Homework 2

Drake Lambert

1. Create the tables

```sql
CREATE TABLE Doctor
(
    Dnum varchar(20) not null,
    Dname varchar(20) not null,
    City varchar(20) not null,
    Street varchar(20) not null,
    Speciality varchar(20) not null,
    Primary key (Dnum)
);
CREATE TABLE Patient
(
    Pnum varchar(20) not null,
    Pname varchar(20) not null,
    City varchar(20) not null,
    Street varchar(20) not null,
    Age smallint not null,
    Primary_Dnum varchar(20),
    Primary key (Pnum),
    FOREIGN KEY (Primary_Dnum) REFERENCES Doctor(Dnum)
);
CREATE TABLE Visit
(
    Pnum varchar(20) not null,
    Dnum varchar(20) not null,
    Date varchar(20) not null,
    Bill_Amount smallint not null,
    Paid_amount smallint not null,
    Primary key (Pnum,Dnum,Date),
    FOREIGN KEY (Pnum) REFERENCES Patient(Pnum),
    FOREIGN KEY (Dnum) REFERENCES Doctor(Dnum)
);
```

2. Table Data
   - Doctor Table

Dnum	Dname	City	Street	Speciality
1	Drake Lambert	Baton Rouge	123 Street Drive	Kidney
2	Devin Comba	New Orleans	456 Avenue Place	Heart
3	Remy McConnell	New York	789 Boulevard Way	Leg

   - Patient Table

Pnum	Pname	City	Street	Age	Primary_Dnum
1	Robert Ellis	Baton Rouge	123 Street Drive	21	1
2	Girad Fogle	New Orleans	456 Avenue Place	22	2
3	Tracy McGuire	New York	789 Boulevard Way	23	3

○ Visit Table

Pnum	Dnum	Date	Bill_Amount	Paid_amount
1	1	1/1/2019	101.34	34
2	2	2/3/2019	3434.23	55
3	3	4/3/2018	3582.13	854

3. SQL Statements

○ Get Dnum and name for doctors from 'Baton Rouge' with specialty 'Cardiology'.

```
select Dnum, Dname from Doctor
where city='Baton Rouge' and specialty='Cardiology;'
```

○ For patients from 'New Orleans' with age ≤ 40, get Pnum, Pname, number of distinct doctors the patient has visited, and the total amount of Unpaid bill balance for the patient. Arrange the result in descending order of Unpaid bill balance.

```
select p.Pnum, p.Pname, count(docs), sum(balance) as bal
from (select * from Patient where Age<=40 and City='New Orleans')
as p
    left join (select distinct Dnum from Visit) as docs ON
Visit.Pnum=Patient.Pnum
    left join (select Paid_amount - Bill_Amount from Visit) as balance
on Visit.Pnum=Patient.Pnum
    order by bal desc;
```

○ Get distinct Pnum, Dnum pairs such that the patient has visited the doctor, and and they (the patient and the doctor) are from the same city.

```
select distinct Pnum, Dnum
from Visit
where exists (select * from Patient inner join Doctor on
Patient.City=Doctor.City);
```

○ Get Pnum for patients who are either from 'Houston' or have visted a doctor from 'Houston' with Bill_Amount > 200 for that visit.

```
    select Pnum
    from Patient
    where Patient.City='Houston' or exists (select * from (select *
from Visit where Paid_amount-Bill_Amount>200) as Visit inner join
Doctor on Visit.Dnum=Doctor.Dnum);
```

- Get Dnum and Dname for doctors such that the doctor has been visited at least 3 times by a patient from the doctor's city.

```
    select Dnum, Dname
    from Doctor
    where count(select distinct * from Visit inner join Patient on
Doctor.City=Patient.City)>=3;
```

- Get Pnum, Pname, and City for patients whose primary physician has a speciality 'Internal Medicine'.

```
    select Pnum, Pname, City
    from Patient
    inner join (select * from Doctor where Speciality='Internal
Medicine') on Patient.Primary_Dnum=Doctor.Dnum;
```

- Get Dnum and Dname for doctors that have NOT been visited by any patient from 'Baton Rouge'.

```
    select Dnum, Dname
    from Doctor
    where not exists (select * from Visit where Visit.Dnum=Doctor.Dnum
inner join (select * from Patient where City='Baton Rouge') on
Patient.Pnum=Visit.Pnum);
```