Consider the following Entities & Relationships
Country (con-code,name,capital)
Population (pop-code,population)

Country & Population are related with one-to-one relationship.

Constraints : Primary key and country name should not be null

Solution

Here 2 entities Country and Population
Relation between Country and population is one to one
Country table is the parent table and Population is child table

Country table creation queries

case 1:
```
CREATE TABLE COUNTRY(con_code number PRIMARY KEY,name varchar(90) not null,
capital varchar(90));
```

case 2:
```
CREATE TABLE COUNTRY(con_code number constriant CON_CODE_PK primary key,
name varchar(90) not null,capital varchar(90));
```

case 3:
```
CREATE TABLE COUNTRY(con_code number,name varchar(90) not null,capital varchar(90),
CONSTRAINT CON_CODE_PK PRIMARY KEY(con_code));
```

POPULATION_1 table creation queries

case 1:
```
CREATE TABLE POPULATION_1(pop_code number PRIMARY KEY,population number,
con_code number UNIQUE KEY,
CONSTRAINT FOREIGN KEY(con_code) REFERENCES COUNTRY(con_code))
```

case 2:
```
CREATE TABLE POPULATION_1(pop_code number CONSTRAINT pop_code_PK PRIMARY KEY,
population number,con_code number CONSTRAINT con_codeUK unique key,
CONSTRAINT foreign key(con_code) REFERENCES COUNTRY(con-code));
```

case 3:
```
CREATE TABLE POPULATION_1(pop_code number CONSTRAINT pop_code_PK PRIMARY KEY,
population number,con_code number,
CONSTRAINT con_codeUK unique(con_code),
CONSTRAINT con_codeFK FOREIGN KEY(con_code) REFERENCES COUNTRY(con_code))
```

Insert Date: COUNTRY

SQL

```
INSERT INTO COUNTRY VALUES (1, 'India', 'Delhi');
```

> 1 row inserted

CON_CODE	NAME	CAPITAL
1	India	Delhi
2	USA	Washington
3	China	Beijing
4	Japan	Tokyo
5	Germany	Berlin

Insert Date: POPULATION_1

SQL

```
INSERT INTO POPULATION_1 VALUES (101, 1400000000, 1);
```

> 1 row inserted

POP_CODE	POPULATION	CON_CODE
101	1400000000	1
102	6000000	2
103	1440000000	3
104	126000000	4
105	6000000	5

Q. Write the Queries for below Requirement

Q. Give name and population of country whose capital is 'Delhi'?

SQL

```
select c.name,p.population from COUNTRY c inner join POPULATION_1 p ON
c.con_code=p.con_code where c.capital='Delhi';
```

Q. Count the number of countries whose population is >60,00,000?

SQL

```
select count(c.name) from COUNTRY c inner join POPULATION_1 p ON
c.con_code=p.con_code where p.population>6000000;
```

Q. Find the country details with highest population?

SQL

```
select c.* from COUNTRY c inner join POPULATION_1 p ON
c.con_code=p.con_code where population=(select max(population) from POPULATION_1);
```

Q. Display country wise population details?

SQL

```
select c.name,p.population from COUNTRY c inner join POPULATION_1 p ON
c.con_code=p.con_code order by c.name asc
```

Q. Find the country details with lowest population?

SQL

```
select c.* from COUNTRY c inner join POPULATION_1 p ON
c.con_code=p.con_code where p.population=(select min(population) from POPULATION_1)
```

Q. List the name of countries whose population is between 50,00,000 and 70,00,000?

SQL

```
select c.name,p.population from COUNTRY c inner join POPULATION_1 p ON
c.con_code=p.con_code where p.population between 5000000 and 7000000
```

Q. Find the population of India?

SQL

```
select c.name,p.population from COUNTRY c inner join POPULATION_1 p ON
c.con_code=p.con_code where c.name='India'
```

Q. Display the country details in descending order of population?

SQL

```
select c.*,p.population from COUNTRY c inner join POPULATION_1 p ON
c.con_code=p.con_code order by p.population desc
```

2)

Consider the following Entities & Relationships
Wholesaler(wno,wname,addr,city)
Product(pno,pname)

Wholesaler & Product are related with many-to-many relationship.

