NATIONAL INSTITUTE OF TECHNOLOGY

KARNATAKA

DATABASE SYSTEM LAB

REPORT: 2

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Sec : S2   CourseCode : CS254

Query1:

```
mysql> CREATE TABLE Patient(p_id INT ,r_id INT,d_id INT UNIQUE,p_name VARCHAR(20
),city VARCHAR(20),contact VARCHAR(10),PRIMARY KEY(p_id));
Query OK, 0 rows affected (0.01 sec)

mysql> INSERT INTO Patient VALUES(101,23,5047,'Rohan','Mumbai','8806785430');
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM Patient;
+------+------+------+--------+--------+------------+
| p_id | r_id | d_id | p_name | city   | contact    |
+------+------+------+--------+--------+------------+
|  101 |   23 | 5047 | Rohan  | Mumbai | 8806785430 |
+------+------+------+--------+--------+------------+
```

Query2:

```
mysql> INSERT INTO Patient VALUES(112,12,4096,'Mohit','kannauj','6396785430');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Patient;
+------+------+------+--------+---------+------------+
| p_id | r_id | d_id | p_name | city    | contact    |
+------+------+------+--------+---------+------------+
|  101 |   23 | 5047 | Rohan  | Mumbai  | 8806785430 |
|  112 |   12 | 4096 | Mohit  | kannauj | 6396785430 |
+------+------+------+--------+---------+------------+
```

Query3:

```
mysql> INSERT INTO Patient VALUES(121,19,1024,'Viplav N','Manglore','7696785430'
);
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM Patient;
+------+------+------+----------+----------+------------+
| p_id | r_id | d_id | p_name   | city     | contact    |
+------+------+------+----------+----------+------------+
|  101 |   23 | 5047 | Rohan    | Mumbai   | 8806785430 |
|  112 |   12 | 4096 | Mohit    | kannauj  | 6396785430 |
|  121 |   19 | 1024 | Viplav N | Manglore | 7696785430 |
+------+------+------+----------+----------+------------+
```

Query4:

```
mysql> INSERT INTO Patient VALUES(119,17,3045,'Gaurav','Benguluru','8808785753')
;
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Patient;
+------+------+------+----------+-----------+------------+
| p_id | r_id | d_id | p_name   | city      | contact    |
+------+------+------+----------+-----------+------------+
|  101 |   23 | 5047 | Rohan    | Mumbai    | 8806785430 |
|  112 |   12 | 4096 | Mohit    | kannauj   | 6396785430 |
|  119 |   17 | 3045 | Gaurav   | Benguluru | 8808785753 |
|  121 |   19 | 1024 | Viplav N | Manglore  | 7696785430 |
+------+------+------+----------+-----------+------------+
```

Query5:

```
mysql> INSERT INTO Patient VALUES(109,11,4857,'Kunal','Chennai','9808785809');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Patient;
+------+------+------+----------+-----------+------------+
| p_id | r_id | d_id | p_name   | city      | contact    |
+------+------+------+----------+-----------+------------+
|  101 |   23 | 5047 | Rohan    | Mumbai    | 8806785430 |
|  109 |   11 | 4857 | Kunal    | Chennai   | 9808785809 |
|  112 |   12 | 4096 | Mohit    | kannauj   | 6396785430 |
|  119 |   17 | 3045 | Gaurav   | Benguluru | 8808785753 |
|  121 |   19 | 1024 | Viplav N | Manglore  | 7696785430 |
+------+------+------+----------+-----------+------------+
```

Table 2: Doctors

Query1:

```
mysql> CREATE TABLE Doctors(d_id INT ,Name VARCHAR(20) NOT NULL,Salary INT,Speci
fication VARCHAR(20),PRIMARY KEY(d_id));
Query OK, 0 rows affected (0.01 sec)

mysql> INSERT INTO Doctors VALUES(5047,'Vipin Sharma',20000,'Skin care');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Doctors;
+------+--------------+--------+---------------+
| d_id | Name         | Salary | Specification |
+------+--------------+--------+---------------+
| 5047 | Vipin Sharma |  20000 | Skin care     |
+------+--------------+--------+---------------+
```

Query2:

```
mysql> INSERT INTO Doctors VALUES(1024,'Anuj Shukla',40000,'Bone Facture');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Doctors;
+------+--------------+--------+---------------+
| d_id | Name         | Salary | Specification |
+------+--------------+--------+---------------+
| 1024 | Anuj Shukla  |  40000 | Bone Facture  |
| 5047 | Vipin Sharma |  20000 | Skin care     |
+------+--------------+--------+---------------+
```

Query3:

```
mysql> INSERT INTO Doctors VALUES(4096,'Naman P',60000,'Heart related');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Doctors;                                        +-
-----------+--------+---------------+
| d_id | Name         | Salary | Specification |
+------+--------------+--------+---------------+
| 1024 | Anuj Shukla  |  40000 | Bone Facture  |
| 4096 | Naman P      |  60000 | Heart related |
| 5047 | Vipin Sharma |  20000 | Skin care     |
+------+--------------+--------+---------------+
```

