Q. consider the following entities and Relationships

Student22(rollno,sname,bithdate)

Course1(cno,cname,course_fee,duration)

Student and Course are related with many to many relationships

Constraint: Primary key,Course fee should be > 0

==> Here 2 entities Student22 and Course1

Relation between Student22 and Course1 is many to many.

both table are the parent table we need to create child table.

we create Student_course1 as a child table

```
# Student22 table creation queries
CREATE TABLE Student22(rollno number,sname varchar(90),birthdate date,
CONSTRAINT rollnoPK1 PRIMARY KEY(rollno));

#Course1 table creation queries
CREATE TABLE Course1(cno number,cname varchar(90),course_fee number,duration number,
CONSTRAINT cnoPK1 PRIMARY KEY(cno),
CONSTRAINT course_feeCK CHECK(course_fee>0));

#Student_course1 table creation queries
CREATE TABLE Student_course1(rollno number,cno number,
CONSTRAINT rollnoFK22 FOREIGN KEY(rollno) REFERENCES Student(rollno),
CONSTRAINT cnoFK1 FOREIGN KEY(cno) REFERENCES Course1(cno));
```

Q1. Count the number of courses joined by 'Nilesh'?

```
select count(c.cno) from Course1 c INNER JOIN Student_course1 sc
ON c.cno=sc.cno JOIN Student22 s
ON sc.rollno=s.rollno where sname='Nilesh'
```

COUNT(C.CNO)
2

Q2. List the name of all students who have joined for course c++?

```
select s.sname,c.cname from Student22 s JOIN Student_course1 sc
ON s.rollno=sc.rollno JOIN Course1 c
ON sc.cno=c.cno
where c.cname='C++'
```

SNAME	CNAME
Nilesh	C++
Sneha	C++

Q3. Display details of course having maximum fee?

```
select cname,course_fee from Course1
where course_fee=(select max(course_fee) from Course1)
```

CNAME	COURSE_FEE
Java	7000

Q4. List course wise student name along with course fee and duration?

```
select c.cname,s.sname,c.course_fee,duration from Course1 c JOIN Student_course1 sc
ON c.cno=sc.cno JOIN Student22 s
ON sc.rollno=s.rollno
order by cname asc
```

CNAME	SNAME	COURSE_FEE	DURATION
C	Nilesh	5000	3
C++	Sneha	6000	4
C++	Nilesh	6000	4
Java	Ramesh	7000	5

Q. consider the following entities and Relationships

Department1(dno,dname,HOD,location)

Project1(pno,pname,status)

Department and Project are related with one to many relationship

Constraint: Primary key,Project status: C-completed,P-Progressive,I-Incomplete

==> Here 2 entities Department and Project

Relation between Department1 and Project1 is one to many

Department1 is parent table and Project1 is child table

Department1 table creation query

```
CREATE TABLE Department1(dno number,dname varchar(90),
HOD varchar(90),location varchar(90),
CONSTRAINT dnoPK1 PRIMARY KEY(dno));
```

Project1 table creation query

```
CREATE TABLE Project1(pno number,
pname varchar(90),
status varchar(90),
dno number,
CONSTRAINT pnoPK1 PRIMARY KEY(pno),
CONSTRAINT statusCK1 CHECK(status IN('C','P','I')),
CONSTRAINT dnoFK1 FOREIGN KEY(dno) REFERENCES Department1(dno)
);
```

Q1. Find HOD of Computer Department located in 'Pune'?

```
select HOD,location from Department1
where dname='Computer' AND location='Pune'
```

HOD	LOCATION
Dr. Mehta	Pune

Q2. List all project of mathematics department which are Incomplete?

```
select pname,dname,status from Department1 d JOIN
Project1 p on d.dno=p.dno where status='I'
```

PNAME	DNAME	STATUS
Algebra Solver	Mathematics	I

Q3. Display the project details of Computer Department?

```
select p.*,dname from Project1 p JOIN Department1 d
ON p.dno=d.dno where dname='Computer'
```

PNO	PNAME	STATUS	DNO	DNAME
1001	AI Project	P	10	Computer
1002	ML System	C	10	Computer

Q4. List department wise project along with status?

```
select dname,pname,status from Project1 p JOIN Department1 d
ON p.dno=d.dno
```

DNAME	PNAME	STATUS
Computer	AI Project	P
Computer	ML System	C
Mathematics	Algebra Solver	I
Physics	Quantum Research	P

Q. consider the following entities and Relationships

Plant(plant_code,plant_name,plant_cost,plant_type)

Nutrients(ncode,n_name)

Plant and Nutrients are related with one to many relationship

Constraint: Primary key,quantity should be >0

Plant Type constraint: F-Flowering and NF-Non-flowering

==> Here 2 entities Plant and Nutrients

Relation between Plant and Nutrients is one to many

Plant is parent table and Nutrients is child table

```
# Plant table creation query
CREATE TABLE Plant(plant_code number,plant_name varchar(90),
plant_cost varchar(90),plant_type varchar(90),
CONSTRAINT plant_codePK PRIMARY KEY(plant_code),
CONSTRAINT plant_typeCK CHECK(plant_type IN('F','NF')));

# Nutrients table creation query
CREATE TABLE Nutrients(ncode number,n_name varchar(90),plant_code number,
CONSTRAINT ncodePK PRIMARY KEY(ncode),
CONSTRAINT plant_codeFK FOREIGN KEY(plant_code) REFERENCES Plant(plant_code))
```

Q1. Count the number of plants for each plant type?

```
select count(plant_code),plant_type from Plant group by plant_type
```

COUNT(PLANT_CODE)	PLANT_TYPE
2	F
1	NF

Q2. List all nutrients whose name start with 'U'?

```
select n_name from Nutrients where n_name like'U%'
```

N_NAME
Urea
Urea

Q3. List all the plants to whose nutrients 'Urea' is given?

```
select plant_name,n_name from Plant p JOIN Nutrients n
ON p.plant_code=n.plant_code where n_name='Urea'
```

PLANT_NAME	N_NAME
Rose	Urea
Tulsi	Urea

Q4. Display plant wise nutrients given?

```
select plant_name,n_name from Plant p JOIN Nutrients n
ON p.plant_code=n.plant_code
order by plant_name asc
```

PLANT_NAME	N_NAME
Lily	Nitrogen
Rose	Urea
Rose	Phosphate
Tulsi	Urea