CSE2004 – Database Management Systems Lab
Cycle Sheet Submission

Register Number : 19BCE2074

Name : KULVIR SINGH

Slot : L45 + L46

Mobile Number : 7541097627

RDBMS used : MYSQL

Cycle Sheet No. : 01

Question 1 : Create all tables in Hospital database

Query: (all tables and their foreign keys assigned)

```
 CREATE table Doctor(
  Doc_ID varchar(5) check (substr(Doc_ID,1,1)="D"),
  Doc_Name varchar(255),
  Gender varchar(1) check (Gender = "M" or Gender = "F" or Gender = "T"),
  DOB varchar(255),
  Specialist varchar(255),
  Qualification varchar(255),
  Contact varchar(255),
  Address varchar(255),
  Dept_No varchar(5) not NULL check (substr(Dept_No,1,1)="D") ,
  Primary key (Doc_ID));
CREATE table Department(
  Dept_No  varchar(5) not NULL check (substr(Dept_No,1,1)="D"),
  Dept_Name varchar(255),
  Room_No int,
  Floor int,
  HOD varchar(5) check (substr(HOD,1,1)="D"),
  Estd_Date varchar(255),
  PRIMARY key (Dept_No)
  );
CREATE table Staff(
  Staff_ID varchar(5) not NULL check (substr(Staff_ID,1,1)="S"),
  Staff_Name varchar(255),
  Category varchar(255),
  Designation varchar(255),
```

```
  DOB varchar(255),
  Contact varchar(255),
  Address Varchar(255),
  Dept_No  varchar(5) not NULL check (substr(Dept_No,1,1)="D"),
  PRIMARY key (Staff_Id));
Create table Patient(
  Pat_ID VarChar(5) not NULL check (substr(Pat_ID,1,1)="P"),
  Pat_Name varchar(255) not NULL,
  DOB varchar(255),
  Gender varchar(1) check (Gender = "M" or Gender = "F" or Gender = "T"),
  Contact varchar(255),
  Address varchar(255),
  Primary key (Pat_ID));
create table In_Patient(
  Pat_ID VarChar(5) not NULL check (substr(Pat_ID,1,1)="P"),
  Date_Of_Admission varchar,
  Bed_No int,
  Start_Time varchar ,
  End_Time varchar  ,
  PRIMARY key (Pat_ID));
create table In_Patient_Prescription(
  Pat_ID VarChar(5) not NULL check (substr(Pat_ID,1,1)="P"),
  Pres_ID varchar(6) not NULL check (substr(Pres_ID,1,2)="PR"),
  PRIMARY key (Pres_ID));
create table Appointment(
  App_ID varchar(5) not NULL check (substr(App_ID,1,1)="A"),
  Pat_ID VarChar(5) not NULL check (substr(Pat_ID,1,1)="P"),
```

```
  Doc_ID varchar(5) check (substr(Doc_ID,1,1)="D"),
  Nurse_ID varchar(5) not NULL check (substr(Nurse_ID,1,1)="S"),
  Consult_Room_No int,
  Date varchar,
  time varchar,
  PRIMARY key (App_ID));
create table Prescription(
   Pres_ID varchar(6) not NULL check (substr(Pres_ID,1,2)="PR"),
  Date varchar,
  time varchar,
  App_ID varchar(5) not NULL check (substr(App_ID,1,1)="A"),
  Diagnosis_Detail varchar(255),
  primary key (Pres_ID));
create table Prescribed_Medicines(
  Medicine_Name varchar(255),
  Dosage varchar,
  Brand varchar,
  Pres_ID varchar(6) not NULL check (substr(Pres_ID,1,2)="PR"),
  primary key (Medicine_Name));
create table Hospital_Bill(
  Inv_No int,
  Inv_Date varchar,
  Bill_Amount int,
  Payment_Type varchar,
  discount int,
  Pat_ID VarChar(5) not NULL check (substr(Pat_ID,1,1)="P"),
  constraint k primary key (Inv_No,Inv_Date));
```

```
 Create table Lab_Tests(
 Test_ID varchar(5) not null check (substr(Test_ID,1,1)="T"),
 Pat_ID VarChar(5) not NULL check (substr(Pat_ID,1,1)="P"),
 date varchar,
 time varchar,
 primary key (Test_ID));
create table Test_Results(
 TT_ID varchar(6) not null check (substr(TT_ID,1,2)="TT"),
 Result varchar,
  Test_ID varchar(5) not null check (substr(Test_ID,1,1)="T"),
 primary key (Test_ID));
create table Test_Types(
 TT_ID varchar(6) not null check (substr(TT_ID,1,2)="TT"),
 Description varchar(255),
 Low_Value int,
 High_Value int,
 Test_Method varchar,
 Technician  varchar(5) not NULL check (substr(Technician,1,1)="S"),
 Primary key (TT_ID));

Alter table Doctor Add FOREIGN key (Dept_No) REFERENCES Department(Dept_No);
Alter table Department Add FOREIGN key (HOD) REFERENCES Doctor(Doc_ID);
alter table Staff add foreign key (Dept_No) REFERENCES Department(Dept_No);
ALTER table In_Patient add FOREIGN key (Pat_ID) REFERENCES Patient(Pat_ID);
alter table In_Patient_Prescription add FOREIGN key (Pat_ID) REFERENCES Patient(Pat_ID);
alter table In_Patient_Prescription add FOREIGN key (Pres_ID) REFERENCES
Prescription(Pres_ID);
```

