Consider a simple relational database of Hospital management system.(Underlined attributes represent primary key attributes)

Doctors (Doctor_ID,DoctorName,Department,Address,Salary)
Patients(PatientID,Patient_Name,Address,Age,Gender)
Hospitals (PatientID,DoctorID,HospitalName,Location)

Write down the SQL statements for the following

**i. Display ID of patient admitted in hospital at pokhara and whose name ends with 'a'**

```
SELECT Patients.PatientID
FROM Hospitals, Patients
WHERE Hospitals.PatientID = Patients.PatientID
AND Hospitals. Location= 'Pokhara'
AND Patients.Patient_Name LIKE '%a';
```

**OR**

```
SELECT p.PatientID
FROM Hospitals h, Patients p
WHERE h.PatientID = p.PatientID
AND h. Location = 'Pokhara'
AND p.Patient_Name LIKE '%a';
```

**OR**

```
SELECT Patients.PatientID
FROM Hospitals
JOIN Patients ON Hospitals.PatientID = Patients.PatientID
WHERE Hospitals.Location = 'Pokhara' AND Patients.Patient_Name LIKE '%a';
```

**ii. Delete the records of Doctors whose salary is greater than average salary of doctors**

```
DELETE FROM Doctors
WHERE Salary > (SELECT AVG(Salary) FROM Doctors);
```

**iii. Increase salary of doctors by 18.5% who works in OPD department**

```
UPDATE Doctors
SET Salary = Salary * 1.185
WHERE Department = 'OPD';
```

**iv. Find the average salary of Doctors for each address who have average salary more than 55k.**

```
SELECT Address, AVG(Salary) AS AverageSalary
FROM Doctors
GROUP BY Address
HAVING AVG(Salary) > 55000;
```

**v. Display the name of doctors who do not work in any hospital**

```
SELECT DoctorName
FROM Doctors
WHERE Doctor_ID NOT IN (SELECT DoctorID FROM Hospitals);
```

**OR**

```
SELECT DoctorName
FROM Doctors
LEFT JOIN Hospitals ON Doctors.Doctor_ID = Hospitals.DoctorID
WHERE Hospitals.DoctorID IS NULL;
```

Note: This if you write Query in this way is **wrong**

```
SELECT Doctors.DoctorName
 FROM Doctors, Hospitals
 WHERE Doctors.Doctor_ID != Hospitals.DoctorID;
```

**This will generate the cross product between Hospitals and Doctors and rows** Doctors.Doctor_ID != Hospitals.DoctorID will be discarded **and select Doctorname only. which is not desired solution for question no (iv)**

## You can implement the above relation as follows

```
-- Create Doctors table
CREATE TABLE Doctors (
  Doctor_ID INT PRIMARY KEY,
  DoctorName VARCHAR(50),
  Department VARCHAR(50),
  Address VARCHAR(100),
  Salary DECIMAL(10, 2)
);

-- Create Patients table
CREATE TABLE Patients (
  PatientID INT PRIMARY KEY,
  Patient_Name VARCHAR(50),
  Address VARCHAR(100),
  Age INT,
  Gender VARCHAR(10)
);

-- Create Hospitals table
CREATE TABLE Hospitals (
  PatientID INT,
  DoctorID INT,
  HospitalName VARCHAR(50),
  Location VARCHAR(100),
  PRIMARY KEY (PatientID, DoctorID),
  FOREIGN KEY (PatientID) REFERENCES Patients(PatientID),
  FOREIGN KEY (DoctorID) REFERENCES Doctors(Doctor_ID)
);
```

```
-- Insert data into Doctors table
INSERT INTO Doctors
VALUES
  (1, 'Dr. Rajesh Shakya', 'Cardiology', 'Kathmandu', 100000.00),
  (2, 'Dr. Sunita Tamang', 'Orthopedics', 'Pokhara', 90000.00),
  (3, 'Dr. Manish Acharya', 'Pediatrics', 'Biratnagar', 80000.00),
  (4, 'Dr. Anita Gurung', 'OPD', 'Bhaktapur', 85000.00),
  (5, 'Dr. Sanjay Shrestha', 'Surgery', 'Dharan', 95000.00),
  (6, 'Dr. Alisha Rai', 'Gynecology', 'Kathmandu', 75000.00);
```

```
-- Insert data into Patients table
INSERT INTO Patients
VALUES
  (101, 'Rita Koirala', 'Kathmandu', 35, 'Female'),
  (102, 'Suresh Thapa', 'Pokhara', 50, 'Male'),
  (103, 'Kamala Sharma', 'Birgunj', 28, 'Female'),
  (104, 'Hari Pradhan', 'Bharatpur', 62, 'Male'),
  (105, 'Nisha Rai', 'Dhangadhi', 42, 'Female');

-- Insert data into Hospitals table
INSERT INTO Hospitals
VALUES
  (101, 1, 'Shahid Memorial Hospital', 'Kathmandu'),
  (102, 2, 'Pokhara Hospital', 'Pokhara'),
  (103, 3, 'Birgunj Medical Center', 'Birgunj'),
  (104, 4, 'Bharatpur Hospital', 'Bharatpur'),
  (105, 5, 'Dhangadhi Surgical Center', 'Dhangadhi');
```

```
MariaDB [doctors]> select * from Doctors;
+-----------+---------------------+-------------+------------+-----------+
| Doctor_ID | DoctorName          | Department  | Address    | Salary    |
+-----------+---------------------+-------------+------------+-----------+
|         1 | Dr. Rajesh Shakya   | Cardiology  | Kathmandu  | 100000.00 |
|         2 | Dr. Sunita Tamang   | Orthopedics | Pokhara    |  90000.00 |
|         3 | Dr. Manish Acharya  | Pediatrics  | Biratnagar |  80000.00 |
|         4 | Dr. Anita Gurung    | OPD         | Bhaktapur  |  85000.00 |
|         5 | Dr. Sanjay Shrestha | Surgery     | Dharan     |  95000.00 |
|         6 | Dr. Alisha Rai      | Gynecology  | Kathmandu  |  75000.00 |
+-----------+---------------------+-------------+------------+-----------+
6 rows in set (0.001 sec)

MariaDB [doctors]> select * from Patients;
+-----------+--------------+-----------+------+--------+
| PatientID | Patient_Name | Address   | Age  | Gender |
+-----------+--------------+-----------+------+--------+
|       101 | Rita Koirala | Kathmandu |   35 | Female |
|       102 | Suresh Thapa | Pokhara   |   50 | Male   |
|       103 | Kamala Sharma| Birgunj   |   28 | Female |
|       104 | Hari Pradhan | Bharatpur |   62 | Male   |
|       105 | Nisha Rai    | Dhangadhi |   42 | Female |
+-----------+--------------+-----------+------+--------+
5 rows in set (0.000 sec)

MariaDB [doctors]> select * from Hospitals;
+-----------+----------+--------------------------+-----------+
| PatientID | DoctorID | HospitalName             | Location  |
+-----------+----------+--------------------------+-----------+
|       101 |        1 | Shahid Memorial Hospital | Kathmandu |
|       102 |        2 | Pokhara Hospital         | Pokhara   |
|       103 |        3 | Birgunj Medical Center   | Birgunj   |
|       104 |        4 | Bharatpur Hospital       | Bharatpur |
|       105 |        5 | Dhangadhi Surgical Center| Dhangadhi |
+-----------+----------+--------------------------+-----------+
```