Constraints : Primary key, pname should not be null

Solution

Here 2 entities WHOLESALER and PRODUCT
Relation between WHOLESALER and PRODUCT is many to many
both WHOLESALER and PRODUCT are the parent table
we need to 3rd table as child table
we create WHOLESALER_PRODUCT as child table

WHOLESALER table creation queries

case 1:

```
CREATE TABLE WHOLESALER(wno number PRIMARY KEY,wname varchar(90),addr varchar(90),city varchar(90));
```

case 2:
```
CREATE TABLE WHOLESALER(wno number CONSTRAINT wnoPK PRIMARY KEY,wname varchar(90),
addr varchar(90),city varchar(90));
```

case 3:
```
CREATE TABLE WHOLESALER(wno number,wname varchar(90),addr varchar(90),city varchar(90),
CONSTRAINT wnoPK PRIMARY KEY(wno));
```

PRODUCT table creation queries

case 1:
```
CREATE TABLE PRODUCT(pno number PRIMARY KEY,pname varchar(90));
```

case 2:
```
CREATE TABLE PRODUCT(pno number CONSTRAINT pnoPK PRIMARY KEY,pname varchar(90));
```

case 3:
```
CREATE TABLE PRODUCT(pno number,pname varchar(90),
CONSTRAINT pnoPK_11 PRIMARY KEY(pno));
```

WHOLESALER_PRODUCT table creation queries

case 1:
```
CREATE TABLE WHOLESALER_PRODUCT(wno number REFERENCES WHOLESALER(wno),
pno number REFERENCES PRODUCT(pno))
```

case 2:
```
CREATE TABLE WHOLESALER_PRODUCT(wno number CONSTRAINT wnoFK_11 REFERENCES WHOLESALER(wno),
pno number CONSTRAINT pnoFK_11 REFERENCES PRODUCT(pno))
```

case 3:
```
CREATE TABLE WHOLESALER_PRODUCT(wno number,pno number,
CONSTRAINT wnoFK_11 FOREIGN KEY(wno) REFERENCES WHOLESALER(wno),
CONSTRAINT pnoFK_11 FOREIGN KEY(pno) REFERENCES PRODUCT(pno)
)
```

Insert Date: WHOLESALER

SQL

```
INSERT INTO WHOLESALER VALUES (1, 'Dev Enterprises', 'Akurdi', 'Pune');
```

> 1 row inserted

WNO	WNAME	ADDR	CITY
1	Dev Enterprises	Akurdi	Pune
2	Global Traders	Andheri	Mumbai
3	Star Distributors	Camp	Pune
4	Elite Suppliers	Thane	Mumbai
5	Royal Mart	Manpada	Nashik
6	Fresh Mart	Kothrud	Pune
7	Techno Traders	MG Road	Bangalore
8	City Distributors	Shivaji Nagar	Pune
9	Urban Supply Co.	Bandra	Mumbai
10	Value Enterprises	Civil Lines	Nagpur

Insert Date: PRODUCT

SQL

```
INSERT INTO PRODUCT VALUES (101, 'Keyboard');
```

> 1 row inserted

PNO	PNAME
101	Keyboard
102	Mouse
103	Monitor
104	CPU
105	Printer
106	Scanner
107	Speaker
108	Webcam
109	Pen Drive
110	Headphones

Insert Date: WHOLESALER

SQL

```
INSERT INTO WHOLESALER VALUES (1, 'Dev Enterprises', 'Akurdi', 'Pune');
```

