

HOSPITAL MANAGEMENT SYSTEM

DATABASE MANAGEMENT SYSTEMS (CSC2003)
– PROJECT COMPONENT - REVIEW REPORT

Submitted by

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Submitted To

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1. INTRODUCTION

Increasing accidents and diseases in India it is mandatory to have more hospitals and doctors. In hospitals it's necessary to maintain the patients records who visited there hospital and the employees who are working in the hospitals. So the hospital management database will solve this problem by storing the information of hospital.

2. PROJECT SCOPE [LIST ALL THE FUNCTIONALITIES HERE]

The database can help in generating following information:

1. Patient's general information and medical history;
2. Patient's stay time on hospital and deposit;
3. Information on doctor's general information;
4. Doctor's prescriptions and remarks on patient's health;
5. Information on patient's total expenses for collective billing;
6. Information on tests carried upon patient and medicines purchased on his behalf.

3. KEY CONTACTS AND STAKEHOLDERS

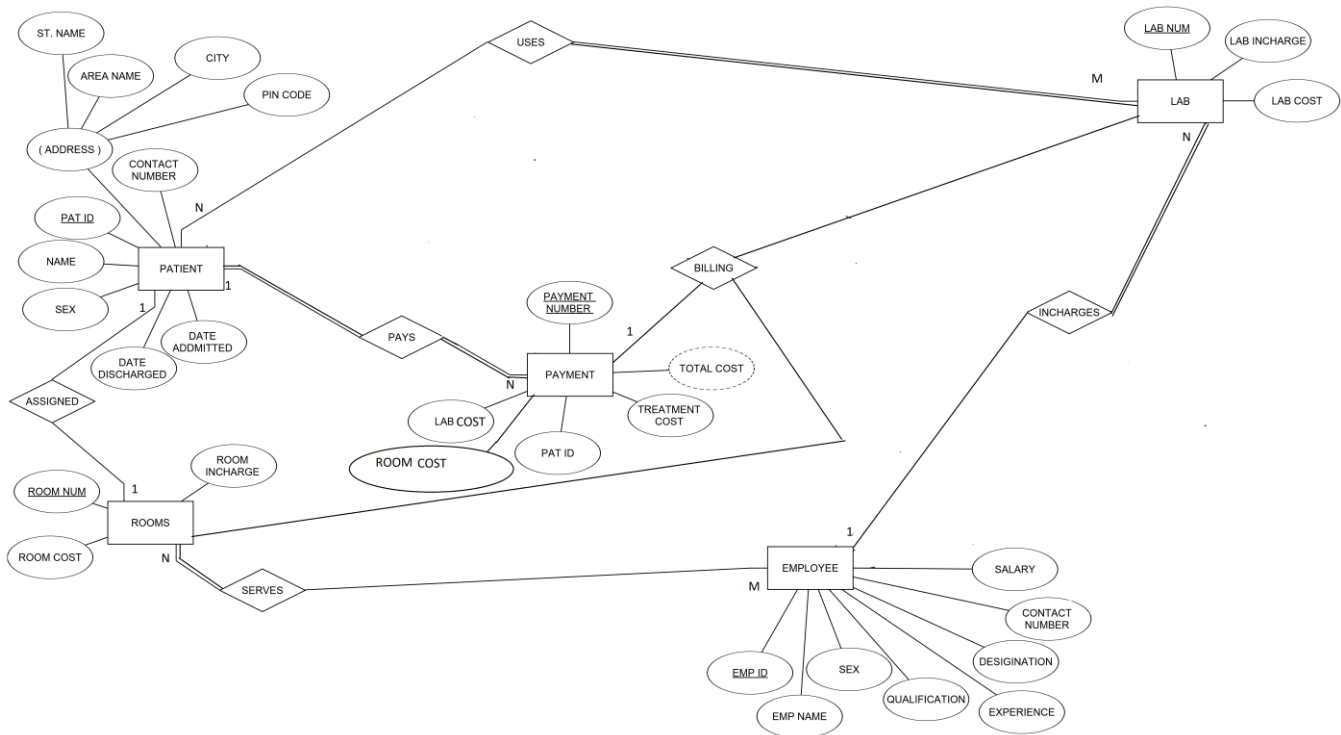
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4. PROJECT RESOURCE REQUIREMENTS