alter table Appointment add FOREIGN key (Pat_ID) REFERENCES Patient(Pat_ID);

alter table Appointment add FOREIGN key (Doc_ID) REFERENCES Doctor(Doc_ID);

alter table Appointment add FOREIGN key (Nurse_ID) REFERENCES Staff(Staff_ID);

alter table Prescription add FOREIGN key (App_ID) REFERENCES Appointment(App_ID);

alter table Prescribed_Medicines add FOREIGN key (Pres_ID) REFERENCES Prescription(Pres_ID);

alter TABLE Hospital_Bill Add FOREIGN key (Pat_ID) REFERENCES Patient(Pat_ID);

alter table Lab_Tests add FOREIGN key (Pat_ID) REFERENCES Patient(Pat_ID);

alter table Test_Results add FOREIGN key (Test_ID) REFERENCES Lab_Tests(Test_ID);

Alter table Test_Results add FOREIGN key (TT_ID) REFERENCES Test_Results(TT_ID);

alter table Test_Types ADD FOREIGN key (Technician) REFERENCES Staff(Staff_id)

Screenshot:

```
mysql> use hospital;
Database changed
mysql> CREATE table Doctor(
    ->   Doc_ID varchar(5) check (substr(Doc_ID,1,1)="D"),
    ->   Doc_Name varchar(255),
    ->   Gender varchar(1) check (Gender = "M" or Gender = "F" or Gender = "T"),
    ->   DOB varchar(255),
    ->   Specialist varchar(255),
    ->   Qualification varchar(255),
    ->   Contact varchar(255),
    ->   Address varchar(255),
    ->   Dept_No varchar(5) not NULL check (substr(Dept_No,1,1)="D") ,
    ->   Primary key (Doc_ID));
Query OK, 0 rows affected (0.05 sec)
```

```
mysql> Alter table Doctor Add FOREIGN key (Dept_No) REFERENCES Department(Dept_No);
Query OK, 3 rows affected (0.10 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> Alter table Department Add FOREIGN key (HOD) REFERENCES Doctor(Doc_ID);
Query OK, 3 rows affected (0.07 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> alter table Staff add foreign key (Dept_No) REFERENCES Department(Dept_No);
Query OK, 4 rows affected (0.07 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

Question 2: Populate each table with appropriate, valid and meaningful data.

Query:

INSERT into Doctor values ("D0003","Kulvir Singh","M","06-Jun-2001","Cardiology","MBBS","7541097627","21 C Road Northern Town","D102");

INSERT into Doctor values ("D0002","Robin Tooney","F","09-Jan-1998","Nuerology","MS","9762712349","44 Park Enclave","D101");

INSERT into Doctor values ("D0001","CS Sahil","T","01-Apr-1999","Obstetrics and Gynaecology","MBBS","8736290748","26 Salt Lake","D103");

INSERT into Department values("D102","Cardiology",02,2,"D0002","12-Oct-1990");

INSERT into Department values("D101","Nuerology",03,3,"D0003","11-Oct-1990");

INSERT into Department values("D103","Obstetrics and Gynaecology",01,1,"D0001","10-Oct-1990");

insert into Staff VALUES ("S0001","Alex","nurse","staff nurse","23-Apr-1988","9876767245","33 Blue Mount","D102");

insert into Staff VALUES ("S0002","Ben","lab technician","head technician","25-Jun-1980","9876997245","3 Green View","D103");

insert into Staff VALUES ("S0003","Carmine","cashier","manager","13-Jul-1988","4326767245","99 Black Palace","D101");

insert into Staff VALUES ("S0001","Dragovic","security","junior security","2-Oct-1977","6876764239","8 Yellow Tree","D102");

