | Smith | 731 Fondren, Houston,TX | 1965-01-09 |  33000 | M    |    5 |
+-----------+-----------+-------+-------+-------+-------------------------+------------+--------+------+------+
1 row in set (0.00 sec)

mysql>
```

Ans 7-

select e.Fname as first_name,e.Minit as Middle_name,e.Lname as Lase_name,p.Pname as Project_name,d.dname from employee e, project p,department d where e.Dno=d.Dnumber and e.Dno=p.Dnum order by d.Dname,e.Lname,e.Fname;

```
mysql> select e.Fname as first_name,e.Minit as Middle_name,e.Lname as Lase_name,p.Pname as Project_name,d.dname from employee e, project p,department d where e.Dno=d.Dnumbe
r and e.Dno=p.Dnum order by d.Dname,e.Lname,e.Fname;
+------------+-------------+-----------+----------------+----------------+
| first_name | Middle_name | Lase_name | Project_name   | dname          |
+------------+-------------+-----------+----------------+----------------+
| Ahmad      | V           | Jabbar    | Computerization | Administration |
| Ahmad      | V           | Jabbar    | Newbenefits    | Administration |
| Jennifer   | S           | Wallace   | Computerization | Administration |
| Jennifer   | S           | Wallace   | Newbenefits    | Administration |
| Alicia     | J           | Zelaya    | Computerization | Administration |
| Alicia     | J           | Zelaya    | Newbenefits    | Administration |
| James      | E           | Borg      | Reorgation     | Headquaters    |
| Joyce      | A           | English   | ProductX       | Research       |
| Joyce      | A           | English   | ProductY       | Research       |
| Joyce      | A           | English   | ProductZ       | Research       |
| Ramesh     | K           | Narayan   | ProductX       | Research       |
| Ramesh     | K           | Narayan   | ProductY       | Research       |
| Ramesh     | K           | Narayan   | ProductZ       | Research       |
| John       | B           | Smith     | ProductX       | Research       |
| John       | B           | Smith     | ProductY       | Research       |
| John       | B           | Smith     | ProductZ       | Research       |
| Franklin   | T           | Wong      | ProductX       | Research       |
| Franklin   | T           | Wong      | ProductY       | Research       |
| Franklin   | T           | Wong      | ProductZ       | Research       |
+------------+-------------+-----------+----------------+----------------+
19 rows in set (0.00 sec)

mysql>
```

Ans 8-

select Fname as firstName,Minit as middleName,Lname as lastName from employee where superssn is NULL;

```
mysql> select Fname as firstName,Minit as middleName,Lname as lastName from employee where superssn is NULL;
+-----------+------------+----------+
| firstName | middleName | lastName |
+-----------+------------+----------+
| James     | E          | Borg     |
+-----------+------------+----------+
1 row in set (0.00 sec)
```