



Department of Computer Science and Engineering (CSE)

Course Title: Database Management System Sessional

Course Code: CSE-302

Project Name: Hospital Management System

Submitted To:

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Department of Computer Science and Engineering (CSE)

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Objectives:

The name of my project is **Hospital Management System**. It is aimed to develop to maintain the information of every patient, doctors and etc.

Hospital are the essential part of our lives, providing best medical facilities to people suffering from various ailments, which may be due to change in climatic conditions, increase work-load, emotional trauma stress etc. It is necessary for the hospitals to keep track of its day-to-day activities & records of its patients, doctors and other staff personals that keep the hospital running smoothly and successfully.

Create:

Step: 1

At first, we have created 5 tables named Administrator, Doctor, Stuff, Patient, Room. These are given below with their attributes.

Administrator	Doctor		
<u>empid</u>	<u>docId</u>		
empName	docName		
gender	dept		
mobileNo	<u>empid</u>		

Patient	Stuff	Room
Patient_Id	<u>stuffId</u>	<u>Room No</u>
Patient_Name	stuffName	Room_Type
Gender	Age	Status
Address	Salary	<u>Patient_Id</u>
Room_No	<u>NID</u>	
Date_of_admit	<u>empid</u>	
Date of_discharge		
Disease		
docId		

Step: 2

Now, we have to check if these tables are normalized or not.

Checking First Normal Form: We know that, if a relation contains a composite or multi-valued attribute, it violates the first normal form. We can see that there is no composite or multi-valued attribute. So, it does not violate the first normal form.

Checking Second Normal Form: We know that, if a relation is not in first normal form and relation contains any partial dependency, then it violates the second normal form. We can see that there is no partial dependency and these relations do not violate the first normal form. So, it does not violate the second normal form.

Checking Third Normal Form: We know that, a relation is in 3NF if as example, at least one of the following conditions holds in every non-trivial function dependency $X \rightarrow Y$:

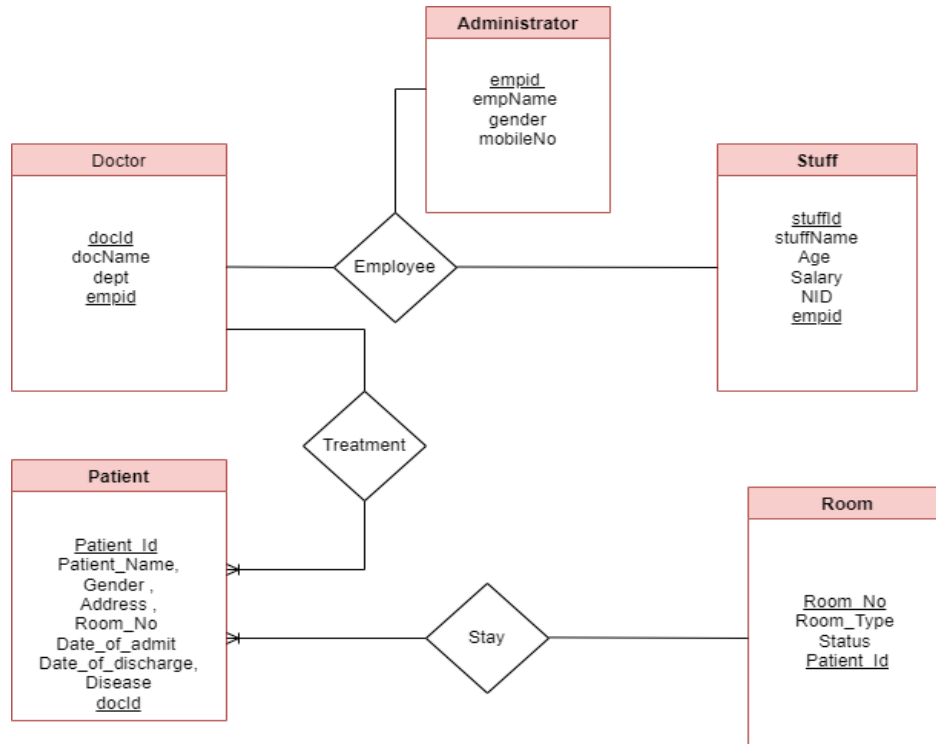
1. X is a super key.
2. Y is a prime attribute

So, we can see that these tables do not violate the third normal form.

Checking Boyce Codd Normal Form: We know that, it is an advanced version of 3NF that's why it is also referred as 3.5NF. And we can see that these five tables do not violate the Boyce Codd normal form.