> 1 row inserted

WNO	PNO
1	101
1	102
2	103
3	104
4	105
5	106
6	107
7	108
8	109
9	110

Q. Write the Queries for below Requirement

Q. Display wholesaler wise product details ?

SQL

```
select w.wname,p.pno,p.pname from WHOLESALER w inner join WHOLESALER_PRODUCT wp ON
w.wno=wp.wno inner join PRODUCT p on wp.pno=p.pno order by w.wname asc
```

Q. Count the number of products sold by wholesaler 'Dev Enterprises'?

SQL

```
select count(p.pname) from WHOLESALER w inner join WHOLESALER_PRODUCT wp ON
w.wno=wp.wno inner join PRODUCT p on wp.pno=p.pno where w.wname='Dev Enterprises'
```

Q. Display the details of wholesalers living in the 'Mumbai' City?

SQL

```
select * from WHOLESALER where city='Mumbai'
```

Q. Display the wholesaler details of product keyboard?

SQL

```
select w.* from WHOLESALER w inner join WHOLESALER_PRODUCT wp ON
w.wno=wp.wno inner join PRODUCT p on wp.pno=p.pno where p.pname='Keyboard'
```

Consider the following Entities & Relationships
Item (item_no,name,quantity)
Sup(no,name,addr,city,phone)

Item & sup are related with many-to-many relationships with rate, discount.

Constraints: Primary key and item qty > 5 and rate > 0.

Solution

Here 2 entities ITEM and SUP
Relation between ITEM and SUP is many to many
Both ITEM and SUP are the parent table
we need to create 3rd table as a child table
we create ITEM_SUP as the child table

ITEM table creation queries

```
case 1:
CREATE TABLE ITEM(item_no number PRIMARY KEY,name varchar(90),
quantity number check(quantity>5));
```

```
case 2:
CREATE TABLE ITEM(item_no number CONSTRAINT item_no_PK PRIMARY KEY,
name varchar(90),
quantity number CONSTRAINT qtyCK check(quantity>5));
```

```
case 3:
CREATE TABLE ITEM(item_no number,name varchar(90),quantity number,
CONSTRAINT item_no_PK PRIMARY KEY(item_no),
CONSTRAINT qtyCK check(quantity>5));
```

SUP table creation queries

case 1:

```
CREATE TABLE SUP(sno number PRIMARY KEY,name varchar(90),
addr varchar(200),city varchar(90),phone number)
```

case 2:

```
CREATE TABLE SUP(sno number CONSTRAINT noPK PRIMARY KEY,name varchar(90),
addr varchar(200),city varchar(90),phone number)
```

case 3:

```
CREATE TABLE SUP(sno number,name varchar(90),
addr varchar(200),city varchar(90),phone number,
CONSTRAINT noPK PRIMARY KEY(sno));
```

ITEM_SUP table creation queries

case 1:

```
CREATE TABLE ITEM_SUP(item_no number REFERENCES ITEM(item_no),
sno number REFERENCES SUP(sno),rate number CHECK(rate>0),discount number);
```

case 2:

```
CREATE TABLE ITEM_SUP(item_no number CONSTRAINT item_no_FK REFERENCES ITEM(item_no),
sno number CONSTRAINT sno_FK REFERENCES SUP(sno),
rate number CONSTRAINT rateCK CHECK(rate>0),discount number);
```

case 3:

```
CREATE TABLE ITEM_SUP(item_no number,sno number,
rate number,discount number,
CONSTRAINT item_no_FK FOREIGN KEY(item_no) REFERENCES ITEM(item_no),
CONSTRAINT sno_FK FOREIGN KEY(sno) REFERENCES SUP(sno),
CONSTRAINT rateCK CHECK(rate>0));
```

Insert Date: ITEM

SQL

```
INSERT INTO ITEM VALUES (101, 'Keyboard', 100);
```

> 1 row inserted

ITEM_NO	NAME	QUANTITY
101	Keyboard	100
102	Mouse	250
103	Monitor	50
104	CPU	80
105	Printer	30

