

ASSIGNMENT 2

Q 1. Create the table describe below:

Table Name : Employee

Attribute	Data Type	Primary	Foreign	Constraint
First Name	Varchar(15)			NOT NULL
Mid Name	Char(1)			
Last Name	Varchar(15)			NOT NULL
SSN Number	CHAR(9)	Y		NOT NULL
Birthday	DATE			
Address	Varchar(50)			
Sex	Char(1)			Sex IN ('M', 'F', 'm', 'f')
Salary	DECIMAL(10,2)			DEFAULT 800
Supervision SSN	Char(9)		Employee (SSN) ON DELETE SET NULL	
Department Number	INT			

```
mysql> create table Employee(  
-> FirstName varchar(15) NOT NULL,  
-> MidName char(1),  
-> LastName varchar(15) NOT NULL,  
-> SSNNumber char(9) PRIMARY KEY NOT NULL,  
-> Birthday DATE,  
-> Address varchar(50),  
-> Sex char(1) CHECK (Sex IN('M','F','m','f')),  
-> Salary decimal(10,2) DEFAULT 800,  
-> SupervisionSSN char(9),  
-> FOREIGN KEY (SupervisionSSN) REFERENCES Employee(SSNNumber) ON DELETE  
SET NULL,  
-> DepartmentNumber int  
-> );
```

```
mysql> describe Employee;
```

Field	Type	Null	Key	Default	Extra
FirstName	varchar(15)	NO		NULL	
MidName	char(1)	YES		NULL	
LastName	varchar(15)	NO		NULL	
SSNNumber	char(9)	NO	PRI	NULL	
Birthday	date	YES		NULL	
Address	varchar(50)	YES		NULL	
Sex	char(1)	YES		NULL	
Salary	decimal(10,2)	YES		800.00	
SupervisionSSN	char(9)	YES	MUL	NULL	
DepartmentNumber	int	YES		NULL	

10 rows in set (0.02 sec)

Table Name : Department

Attribute	Data Type	Primary	Foreign	Constraint
Department Name	Varchar(15)	UNIQUE		NOT NULL
Department Number	INT	Y		NOT NULL
Manager SSN	Char(9)		Employee(SSN) ON DELETE SET NULL	NULL
Manager Start Date	DATE			

```
mysql> create table Department(
-> DepartmentName varchar(15) UNIQUE NOT NULL,
-> DepartmentNumber int PRIMARY KEY NOT NULL,
-> ManagerSSN char(9),
-> FOREIGN KEY (ManagerSSN) REFERENCES Employee(SSNNumber) ON DELETE
SET NULL,
-> ManagerStartDate DATE
-> );
```

```
mysql> describe Department;
```

Field	Type	Null	Key	Default	Extra
DepartmentName	varchar(15)	NO	UNI	NULL	
DepartmentNumber	int	NO	PRI	NULL	
ManagerSSN	char(9)	YES	MUL	NULL	
ManagerStartDate	date	YES		NULL	

4 rows in set (0.00 sec)

Table Name : Dept_Location

Attribute	Data Type	Primary	Foreign	Constraint
Department Number	INT	Y	Department(DepNo) ON DELETE CASCADE	NOT NULL
Department Location	VARCHAR(15)	Y		NOT NULL

```
mysql> create table Dept_Location(
-> DepartmentNumber int,
-> DepartmentLocation varchar(15) NOT NULL,
-> PRIMARY KEY(DepartmentNumber, DepartmentLocation),
-> FOREIGN KEY (DepartmentNumber)REFERENCES Department(DepartmentNumber)
ON DELETE CASCADE
-> );
```

mysql> describe Dept_Location;

Field	Type	Null	Key	Default	Extra
DepartmentNumber	int	NO	PRI	NULL	
DepartmentLocation	varchar(15)	NO	PRI	NULL	

2 rows in set (0.00 sec)