4.1 Software Resource Requirements

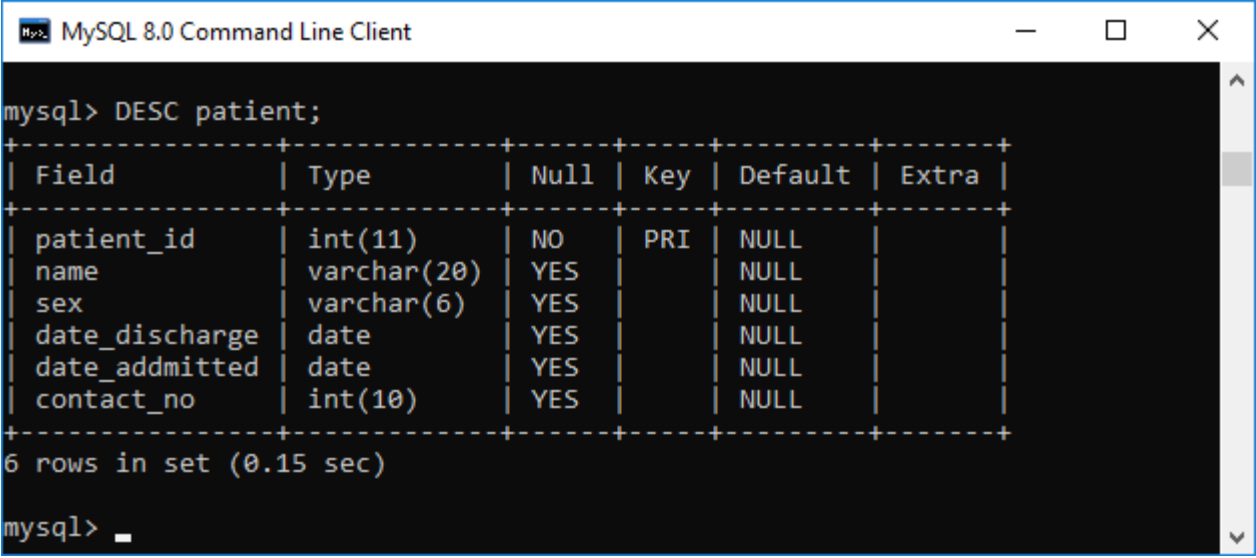
- Windows 10
- mysql

5. ER DIAGRAM



6. TABLES AND CONSTRAINTS

PATIENT:



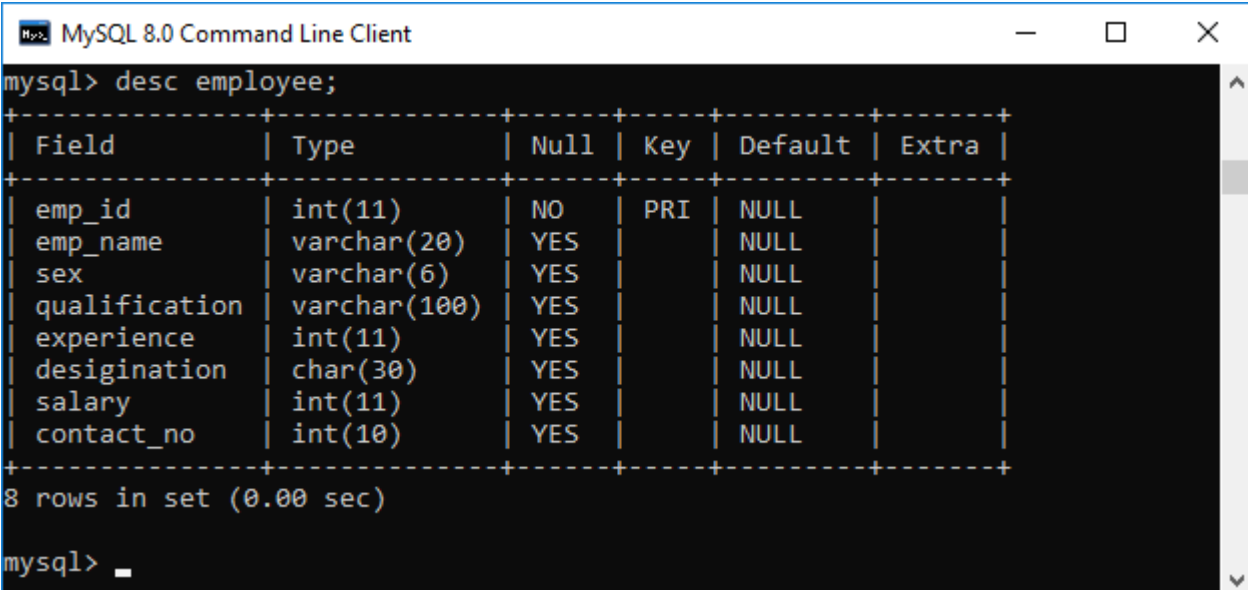
```
mysql> DESC patient;
```

Field	Type	Null	Key	Default	Extra
patient_id	int(11)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
sex	varchar(6)	YES		NULL	
date_discharge	date	YES		NULL	
date_admitted	date	YES		NULL	
contact_no	int(10)	YES		NULL	

```
6 rows in set (0.15 sec)

mysql> _
```

EMPLOYEE:



```
mysql> desc employee;
```

Field	Type	Null	Key	Default	Extra
emp_id	int(11)	NO	PRI	NULL	
emp_name	varchar(20)	YES		NULL	
sex	varchar(6)	YES		NULL	
qualification	varchar(100)	YES		NULL	
experience	int(11)	YES		NULL	
designation	char(30)	YES		NULL	
salary	int(11)	YES		NULL	
contact_no	int(10)	YES		NULL	

```
8 rows in set (0.00 sec)

mysql> _
```

ROOMS:

```
MySQL 8.0 Command Line Client
mysql> desc rooms;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| room_num   | int(11)   | NO   | PRI | NULL    |       |
| room_cost  | int(11)   | YES  |     | NULL    |       |
| pat_id     | int(11)   | YES  | MUL | NULL    |       |
| room_incharge | int(11)   | YES  | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> _
```

PAYMENT:

```
MySQL 8.0 Command Line Client
mysql> desc payment;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| payment_id     | varchar(10)   | NO   | PRI | NULL    |       |
| treatment_cost | int(11)       | YES  |     | NULL    |       |
| lab_cost       | int(11)       | YES  |     | NULL    |       |
| room_cost      | int(11)       | YES  |     | NULL    |       |
| pat_id         | int(11)       | YES  | MUL | NULL    |       |
| total_cost     | int(11)       | YES  |     | NULL    | VIRTUAL GENERATED |
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

LAB:

```
MySQL 8.0 Command Line Client
mysql> desc lab;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| lab_num    | int(11)   | NO   | PRI | NULL    |       |
| lab_cost   | int(11)   | YES  |     | NULL    |       |
| lab_incharge | int(11)   | YES  | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> _
```

7. QUERIES AND SCREENSHOT

QUERIES FOR CREATING TABLES:

```
mysql> create table patient(patient_id int primary key,name varchar(20),sex varchar(6),date_discharge date,date_addmitted date,contact_no int(10));
```

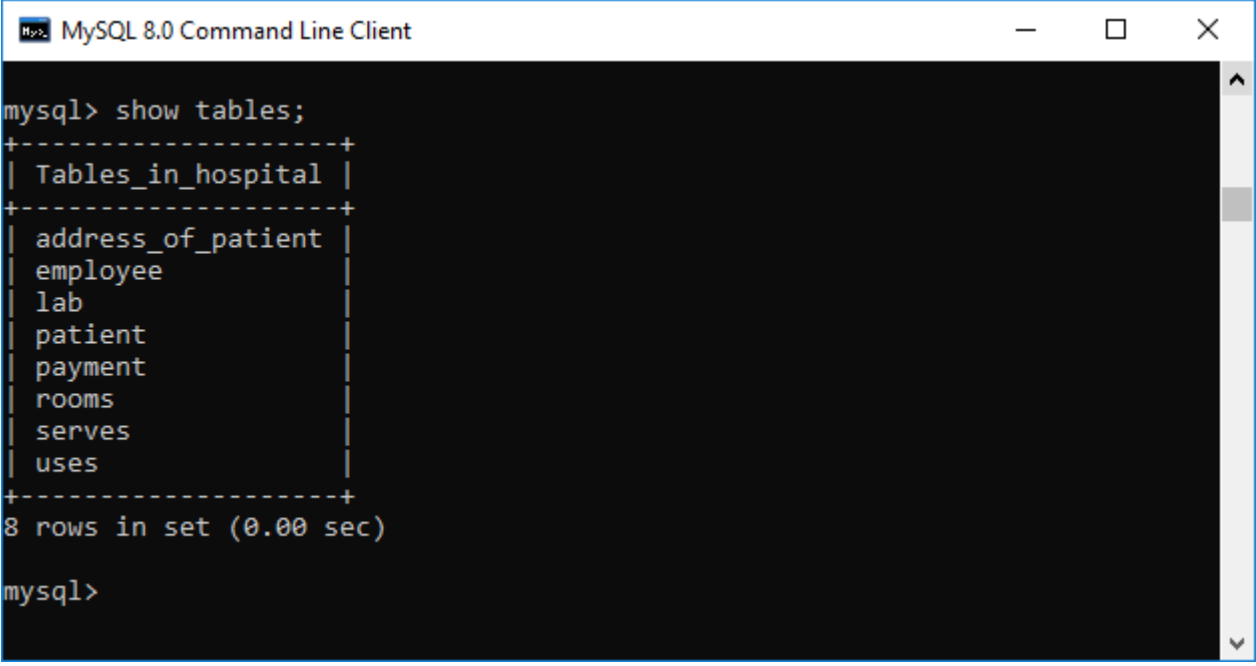
```
mysql> create table employee(emp_id int primary key,emp_name varchar(20),sex varchar(6),qualification varchar(100),experience int,designation char(30),salary int,contact_no int(10));
```