Query4:

```
mysql> INSERT INTO Doctors VALUES(4857,'Piyush Singh',350000,'Face surgery');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Doctors;                                        +------+
------------+--------+--------------+
| d_id | Name          | Salary | Specification |
+------+--------------+--------+--------------+
| 1024 | Anuj Shukla   |  40000 | Bone Facture  |
| 4096 | Naman P       |  60000 | Heart related |
| 4857 | Piyush Singh  | 350000 | Face surgery  |
| 5047 | Vipin Sharma  |  20000 | Skin care     |
+------+--------------+--------+--------------+
```

Query5:

```
mysql> INSERT INTO Doctors VALUES(3045,'Harsh Kumar',35000,'Viral Dieses');
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM Doctors;                                        +-----
------------+--------+--------------+
| d_id | Name          | Salary | Specification |
+------+--------------+--------+--------------+
| 1024 | Anuj Shukla   |  40000 | Bone Facture  |
| 3045 | Harsh Kumar   |  35000 | Viral Dieses  |
| 4096 | Naman P       |  60000 | Heart related |
| 4857 | Piyush Singh  | 350000 | Face surgery  |
| 5047 | Vipin Sharma  |  20000 | Skin care     |
+------+--------------+--------+--------------+
```

Table 3: Room

Query1:

```
mysql> CREATE TABLE Room(r_id INT,room_type VARCHAR(20),PRIMARY KEY(r_id));
Query OK, 0 rows affected (0.00 sec)

mysql> INSERT INTO Room VALUES(11,'Non AC');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT* FROM Room;
+------+-----------+
| r_id | room_type |
+------+-----------+
|   11 | Non AC    |
+------+-----------+
```

Query2:

```
mysql> INSERT INTO Room VALUES(12,'Non AC');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT* FROM Room;
+------+-----------+
| r_id | room_type |
+------+-----------+
|   11 | Non AC    |
|   12 | Non AC    |
+------+-----------+
```

Query3:

```
mysql> INSERT INTO Room VALUES(17,'AC');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT* FROM Room;
+------+-----------+
| r_id | room_type |
+------+-----------+
|   11 | Non AC    |
|   12 | Non AC    |
|   17 | AC        |
+------+-----------+
```

Query4:

```
mysql> INSERT INTO Room VALUES(19,'Non AC');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT* FROM Room;
+------+-----------+
| r_id | room_type |
+------+-----------+
|   11 | Non AC    |
|   12 | Non AC    |
|   17 | AC        |
|   19 | Non AC    |
+------+-----------+
```

Query5:

```
mysql> INSERT INTO Room VALUES(23,' AC');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT* FROM Room;
+------+-----------+
| r_id | room_type |
+------+-----------+
|   11 | Non AC    |
|   12 | Non AC    |
|   17 | AC        |
|   19 | Non AC    |
|   23 |  AC       |
+------+-----------+
```

Table 4: Test_Diagnosis

Query1:

```
mysql> CREATE TABLE Test_Diagnosis(p_id INT ,diagno INT,diag_details VARCHAR(20)
,PRIMARY KEY(diagno),FOREIGN KEY(p_id) REFERENCES Patient(p_id));
Query OK, 0 rows affected (0.01 sec)

mysql> INSERT INTO Test_Diagnosis VALUES(101,2005,'Positive');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Test_Diagnosis;
+------+--------+--------------+
| p_id | diagno | diag_details |
+------+--------+--------------+
|  101 |   2005 | Positive     |
+------+--------+--------------+
```

Query2:

```
mysql> INSERT INTO Test_Diagnosis VALUES(109,2045,'Negative');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Test_Diagnosis;
+------+--------+--------------+
| p_id | diagno | diag_details |
+------+--------+--------------+
|  101 |   2005 | Positive     |
|  109 |   2045 | Negative     |
+------+--------+--------------+
```

Query3:

```
mysql> INSERT INTO Test_Diagnosis VALUES(112,2655,'Negative');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Test_Diagnosis;
+------+--------+--------------+
| p_id | diagno | diag_details |
+------+--------+--------------+
|  101 |   2005 | Positive     |
|  109 |   2045 | Negative     |
|  112 |   2655 | Negative     |
+------+--------+--------------+
```

Query4:

```
mysql> INSERT INTO Test_Diagnosis VALUES(119,4870,'Negative');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Test_Diagnosis;
+-------+--------+--------------+
| p_id  | diagno | diag_details |
+-------+--------+--------------+
|   101 |   2005 | Positive     |
|   109 |   2045 | Negative     |
|   112 |   2655 | Negative     |
|   119 |   4870 | Negative     |
+-------+--------+--------------+
```