Table Name: Project

Attribute	DataType	Primary	Foreign	Constraint
Project Name	Varchar(15)	UNIQUE		NOT NULL
Project Number	INT	Y		NOT NULL
Project Location	Varchar(15)			
Department Number	INT		Department(DepNo) ON DELETE SET NULL	

```
mysql> create table Project(
  -> ProjectName varchar(15) UNIQUE NOT NULL,
  -> ProjectNumber int NOT NULL,
  -> PRIMARY KEY(ProjectName, ProjectNumber),
  -> ProjectLocation varchar(15),
  -> DepartmentNumber int ,
  -> FOREIGN KEY (DepartmentNumber)REFERENCES Department(DepartmentNumber)
ON DELETE SET NULL
  -> );
```

```
mysql> DESCRIBE Project;
```

Field	Type	Null	Key	Default	Extra
ProjectName	varchar(15)	NO	PRI	NULL	
ProjectNumber	int	NO	PRI	NULL	
ProjectLocation	varchar(15)	YES		NULL	
DepartmentNumber	int	YES	MUL	NULL	

4 rows in set (0.00 sec)

Table Name : Works_on

Attribute	DataType	Primary	Foreign	Constraint
Employee SSN	CHAR(9)	Y	Employee (SSN) ON DELETE CASCADE	NOT NULL
Project Number	INT	Y	Project (Pnumber)ON DELETE CASCADE	NOT NULL
Hours	DECIMAL(3,1)			NOT NULL

```
mysql> create table Works_on(
-> EmployeeSSN char(9) NOT NULL,
-> ProjectNumber int NOT NULL,
-> Hours decimal(3,1) NOT NULL,
-> PRIMARY KEY(EmployeeSSN, ProjectNumber),
-> FOREIGN KEY(EmployeeSSN)REFERENCES Employee(SSNNumber) ON DELETE
CASCADE,
-> FOREIGN KEY(ProjectNumber)REFERENCES Project(ProjectNumber) ON DELETE
CASCADE
-> );
```

```
mysql> describe Works_on;
```

Field	Type	Null	Key	Default	Extra
EmployeeSSN	char(9)	NO	PRI	NULL	
ProjectNumber	int	NO	PRI	NULL	
Hours	decimal(3,1)	NO		NULL	
3 rows in set (0.00 sec)					

Table Name : Dependent

Attribute	Data Type	Primary	Foreign	Constraint
Employee SSN	CHAR(9)	Y	Employee (SSN) ON DELETE CASCADE	NOT NULL
Dependent Name	Varchar(15)	Y		NOT NULL
Sex	Char			Sex IN ('M', 'F', 'm', 'f')
Birthday	Date			
Relationship	Varchar(8)			

```
mysql> create table Dependent(  
  -> EmployeeSSN char(9) NOT NULL,  
  -> DependentName varchar(15) NOT NULL,  
  -> Sex char CHECK (Sex IN('M','F','m','f')),  
  -> Birthday date,  
  -> Relationship varchar(8),  
  -> PRIMARY KEY (EmployeeSSN, DependentName),  
  -> FOREIGN KEY (EmployeeSSN) REFERENCES Employee(SSNNumber) ON DELETE  
CASCADE  
  -> );
```

```
mysql> describe Dependent;
```

Field	Type	Null	Key	Default	Extra
EmployeeSSN	char(9)	NO	PRI	NULL	
DependentName	varchar(15)	NO	PRI	NULL	
Sex	char(1)	YES		NULL	
Birthday	date	YES		NULL	
Relationship	varchar(8)	YES		NULL	

5 rows in set (0.00 sec)

Q 2. Insert following data into the corresponding table :

a. Insert data into Employee Table:

Fname	Mname	Lname	SSN	Bdate	Address	Sex	Salary	SuperSSN	DepNo
Doug	E	Gilbert	554433221	09-JUN-60	11 S 59 E, Salt Lake City, UT	M	80000	NULL	3
Joyce		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, Houston, 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	Borg	888665555	10-NOV-27	450 Stone, Houston, TX	M	55000	543216789	1
Alicia	J	Zelaya	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

mysql> insert into Employee

-> values

-> ('Doug','E','Gilbert',554433221,'1960-06-09','11 S 59 E, Salt Lake City, UT','M',80000,NULL,3),