```
mysql> create table rooms(room_num int primary key,room_cost int,room_incharge varchar(20),pat_id int);
```

```
mysql> create table lab(lab_num int primary key,lab_cost int,lab_incharge varchar(20),emp_id int);
```

```
mysql> create table payment(payment_id varchar(10) primary key,treatment_cost int,lab_cost int,room_cost int,pat_id int);
```

```
mysql> alter table payment add column total_cost int as (treatment_cost+lab_cost+room_cost);
```

A screenshot of the MySQL 8.0 Command Line Client window. The window title is "MySQL 8.0 Command Line Client". The command prompt shows "mysql> show tables;". The output is a list of tables in a box: Tables_in_hospital, address_of_patient, employee, lab, patient, payment, rooms, serves, and uses. Below the box, it says "8 rows in set (0.00 sec)". The prompt "mysql>" is visible at the bottom.

```
mysql> show tables;
+-----+
| Tables_in_hospital |
+-----+
| address_of_patient |
| employee            |
| lab                 |
| patient             |
| payment             |
| rooms               |
| serves              |
| uses                |
+-----+
8 rows in set (0.00 sec)

mysql>
```

QURIES FOR ASSIGNING FOREIGN KEYS IN 1:1 RELATION

```
mysql> alter table rooms add foreign key (pat_id) references patient(pat_id);
```

```
Select MySQL 8.0 Command Line Client
```

Field	Type	Null	Key	Default	Extra
room_num	int(11)	NO	PRI	NULL	
room_cost	int(11)	YES		NULL	
room_incharge	varchar(20)	YES		NULL	
pat_id	int(11)	YES		NULL	

4 rows in set (0.00 sec)

```
mysql> alter table rooms add constraint FK_ASSIGNED foreign key (pat_id) references patient(pat_id);
ERROR 3734 (HY000): Failed to add the foreign key constraint. Missing column 'pat_id' for constraint 'FK_ASSIGNED' in the referenced table 'patient'
```

```
mysql> desc patient;
```

Field	Type	Null	Key	Default	Extra
patient_id	int(11)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
sex	varchar(6)	YES		NULL	
date_discharge	date	YES		NULL	
date_admitted	date	YES		NULL	
contact_no	int(10)	YES		NULL	

6 rows in set (0.00 sec)

```
mysql> alter table rooms add foreign key (pat_id) references patient(patient_id);
Query OK, 0 rows affected (1.67 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql>
```

QURIES FOR ASSIGNING FOREIGN KEYS IN 1:N AND N:1 RELATION

```
mysql> alter table lab add foreign key (lab_incharge) references employee(emp_id);
```

```
mysql> alter table payment add foreign key (pat_id) references patient(pat_id);
```

```
Select MySQL 8.0 Command Line Client
```

```
mysql> alter table payment add foreign key (pat_id) references employee(emp_id);
Query OK, 0 rows affected (1.71 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc payment;
```

Field	Type	Null	Key	Default	Extra
payment_id	varchar(10)	NO	PRI	NULL	
cost_of Equip	int(11)	YES		NULL	
treatment_cost	int(11)	YES		NULL	
lab_cost	int(11)	YES		NULL	
room_cost	int(11)	YES		NULL	
total_cost	int(11)	YES		NULL	VIRTUAL GENERATED
pat_id	int(11)	YES	MUL	NULL	

7 rows in set (0.08 sec)