```
insert into Patient VALUES ("P0001","Emily","F","7777766666","7 Salt Lake");

insert into Patient VALUES ("P0002","Falcone","M","9878987890","91 Salt Lake");

insert into Patient VALUES ("P0003","Gareth","T","9977766666","12 Riverdale");


INSERT into In_Patient values ("P0001","01-May-2020","100","01-May-2020","11-Aug-2020");


insert into In_Patient_Prescription values ("P0001","PR0001");


insert into Appointment VALUES ("A0001","P0002","D0001","S0001",111,"11-Jan-
2020","9:00am");

insert into Appointment VALUES ("A0002","P0002","D0002","S0002",112,"01-May-
2020","9:00am");


insert into Prescription VALUES ("PR0002","A0001","11-Jan-2020","9:30am","Cough and Cold");

INSERT into Prescription VALUES ("PR0001","A0002","01-May-2020","10:00am","Cancer");


insert into Prescribed_Medicines VALUES("PR0001","Crocin","3","Paracetamol");

INSERT into Prescribed_Medicines VALUES("PR0002","Chemo","2","XYZ");


insert into Hospital_Bill VALUES(1,"11-Aug-2020",50000,"card",7,"P0001");

insert into Hospital_Bill VALUES(1,"01-May-2020",500,"cash",7,"P0002");

insert into Lab_Tests VALUES("T0001","P0001","11-Jan-2020","9:00am");

INSERT into Test_Results VALUES("T0001","TT0001","Positive");

insert into Test_Types values("TT0001","urine",5,25,"regular","S0002");
```

Screenshot:

```
mysql>   INSERT into Doctor values ("D0003","Kulvir Singh","M","06-Jun-2001","Cardiology","MBBS","7541097627","21 C Road Northern Town","D102");
Query OK, 1 row affected (0.05 sec)

mysql> INSERT into Doctor values ("D0002","Robin Tooney","F","09-Jan-1998","Nuerology","MS","9762712349","44 Park Enclave","D101");
Query OK, 1 row affected (0.00 sec)

mysql> INSERT into Doctor values ("D0001","CS Sahil","T","01-Apr-1999","Obstetrics and Gynaecology","MBBS","8736290748","26 Salt Lake","D103");
Query OK, 1 row affected (0.01 sec)
```

Question 3: Add some attributes with few tables and justify the additions

Query :

alter table In_Patient_Prescription add diagnosis_detail varchar(255);

Justification:

The database should contain the diagnosis detail of the patient that was admitted to the Hospital for the doctor's reference.

Screenshot:

```
mysql>
mysql>   alter table In_Patient_Prescription add diagnosis_detail varchar(255);
Query OK, 0 rows affected (0.06 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

Question 4a: Find the details of all doctors.