-> ('Joyce','','PAN',543216789,'1978-02-07','35 S 18 E, Salt Lake City, UT','F',70000,NULL,2),

-> ('Frankin','T','Wong',333445555,'1945-12-08','638 Voss, Houston, TX','M',40000,554433221,5),

-> ('Jennifer','S','Wallace',987654321,'1931-06-20','291 Berry, Bellaire, TX','F',43000,554433221,4),


```
-> ('John','B','Smith',123456789,'1955-01-09','731 Fondren, Houston,
TX','M',30000,333445555,5),
-> ('Ramesh','K','Narayan',666884444,'1952-09-15','975 Fire Oak, Humble,
TX','M',38000,333445555,5),
-> ('Joyce','A','English',453453453,'1962-07-31','5631 Rice, Houston,
TX','F',25000,333445555,5),
-> ('James','E','Borg',888665555,'1927-11-10','450 Stone, Houston,
TX','M',55000,543216789,1),
-> ('Alicia','J','Zelaya',999887777,'1958-07-19','3321 Castle, Spring,
TX','F',25000,987654321,4),
-> ('Ahmad','V','Jabbar',987987987,'1959-03-29','980 Dallas, Houston,
TX','M',25000,987654321,4);
```

mysql> select *from Employee;

FirstName	MidName	LastName	SSNNumber	Birthday	Address	Sex	Salary	SupervisionSSN	DepartmentNumber
John	B	Smith	123456789	1955-01-09	731 Fondren, Houston, TX	M	30000.00	333445555	5
Franklin	T	Wong	333445555	1945-12-08	638 Voss, Houston, TX	M	40000.00	554433221	5
Joyce	A	English	453453453	1962-07-31	5631 Rice, Houston, TX	F	25000.00	333445555	5
Joyee		PAN	543216789	1978-02-07	35 S 18 E, Salt Lake City, UT	F	70000.00	NULL	2
Doug	E	Gilbert	554433221	1960-06-09	11 S 59 E, Salt Lake City, UT	M	80000.00	NULL	3
Ramesh	K	Narayan	666884444	1952-09-15	975 Fire Oak, Humble, TX	M	38000.00	333445555	5
James	E	Borg	888665555	1927-11-10	450 Stone, Houston, TX	M	55000.00	543216789	1
Jennifer	S	Wallace	987654321	1931-06-20	291 Berry, Bellaire, TX	F	43000.00	554433221	4
Ahmad	V	Jabbar	987987987	1959-03-29	980 Dallas, Houston, TX	M	25000.00	987654321	4
Alicia	J	Zelaya	999887777	1958-07-19	3321 Castle, Spring, TX	F	25000.00	987654321	4

10 rows in set (0.00 sec)

b. Insert data into Department Table:

Dname	DepNo	MgrSSN	MgrDate
Manufacture	1	888665555	19-JUN-71
Administration	2	543216789	04-JUL-99
Headquarter	3	554433221	22-SEP-55
Finance	4	987654321	01-JAN-85
Research	5	333445555	22-MAY-78

mysql> insert into Department

```
-> values
-> ('Manufacture',1,888665555,'1971-06-19'),
-> ('Administration',2,543216789,'1999-07-04'),
-> ('Headquarter',3,554433221,'1955-09-22'),
-> ('Finance',4,987654321,'1985-01-01'),
-> ('Research',5,333445555,'1978-05-22');
```

mysql> select *from Department;

DepartmentName	DepartmentNumber	ManagerSSN	ManagerStartDate
Manufacture	1	888665555	1971-06-19
Administration	2	543216789	1999-07-04
Headquarter	3	554433221	1955-09-22
Finance	4	987654321	1985-01-01
Research	5	333445555	1978-05-22

5 rows in set (0.00 sec)

c. Insert data into Dept_Locations Table:

DepNo	Dlocation
1	Houston
1	Chicago
2	New York
2	San Francisco
3	Salt Lake City
4	Stafford
4	Ballaire
5	Sugarland
5	Houston

```
mysql> insert into Dept_Location
```

```
-> values
```

```
-> (1,'Houston'),
```

```
-> (1,'Chicago'),
```

```
-> (2,'New York'),
```

```
-> (2,'San Francisco'),
```

```
-> (3,'Salt Lake City'),
```

```
-> (4,'Stafford'),
```

```
-> (4,'Ballaire'),
```

```
-> (5,'Sugarland'),
```

```
-> (5,'Houston');
```

```
mysql> select *from Dept_Location;
```

DepartmentNumber	DepartmentLocation
1	Chicago
1	Houston
2	New York
2	San Francisco
3	Salt Lake City
4	Bellaire
4	Stafford
5	Houston
5	Sugarland

9 rows in set (0.00 sec)

d. Insert data into Project Table :

Pname	Pnumber	Plocation	DepNo
ProjectA	3388	Houston	1
ProjectB	1945	Salt Lake City	3
ProjectC	6688	Houston	5
ProjectD	24	Bellaire	4
ProjectE	77	Sugarland	5
ProjectF	1	Salt Lake City	3
ProjectG	12	New York	2
ProjectH	34	Stafford	4
ProjectI	43	Chicago	1
ProjectJ	22	San Francisco	2

mysql> insert into Project

-> values

-> ('ProjectA',3388,'Houston',1),

-> ('ProjectB',1945,'Salt Lake City',3),

-> ('ProjectC',6688,'Houston',5),

-> ('ProjectD',24,'Bellaire',4),

-> ('ProjectE',77,'Sugarland',5),

-> ('ProjectF',1,'Salt Lake City',3),

-> ('ProjectG',12,'New York',2),

-> ('ProjectH',34,'Stafford',4),
-> ('ProjectI',43,'Chicago',1),
-> ('ProjectJ',22,'San Fransisco',2);

mysql> select *from Project;

ProjectName	ProjectNumber	ProjectLocation	DepartmentNumber
ProjectA	3388	Houston	1
ProjectB	1945	Salt Lake City	3
ProjectC	6688	Houston	5
ProjectD	24	Bellaire	4
ProjectE	77	Sugarland	5
ProjectF	1	Salt Lake City	3
ProjectG	12	New York	2
ProjectH	34	Stafford	4
ProjectI	43	Chicago	1
ProjectJ	22	San Fransisco	2

10 rows in set (0.00 sec)

e. Insert data into Works_on table :

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

```
mysql> insert into Works_on  
-> values  
-> (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);
```

```
mysql> select *from Works_on;
```

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

13 rows in set (0.00 sec)

f. Insert data into Dependent Table :

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-FAB-32	Spouse
123456789	Michael	M	01-JAN-78	Son
123456789	Alice	F	31-DEC-78	Daughter
123456789	Elizabeth	F	05-MAY-57	Spouse

mysql> insert into Dependent

-> values

-> (333445555,'Alice','F','1976-04-05','Daughter'),

-> (333445555,'Theodore','M','1973-10-25','Son'),

-> (333445555,'Joy','F','1948-05-03','Spouse'),

-> (987654321,'Abner','M','1932-02-29','Spouse'),

-> (123456789,'Michael','M','1978-01-01','Son'),

-> (123456789,'Alice','F','1978-12-31','Daughter'),

-> (123456789,'Elizabeth','F','1957-05-05','Spouse');

mysql> select *from Dependent;

EmployeeSSN	DependentName	Sex	Birthday	Relationship
123456789	Alice	F	1978-12-31	Daughter
123456789	Elizabeth	F	1957-05-05	Spouse
123456789	Michael	M	1978-01-01	Son
333445555	Alice	F	1976-04-05	Daughter
333445555	Joy	F	1948-05-03	Spouse
333445555	Theodore	M	1973-10-25	Son
987654321	Abner	M	1932-02-29	Spouse