```
mysql> desc lab;
```

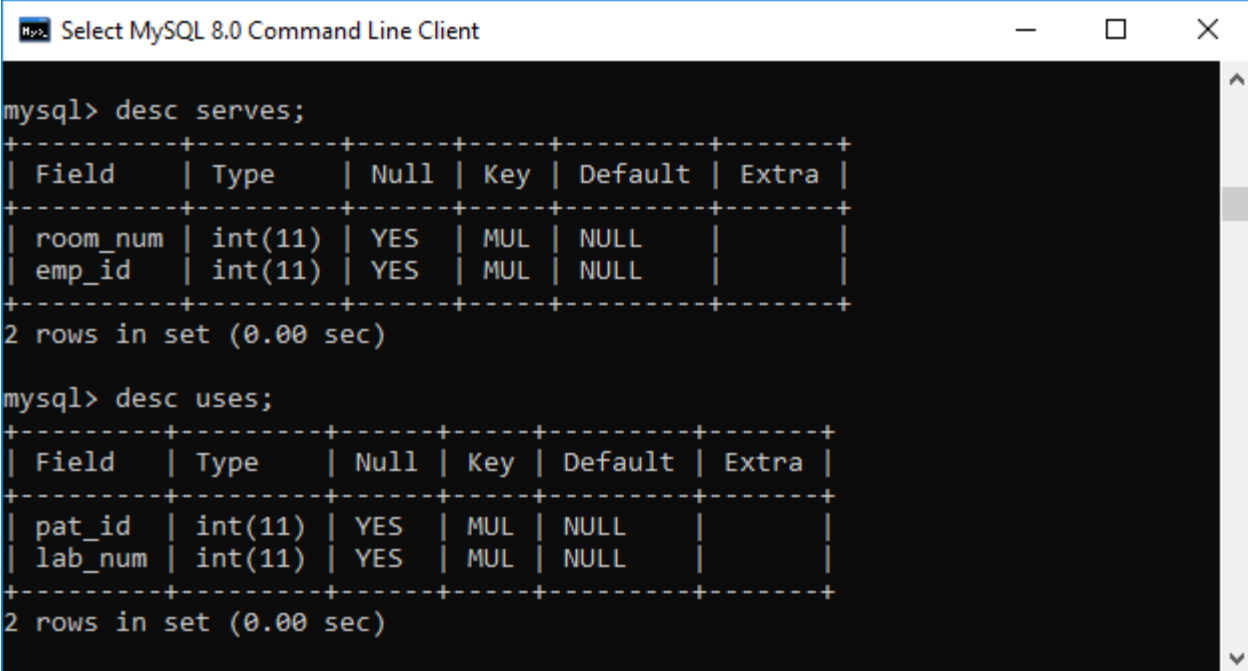
Field	Type	Null	Key	Default	Extra
lab_num	int(11)	NO	PRI	NULL	
lab_cost	int(11)	YES		NULL	
lab_incharge	int(11)	YES	MUL	NULL	

3 rows in set (0.00 sec)

```
mysql> alter table lab add foreign key (lab_incharge) references employee(emp_id);
Query OK, 0 rows affected (1.75 sec)
```


QURIES IN RELATION M:N

Create table serves(room_num int,emp_id int);
create table uses(pat_id int,lab_num int);



```
mysql> desc serves;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| room_num   | int(11)   | YES  | MUL | NULL    |       |
| emp_id     | int(11)   | YES  | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> desc uses;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| pat_id     | int(11)   | YES  | MUL | NULL    |       |
| lab_num    | int(11)   | YES  | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