Query: select * from doctor;

Screenshot:

```
mysql> select*from doctor;
+--------+-------------+--------+------------+---------------------------+---------------+------------+-------------------------+---------+
| Doc_ID | Doc_Name    | Gender | DOB        | Specialist                | Qualification | Contact    | Address                 | Dept_No |
+--------+-------------+--------+------------+---------------------------+---------------+------------+-------------------------+---------+
| D0001  | CS Sahil    | T      | 01-Apr-1999 | Obstetrics and Gynaecology | MBBS          | 8736290748 | 26 Salt Lake            | D103    |
| D0002  | Robin Tooney | F      | 09-Jan-1998 | Nuerology                 | MS            | 9762712349 | 44 Park Enclave         | D101    |
| D0003  | Kulvir Singh | M      | 06-Jun-2001 | Cardiology                | MBBS          | 7541097627 | 21 C Road Northern Town | D102    |
+--------+-------------+--------+------------+---------------------------+---------------+------------+-------------------------+---------+
3 rows in set (0.00 sec)
```

Question 4b: Display all the hospital bill details.

Query: select * from Hospital_Bill;

Screenshot:

```
mysql> select*from Hospital_Bill;
+--------+-------------+-------------+--------------+----------+--------+
| Inv_No | Inv_Date    | Bill_Amount | Payment_Type | discount | Pat_ID |
+--------+-------------+-------------+--------------+----------+--------+
|      1 | 01-May-2020 |         500 | cash         |        7 | P0002  |
|      1 | 11-Aug-2020 |       50000 | card         |        7 | P0001  |
+--------+-------------+-------------+--------------+----------+--------+
2 rows in set (0.01 sec)
```

Question 4c: List the doctors who are specialized in ‘Cardiology’ and ‘Neurology’

Query: select * from Doctor where specialist = “Cardiology” OR specialist = “Nuerology”;

Screenshot:

```
mysql> select * from Doctor where specialist = "Cardiology" OR specialist = "Nuerology";
+--------+-------------+--------+------------+------------+---------------+------------+------------------------+---------+
| Doc_ID | Doc_Name    | Gender | DOB        | Specialist | Qualification | Contact    | Address                | Dept_No |
+--------+-------------+--------+------------+------------+---------------+------------+------------------------+---------+
| D0002  | Robin Tooney | F      | 09-Jan-1998 | Nuerology  | MS            | 9762712349 | 44 Park Enclave        | D101    |
| D0003  | Kulvir Singh | M      | 06-Jun-2001 | Cardiology | MBBS          | 7541097627 | 21 C Road Northern Town | D102    |
+--------+-------------+--------+------------+------------+---------------+------------+------------------------+---------+
2 rows in set (0.00 sec)
```

Question 4d) List all the appointments made for consultation room number 111, on ’11-Jan-
2020’.

Query: select * from Appointment where consult_room_no =111 and date = “11-Jan-2020”;

Screenshot:

```
mysql> select * from Appointment where consult_room_no = 111 and date = "11-Jan-2020";
+--------+--------+--------+----------+-----------------+-------------+--------+
| App_ID | Pat_ID | Doc_ID | Nurse_ID | Consult_Room_No | Date        | time   |
+--------+--------+--------+----------+-----------------+-------------+--------+
| A0001  | P0002  | D0001  | S0001    |             111 | 11-Jan-2020 | 9:00am |
+--------+--------+--------+----------+-----------------+-------------+--------+
1 row in set (0.06 sec)
```

Question 4e) Display all the test types that have the values in the range of 25 and 75

Query: select * from Test_Types where Low_Value>=25 and High_Value<=75;

Screenshot:

```
mysql> select * from Test_Types where Low_Value>=25 and High_Value<=75;
+--------+-------------+-----------+------------+-------------+------------+
| TT_ID  | Description | Low_Value | High_Value | Test_Method | Technician |
+--------+-------------+-----------+------------+-------------+------------+
| TT0005 | Blood Test  |        45 |         65 | Regular     | S0002      |
+--------+-------------+-----------+------------+-------------+------------+
1 row in set (0.00 sec)
```

Question 4f) Find the diagnosis details of the patient with prescription id 'PR00012'.

