3. The following relations keep track of airline flight information:

Flights (flight_no: integer, frm: string, to: string, distance: integer, departs: time, arrives: time, price: integer)

Aircraft (aircraft_id: integer, aircraft_name: string, cruisingrange: integer)

Certified (eid: integer, aircraft_id: integer)

Employees (eid: integer, ename: string, salary: integer)

NOTE: The EMPLOYEES relation describes pilots and other kinds of employees as well; Every pilot is certified for some aircraft,and only pilots are certified to fly.

1.Find the names of aircraft such that all pilots certified to operate them have salaries more than Rs 80,000.

2. For each pilot who is certified for more than three aircrafts, find the eid and the maximum cruising range of the aircraft for which he/she is certified.

3. For all aircrafts with cruising range over 1000 kms, find the name of the aircraft and the average salary of all pilots certified for this aircraft.

4. Find the names of pilots certified for some Boeing aircraft.

5. Find the aircraft_id's of all aircraft that can be used on routes from Bangalore to Delhi.

Solution:

```
CREATE TABLE flight(
flight_no INT,
    frm VARCHAR(20),
   too VARCHAR(20),
  distance INT,
 departs VARCHAR(20),
    arrives VARCHAR(20),
    price REAL,
    PRIMARY KEY (flight_no) );

CREATE TABLE aircraft(
  aircraft_id INT,
   aircraft_name VARCHAR(20),
  cruisingrange INT,
    PRIMARY KEY (aircraft_id) );
```

```
CREATE TABLE employees(
eid INT,
ename VARCHAR(20),
salary INT,
PRIMARY KEY (eid) );


CREATE TABLE certified(
   eid INT,
   aircraft_id INT,
  PRIMARY KEY (eid,aircraft_id),
FOREIGN KEY (eid) REFERENCES employees (eid),
   FOREIGN KEY (aircraft_id) REFERENCES aircraft (aircraft_id) );



INSERT INTO flight (flight_no,frm,too,distance,departs,arrives,price) VALUES
        (1,'Bangalore','Mangalore',360,'10:45:00','12:00:00',10000),
        (2,'Bangalore','Delhi',5000,'12:15:00','04:30:00',25000),
        (3,'Bangalore','Mumbai',3500,'02:15:00','05:25:00',30000),
        (4,'Delhi','Mumbai',4500,'10:15:00','12:05:00',35000),
        (5,'Delhi','Frankfurt',18000,'07:15:00','05:30:00',90000),
        (6,'Bangalore','Frankfurt',19500,'10:00:00','07:45:00',95000),
        (7,'Bangalore','Frankfurt',17000,'12:00:00','06:30:00',99000);


INSERT INTO aircraft (aircraft_id,aircraft_name,cruisingrange) values
      (123,'Airbus',1000),
      (302,'Boeing',5000),
      (306,'Jet01',5000),
      (378,'Airbus380',8000),
      (456,'Aircraft',500),
      (789,'Aircraft02',800),
      (951,'Aircraft03',1000);


INSERT INTO employees (eid,ename,salary) VALUES
      (1,'Ajay',30000),
      (2,'Ajith',85000),
      (3,'Arnab',50000),
      (4,'Harry',45000),
      (5,'Rohit',90000),
      (6,'James',75000),
      (7,'Sunil',100000);
```

```
INSERT INTO certified (eid,aircraft_id) VALUES
    (1,123),
    (2,123),
    (1,302),
    (5,302),
    (7,302),
    (1,306),
    (2,306),
    (1,378),
    (2,378),
    (4,378),
    (6,456),
    (3,456),
    (5,789),
    (6,789),
    (3,951),
    (1,951),
    (1,789);
```

1.Find the names of aircraft such that all pilots certified to operate them have salaries more than Rs 80,000.

```
SELECT DISTINCT a.aircraft_name
  FROM aircraft a,certified c,employees e
   WHERE a.aircraft_id=c.aircraft_id
   AND c.eid=e.eid
    AND NOT EXISTS
     (SELECT *
      FROM employees e1
    WHERE e1.eid=e.eid
     AND e1.salary<80000);
```

Output:

aircraft_name
Airbus
Boeing
Jet01
Airbus380
Aircraft02

2. For each pilot who is certified for more than three aircrafts, find the eid and the maximum cruising range of the aircraft for which he/she is certified.

```
SELECT c.eid,MAX(cruisingrange)
 FROM certified c,aircraft a
   WHERE c.aircraft_id=a.aircraft_id
   GROUP BY c.eid
    HAVING COUNT(*)>3;
```

Output:

eid	MAX(cruisingrange)
1	8000

3. For all aircrafts with cruisingrange over 1000 kms,find the name of the aircraft and the average salary of all pilots certified for this aircraft.

```
SELECT a.aircraft_id,a.aircraft_name,AVG(e.salary)
    FROM aircraft a,certified c,employees e
    WHERE a.aircraft_id=c.aircraft_id
   AND c.eid=e.eid
     AND a.cruisingrange>1000
     GROUP BY a.aircraft_id,a.aircraft_name;
```

Output:

aircraft_id	aircraft_name	AVG(e.salary)
302	Boeing	73333.3333
306	Jet01	57500.0000
378	Airbus380	53333.3333

4. Find the names of pilots certified for some Boeing aircraft.

```
SELECT distinct e.ename
  FROM employees e,aircraft a,certified c
 WHERE e.eid=c.eid
    AND c.aircraft_id=a.aircraft_id
    AND a.aircraft_name='Boeing';
```

Output:

ename
Ajay
Rohit
Sunil

5. Find the aircraft_id's of all aircraft that can be used on routes from Bangalore to Delhi.

```
SELECT a.aircraft_id
    FROM aircraft a
  WHERE a.cruisingrange>
  (SELECT MIN(f.distance)
   FROM flight f
     WHERE f.frm='Bangalore'
     AND f.too='Delhi')
```

Output:

aircraft_id
378