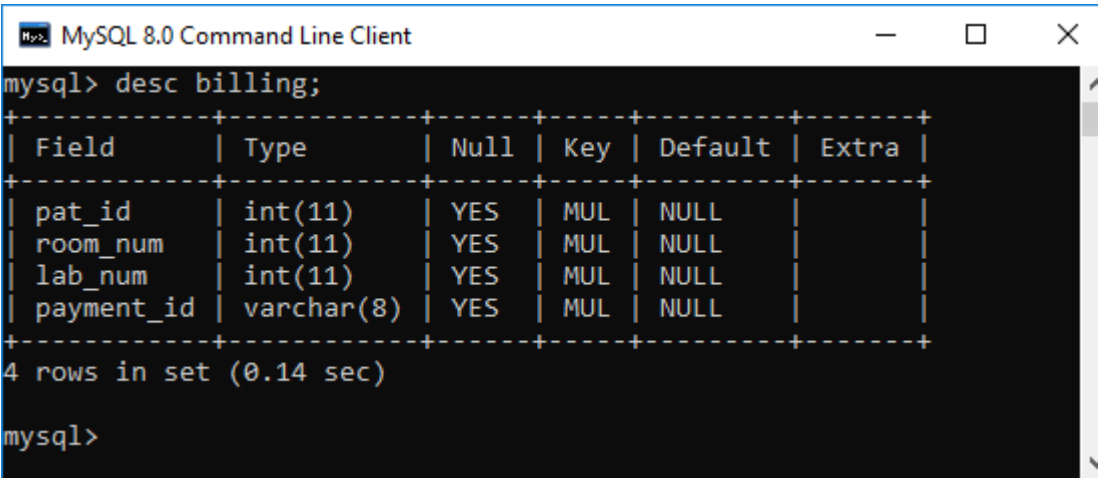
QURIES FOR N-ARRAY RELATION RELATION:

Here we have n-array relations with patient,rooms,lab,payment so we create a new table “billing”

```
mysql> create table billing(pat_id int,room_num int,lab_num int,payment_id varchar(8));
```

Connecting the foreign key

```
mysql> alter table billing add foreign key (pat_id) references patient(patient_id);
mysql> alter table billing add foreign key (room_num) references rooms(room_num);
mysql> alter table billing add foreign key (lab_num) references lab(lab_num);
mysql> alter table billing add foreign key (payment_id) references payment(payment_id);
```



```
mysql> desc billing;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| pat_id     | int(11)   | YES  | MUL | NULL    |       |
| room_num   | int(11)   | YES  | MUL | NULL    |       |
| lab_num    | int(11)   | YES  | MUL | NULL    |       |
| payment_id | varchar(8) | YES  | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.14 sec)

mysql>
```

QURIES FOR MULTIVALUED ATTRIBUTE:

```
mysql> create table address_of_patient(pat_id int,st_name varchar(20),area varchar(20),city varchar(20));
```

The screenshot shows a MySQL 8.0 Command Line Client window. It displays the output of several commands:

```
mysql> desc gets;
```

Field	Type	Null	Key	Default	Extra
pat_id	int(11)	YES		NULL	
treatment_id	int(11)	YES		NULL	

```
mysql> desc patient;
```

Field	Type	Null	Key	Default	Extra
patient_id	int(11)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
sex	varchar(6)	YES		NULL	
date_discharge	date	YES		NULL	
date_admitted	date	YES		NULL	
contact_no	int(10)	YES		NULL	

```
mysql> create table address_of_patient(pat_id int,st_name varchar(20),area varchar(20),city varchar(20));
Query OK, 0 rows affected (0.46 sec)
```

INSERTING VALUES

```
insert into employee (emp_id,emp_name,sex,qualification,experience,designation,salary,contact_no)
values(115,'ankitha','female','nursing',1,'nurse',1000,95865631);
```

```
mysql> insert into employee (emp_id,emp_name,sex,qualification,experience,designation,salary,contact_no)
values(111,'chandra','male','mbbs',2,'doctor',10000,96325841);
```

```
mysql> insert into employee (emp_id,emp_name,sex,qualification,experience,designation,salary,contact_no)
values(112,'prakash','male','mbbs',5,'doctor',5000,95625841);
```

```
mysql> insert into employee (emp_id,emp_name,sex,qualification,experience,designation,salary,contact_no)
values(113,'ajith','male','mbbs',1,'doctor',10000,95625631);
```

```
mysql> insert into employee (emp_id,emp_name,sex,qualification,experience,designation,salary,contact_no)
values(114,'ajith','male','nursing',1,'ward boy',1000,95225631);
```