Query: select diagnosis_detail from Prescription where pres_id = "PR0012";

Screenshot:

```
mysql> select diagnosis_detail from Prescription where pres_id = "PR0012";
+------------------+
| diagnosis_detail |
+------------------+
| Cough and Cold   |
+------------------+
1 row in set (0.01 sec)
```

Question 4g) Display the name of the patients whose gender is female or the contact number
is 9878987890

Query: select Pat_Name from Patient where gender="F" or contact="9878987890";

Screenshot:

```
mysql> Select Pat_Name from Patient where gender="F" or contact="9878987890";
+----------+
| Pat_Name |
+----------+
| Emily    |
| Falcone  |
+----------+
2 rows in set (0.00 sec)
```

Question 4h) Find the staff name and staff id who are not working in the department 'D102'

Query: select staff_id,staff_name from Staff where dept_no="D102";

Screenshot:

```
mysql> SELECT staff_id,staff_name from Staff where dept_no="D102";
+----------+------------+
| staff_id | staff_name |
+----------+------------+
| S0001    | Alex       |
| S0004    | Dragovic   |
+----------+------------+
2 rows in set (0.02 sec)
```

Question 4i) Find the patients who are admitted on '01-May-2020' in the bed 100.

Query: select pat_id form Patient where bed_no=100 and date_of_admission = "01-May-2020";

Screenshot:

```
mysql> select pat_id from In_Patient where bed_no=100 and date_of_admission="01-May-2020";
+--------+
| pat_id |
+--------+
| P0001  |
+--------+
1 row in set (0.01 sec)
```

Question 4j) Delete the test results that are 'Positive

Query: delete from Test_Results where result = "positive";

Screenshot:

```
mysql> delete from Test_Results where result ="positive";
Query OK, 1 row affected (0.02 sec)
```

Question 4k) Increase the discount with 5% more for all the patients whose bill amount is
greater than 100000.

Query : update Hospital_Bill set discount = 12 where bill_amount>1000;

Screenshot:

```
mysql>  update Hospital_Bill Set discount = 12 where bill_amount > 10000;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

Question 4l) Change the HOD of cardiology department with doctor 'D0003'

Query: update Department set hod = "D0003" where dept_name = "Cardiology";

Screenshot:

```
mysql> UPDATE Department set hod = "D0003" where dept_name ="Cardiology";
Query OK, 0 rows affected (0.00 sec)
Rows matched: 1  Changed: 0  Warnings: 0
```

Question 4m) Delete the prescribed medicines records that have the brand name 'XYZ'

Query: delete from Prescribed_Medicines where brand ="XYZ";

Screenshot:

```
mysql> delete FROM Prescribed_Medicines where brand="XYZ";
Query OK, 1 row affected (0.01 sec)
```

Question 4n) Modify the low value and high value to 10 and 30 respectively for the clinical
test 'urine'

Query: update Test_Types set low_value=10,high_value=30 where description="urine";

Screenshot:

```
mysql> UPDATE Test_Types set low_value=10,high_value=30 where description="urine";
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

Question 4o) Update the contact number of all staffs who are in the category ‘Nurse’

Query: update Staff set contact = “7541098767” where category = “nurse”;

Screenshot:

```
mysql> update Staff set contact="7541098767" where category = "nurse";
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

Question 4p) Delete the staff records that have designations ‘junior attender’ or ‘technician’ and belongs to the department ‘D190’.

Query: delete from Staff where Dept_No=”D190” and (Designation=”junior attender” or Designation=”technician”);

Screenshot:

```
mysql>  delete from Staff where Dept_No="D190" and (Designation="junior attender" or Designation="technician");
Query OK, 1 row affected (0.01 sec)
```