7 rows in set (0.00 sec)

Q 2. Answer the following query :

a. List the name of all employees who work in department 5.

```
mysql> select FirstName,LastName
```

```
-> from Employee
```

```
-> where DepartmentNumber=5;
```

FirstName	LastName
John	Smith
Frankin	Wong
Joyce	English
Ramesh	Narayan

4 rows in set (0.00 sec)

b. List name and salaries of all employee ordered by salary.

```
mysql> select FirstName,LastName,Salary
```

```
-> from Employee
```

```
-> order by Salary desc;
```

FirstName	LastName	Salary
Doug	Gilbert	80000.00
Joyee	PAN	70000.00
James	Borg	55000.00
Jennifer	Wallace	43000.00
Frankin	Wong	40000.00
Ramesh	Narayan	38000.00
John	Smith	30000.00
Joyce	English	25000.00
Ahmad	Jabbar	25000.00
Alicia	Zelaya	25000.00

10 rows in set (0.00 sec)

c. List name of all employees whose salary is between 30000 and 50000.

```
mysql> select FirstName,LastName,Salary
```

```
-> from Employee
```

```
-> where Salary between 30000 and 50000;
```

FirstName	LastName	Salary
John	Smith	30000.00
Frankin	Wong	40000.00
Ramesh	Narayan	38000.00
Jennifer	Wallace	43000.00

4 rows in set (0.00 sec)

d. List the name and address of employee who lives in Houston.

```
mysql> select FirstName,LastName,Address
```

```
-> from Employee
```

```
-> where Address like '%Houston%';
```

FirstName	LastName	Address
John	Smith	731 Fondren, Houston, TX
Frankin	Wong	638 Voss, Houston, TX
Joyce	English	5631 Rice, Houston, TX
James	Borg	450 Stone, Houston, TX
Ahmad	Jabbar	980 Dallas, Houston, TX

5 rows in set (0.00 sec)

e. List the name of employees who doesn't has supervisor.

```
mysql> select FirstName, MidName, LastName  
-> from Employee  
-> where SupervisionSSN IS NULL;
```

FirstName	MidName	LastName
Joyee		PAN
Doug	E	Gilbert

2 rows in set (0.01 sec)

f. List department number and number of employees in each department, ordered by number of employees in each department.

```
mysql> select DepartmentNumber, COUNT(DepartmentNumber) AS "Number of Employees"  
-> from Employee  
-> group by DepartmentNumber  
-> order by count(DepartmentNumber);
```

DepartmentNumber	Number of Employees
2	1
3	1
1	1
4	3
5	4

5 rows in set (0.01 sec)

g. List department number and number of employees in departments that have more than 2 employees, ordered by department number.

```
mysql> select DepartmentNumber, count(DepartmentNumber) as "Number of Employees"  
-> from Employee  
-> group by DepartmentNumber  
-> having count(DepartmentNumber) > 2  
-> order by DepartmentNumber;
```

DepartmentNumber	Number of Employees
4	3
5	4

2 rows in set (0.00 sec)

h. List the ESSN of employees who works on project 3388 or project 1945.

```
mysql> select EmployeeSSN  
-> from Works_on  
-> where ProjectNumber='3388' or ProjectNumber='1945';
```

EmployeeSSN
123456789
554433221
123456789
666884444

4 rows in set (0.00 sec)

i. List the location of department 1, 3, and 5.

```
mysql> select DepartmentLocation  
-> from Dept_Location  
-> where DepartmentNumber=1 or DepartmentNumber=3 or DepartmentNumber=5;
```

DepartmentLocation
Chicago
Houston
Salt Lake City
Houston
Sugarland

5 rows in set (0.00 sec)

j. List the name of all female employees.

```
mysql> select FirstName,MidName,LastName  
-> from Employee  
-> where Sex='F';
```

FirstName	MidName	LastName
Joyce	A	English
Joyee		PAN
Jennifer	S	Wallace
Alicia	J	Zelaya

4 rows in set (0.00 sec)