PATIENT:

```
mysql> insert into patient (patient_id,name,sex,date_addmitted,date_discharge,contact_no) values
-> (2,'akash','male','2018/09/08','2018/10/08',564789321);
```

```
mysql> insert into patient (patient_id,name,sex,date_addmitted,date_discharge,contact_no) values
-> (3,'ezil','male','2018/10/20','2018/09/07',685321497);
```

```
mysql> insert into patient (patient_id,name,sex,date_addmitted,date_discharge,contact_no) values
-> (4,'arasi','female','2018/09/01','2018/09/22',658932741)
-> (1,'sathish','male','2018/10/01','2018/10/08',985674231);
mysql> insert into patient (patient_id,name,sex,date_addmitted,date_discharge,contact_no) values
-> (5,'akask','male','2018/09/20','2018/10/01',65465545);
```

ROOMS:

```
mysql> insert into rooms(room_num,room_cost,pat_id,room_incharge) values(101,10000,1,114);
Query OK, 1 row affected (0.49 sec)
```

```
mysql> insert into rooms(room_num,room_cost,pat_id,room_incharge) values(102,5000,3,115);
```

```
mysql> insert into rooms(room_num,room_cost,pat_id,room_incharge) values(103,15000,4,114);
```

LAB:

```
mysql> insert into lab(lab_num,lab_cost,pat_id,lab_incharge) values(201,10000,1,114);
```

```
mysql> insert into lab(lab_num,lab_cost,pat_id,lab_incharge) values(202,15000,4,115);
```

```
mysql> insert into lab(lab_num,lab_cost,pat_id,lab_incharge) values(203,10000,1,114);
```

PAYMENT:

```
insert into payment (payment_id,treatment_cost,lab_cost,room_cost,pat_id) values('p01',1000,20000,10000,2);
```

```
mysql> insert into payment (payment_id,treatment_cost,lab_cost,room_cost,pat_id) values('p02',1500,0,0,2);
```

```
mysql> insert into payment (payment_id,treatment_cost,lab_cost,room_cost,pat_id) values('p03',1000,0,0,3);
```

```
mysql> insert into payment (payment_id,treatment_cost,lab_cost,room_cost,pat_id)
values('p04',1500,15000,15000,4);
```

```
mysql> insert into payment (payment_id,treatment_cost,lab_cost,room_cost,pat_id) values('p05',18000,0,0,5);\
```

8. NORMALIZATION FORM OF EACH SCHEMA

1NF:

In this schema we have composite attribute so that is deleted from its entity and made as separate table.

```
mysql> alter table patient drop column address;
```

```
mysql> create table address_of_patient(pat_id int,st_name varchar(20),area varchar(20),city varchar(20));
```

```

MySQL 8.0 Command Line Client
ERROR 1062 (23000): Duplicate entry 'p02' for key 'PRIMARY'
mysql> desc address_of_patient;
+-----+-----+-----+-----+-----+-----+
| Field | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| pat_id | int(11)   | YES  | MUL | NULL    |       |
| st_name | varchar(20) | YES  |     | NULL    |       |
| area   | varchar(20) | YES  |     | NULL    |       |
| city   | varchar(20) | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.12 sec)

mysql>

```

2NF:

In table patient,

Patient_id is the primary key which determines all the other non-prime attribute,

Patient_id → Patient_id

Patient_id → name

Patient_id → sex

Patient_id → date_discharge

Patient_id → date_admitted

Patient_id → contact_no

As same as in the employee table,

Emp_id is the primary key which determines all the other non-prime attribute,

Emp_id → Emp_id

Emp_id → emp_name

Emp_id → sex

Emp_id → qualification

Emp_id → experience

Emp_id → designation

Emp_id → salary

Emp_id → contact_no

As the primary attribute in the table is determines all other non-prime attributes respectively.

3NF:

This schema satisfies the both 1NF, 2NF and this schema does not have any transitive dependency.

Hence this schema is in 3NF.

9. WORK BREAK DOWN

Team Member Registration Number	Name	Work Assigned
17BCS0082	SATHISH KUAMR	DATABASE CREATION, DOCUMENT CREATION
17BCS0022	EZILARASAN	ER DIAGRAM IMPLEMENTATION
17BCS0110	AKASH	NORMALISATION

10. REVIEW EVALUATION

COMPONENT	MARKS	MEMBER 1	MEMBER 2	MEMBER 3
REPORT				
ER DIAGRAM				
SCHEMA PREPARATION				
NORMALIZATION OF SCHEMA				
TABLE CREATION				
DATA MANIPULATION				
PRESENTATION				
REPORT PREPARATION				
TOTAL	100 MARKS			