Query5:

```
mysql> INSERT INTO Test_Diagnosis VALUES(121,7070,'postive');
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Test_Diagnosis;
+-------+--------+--------------+
| p_id  | diagno | diag_details |
+-------+--------+--------------+
|   101 |   2005 | Positive     |
|   109 |   2045 | Negative     |
|   112 |   2655 | Negative     |
|   119 |   4870 | Negative     |
|   121 |   7070 | postive      |
+-------+--------+--------------+
```

Queries to add Foreign key constraint on Doctor and Room Table

Query1:

```
mysql> alter table Patient modify column d_id int unique;
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table Patient modify column r_id int unique;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0
```
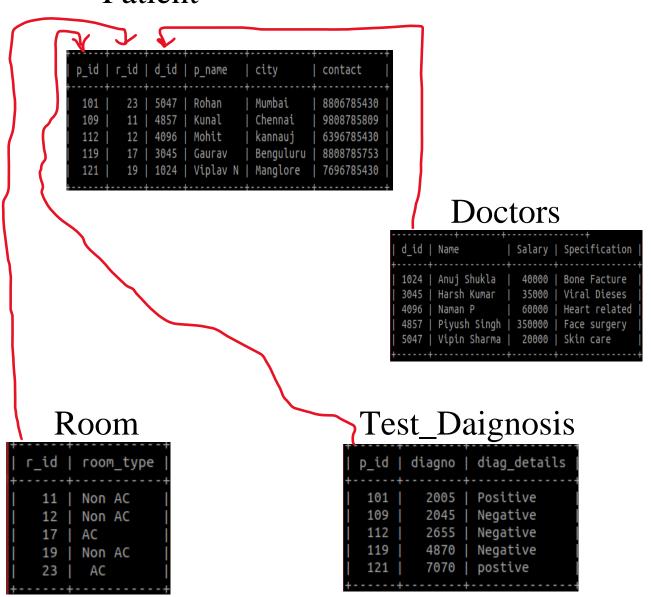
Query2:

```
mysql> alter table Room add foreign key(r_id) references Patient(r_id);
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> alter table Doctors add foreign key(d_id) references Patient(d_id);
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

Query3:

```
mysql> desc Room;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| r_id      | int(11)     | YES  | MUL | NULL    |       |
| room_type | varchar(10) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> desc Doctors;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| d_id          | int(11)     | YES  | MUL | NULL    |       |
| name          | varchar(20) | YES  |     | NULL    |       |
| salary        | int(11)     | YES  |     | NULL    |       |
| specification | varchar(10) | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
```

a) Draw a schema diagram for your database.

Schema Diagram

Patient

```
+------+------+------+----------+-----------+------------+
| p_id | r_id | d_id | p_name   | city      | contact    |
+------+------+------+----------+-----------+------------+
|  101 |   23 | 5047 | Rohan    | Mumbai    | 8806785430 |
|  109 |   11 | 4857 | Kunal    | Chennai   | 9808785809 |
|  112 |   12 | 4096 | Mohit    | kannauj   | 6396785430 |
|  119 |   17 | 3045 | Gaurav   | Benguluru | 8808785753 |
|  121 |   19 | 1024 | Viplav N | Manglore  | 7696785430 |
+------+------+------+----------+-----------+------------+
```

Doctors

```
+------+--------------+--------+---------------+
| d_id | Name         | Salary | Specification |
+------+--------------+--------+---------------+
| 1024 | Anuj Shukla  |  40000 | Bone Facture  |
| 3045 | Harsh Kumar  |  35000 | Viral Dieses  |
| 4096 | Naman P      |  60000 | Heart related |
| 4857 | Piyush Singh | 350000 | Face surgery  |
| 5047 | Vipin Sharma |  20000 | Skin care     |
+------+--------------+--------+---------------+
```

Room

```
+------+-----------+
| r_id | room_type |
+------+-----------+
|   11 | Non AC    |
|   12 | Non AC    |
|   17 | AC        |
|   19 | Non AC    |
|   23 | AC        |
+------+-----------+
```

Test_Daignosis

```
+------+--------+--------------+
| p_id | diagno | diag_details |
+------+--------+--------------+
|  101 |   2005 | Positive     |
|  109 |   2045 | Negative     |
|  112 |   2655 | Negative     |
|  119 |   4870 | Negative     |
|  121 |   7070 | postive      |
+------+--------+--------------+
```

b) Use the above tables, attributes and demonstrate the working of primary key, foreign key, null value, table and column level constraints.

i) Primary key: A constraint that uniquely identifies a row in a table. It can not be null and neither contains duplicates values .

ii) foreign key:A constraint through which we can link different tables with each other.It is contained in child table.

iii) null: when no value assigned to a field then by default it set to null in all case except primary key.

c) Possibilities of violation :

i)   A foreign key must be a primary / unique key in parent table

ii)   Data must follow given column constraint.

iii) Can't add duplicates to primary key field