Insert Date: SUP

SQL

```
INSERT INTO SUP VALUES (201, 'Mr.Patil', 'MG Road', 'Pune', 9876543210);
```

> 1 row inserted

SNO	NAME	ADDR	CITY	PHONE
201	Mr.Patil	MG Road	Pune	9876543210
202	Mr.Bhatia	Nehru Nagar	Mumbai	9823456789
203	Mr.Shah	FC Road	Pune	9811122233
204	Mr.Verma	Camp	Delhi	9845678901
205	Mr.Naik	Ring Road	Nagpur	9797979797

Insert Date: ITEM_SUP

SQL

```
INSERT INTO ITEM_SUP VALUES (101, 201, 850, 5);
```

> 1 row inserted

ITEM_NO	SNO	RATE	DISCOUNT
101	201	850	5
102	201	472.5	7
101	202	800	6
103	203	9500	10
104	204	15000	8
105	205	7000	9
102	202	441	5
104	203	14500	7
101	203	870	4
105	201	6800	6

Q. Write the Queries for below Requirement

Q. Find the rate and discount of the item keyboard?

SQL

```
select i.name,ip.rate,ip.discount from ITEM i inner join ITEM_SUP ip ON
i.item_no=ip.item_no where i.name='Keyboard'
```

Q. Display item names in ascending order of quantity?

SQL

```
select name,quantity from ITEM order by quantity asc
```

Q. Display the details of all suppliers from 'Pune' city?

SQL

```
select * from sup where city='Pune'
```

Q. Count the number of items supplied by supplier 'Mr.Bhatia'?

SQL

```
select count(i.name) from ITEM i inner join ITEM_SUP ip ON
i.item_no=ip.item_no inner join SUP s on ip.sno=s.sno where s.name='Mr.Bhatia'
```

Q. List all the details of items having quantity > 500?

SQL

```
select * from ITEM where quantity>500
```

Q. Increase the 5% rate of the item mouse?

SQL

```
update ITEM_SUP set rate=rate+(rate*5/100)
where item_no IN (select item_no from ITEM where name='Mouse');
```

Q. Display the item details supplied by the supplier 'Mr.Patil'?

SQL

```
select i.name,i.quantity,ip.rate,ip.discount,s.name from ITEM i inner join ITEM_SUP ip ON
i.item_no=ip.item_no inner join SUP s ON
ip.sno=s.sno where s.name='Mr.Patil';
```

Q. Count the number of suppliers from the each city?

SQL

```
select count(name),city from SUP group by city
```

WHOLESALER_PRODUCT table creation queries

case 1:
```
CREATE TABLE WHOLESALER_PRODUCT(wno number REFERENCES WHOLESALER(wno),
pno number REFERENCES PRODUCT(pno))
```

case 2:
```
CREATE TABLE WHOLESALER_PRODUCT(wno number CONSTRAINT wnoFK_11 REFERENCES WHOLESALER(wno),
pno number CONSTRAINT pnoFK_11 REFERENCES PRODUCT(pno))
```

case 3:
```
CREATE TABLE WHOLESALER_PRODUCT(wno number,pno number,
CONSTRAINT wnoFK_11 FOREIGN KEY(wno) REFERENCES WHOLESALER(wno),
CONSTRAINT pnoFK_11 FOREIGN KEY(pno) REFERENCES PRODUCT(pno)
)
```

Insert Date: WHOLESALER

SQL

```
INSERT INTO WHOLESALER VALUES (1, 'Dev Enterprises', 'Akurdi', 'Pune');
```

> 1 row inserted

WNO	WNAME	ADDR	CITY
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6	Fresh Mart	Kothrud	Pune
7	Techno Traders	MG Road	Bangalore
8	City Distributors	Shivaji Nagar	Pune
9	Urban Supply Co.	Bandra	Mumbai
10	Value Enterprises	Civil Lines	Nagpur