Step: 3

As our five tables are normalized now we have to create an E-R Diagram. And the E-R diagram is given below:



Step: 4

Now we will create an user named econ with password econ123. Then in that user, we will create our tables. Query for creating these tables are:

Administrator:

```
create table Administrator(  
empId number(11) primary key,  
empName varchar2(15) not null,  
gender varchar2(10) not null,  
mobileNo number not null);
```

Doctor:

```
create table Doctor(  
docId number(11) primary key,  
docName varchar2(15) not null,  
dept varchar2(15) not null,
```

```
empid number(11) not null,  
foreign key(empid)  
references Administrator(empid));
```

Stuff:

```
create table Stuff(  
stuffId number(11) primary key,  
stuffName varchar2(15) not null,  
Age number(3) check(Age>17),  
Salary number(5) not null,  
NID number(12) not null,  
empid number(11) not null,  
foreign key(empid)  
references Administrator(empid));
```

Patient:

```
create table Patient(  
Patient_Id number(11) primary key,  
Patient_Name varchar2(20) not null,  
Gender varchar2(10) not null,  
Address varchar2(20) not null,  
Room_No number(3) not null,  
Date_of_admit DATE not null,  
Date_of_discharge DATE not null,  
Disease varchar2(20) not null,  
docId number(11) not null,  
foreign key(docId)  
references Doctor(docId));
```

Room:

```
create table Room(  
Room_No number(3) primary key,  
Room_Type varchar2(10) not null,
```

Status varchar2(10) not null,
Patient_Id number(11),
foreign key(Patient_Id)
references Patient(Patient_Id));

Step: 5

Now we will insert value in those tables.

Inserting in Administrator Table:

```
insert into Administrator
values(1001,'Rimon Ahmed', 'male', 7352835368);
insert into Administrator
values(1002,'Sakib Ahmed', 'male', 7352830368);
insert into Administrator
values(1003,'Karib Uddin', 'male', 7352845368);
insert into Administrator
values(1004,'Habibullah', 'male', 7352805068);
insert into Administrator
values(1005,'Mamun Khan', 'male', 7350835368);
insert into Administrator
values(1006,'Fahmida Nizam', 'female', 7952835368);
insert into Administrator
values(1007,'Awsaaf Ahmed', 'male', 7392835368);
insert into Administrator
values(1008,'Saad Bin Kamal', 'male', 7352835328);
insert into Administrator
values(1009,'Econozzaman', 'male', 7752835368);
insert into Administrator
values(1010,'Md Arafat', 'male', 9352835368);
insert into Administrator
values(1011,'Mahmud Rafi', 'male', 9392835368);
```

```
insert into Administrator
values(1012,'Samia Akter', 'female',9392835360);
insert into Administrator
values(1013,'Atikur Rahman', 'male',7392835362);
insert into Administrator
values(1014,'Maria Salam', 'female', 2939283536);
insert into Administrator
values(1015,'Uthsa Saha', 'male', 1392835368);
insert into Administrator
values(1016,'Mr. Tamal','male', 1392835868);
insert into Administrator
values(1017,'Jishan Mokbul','male', 1392835362);
insert into Administrator
values(1018,'Mahmuda Omi','female', 1392035368);
insert into Administrator
values(1019,'Fatema Alam','female', 1399935368);
insert into Administrator
values(1020,'Fardin Alam', 'male', 1392835399);
insert into Administrator
values(1021,'Shopnil Rahat','male', 1002835368);
```

Inserting in Doctor Table:

```
insert into Doctor
values(401,'Rimon Ahmed', 'Anatomy', 1001);
insert into Doctor
values(402,'Sakib Ahmed', 'Medicine', 1002);
insert into Doctor
values(403,'Karib Uddin', 'Surgery', 1003);
insert into Doctor
```

```
values(404,'Habibullah', 'Medicine', 1004);  
insert into Doctor  
values(405,'Mamun Khan', 'Anatomy', 1005);  
insert into Doctor  
values(406,'Fahmida Nizam', 'Physiology', 1006);  
insert into Doctor  
values(407,'Awsaaf Ahmed', 'Anatomy', 1007);  
insert into Doctor  
values(408,'Saad Bin Kamal', 'Surgery', 1008);  
insert into Doctor  
values(409,'Econoazzaman', 'Biochemistry', 1009);  
insert into Doctor  
values(410,'Md Arafat', 'Physiology', 1010);  
insert into Doctor  
values(411,'Mahmud Rafi', 'Biochemistry', 1011);
```

Inserting in Stuff Table:

```
insert into Stuff  
values(801,'Samia Akter', 23, 8000, 9363, 1012);  
insert into Stuff  
values(802,'Atikur Rahman', 22, 9000, 2796, 1013);  
insert into Stuff  
values(803,'Maria Salam', 23, 10000, 2363, 1014);  
insert into Stuff  
values(804,'Uthsa Saha', 21, 8000, 2633, 1015);  
insert into Stuff  
values(805,'Mr. Tamal', 22, 7000, 2633, 1016);  
insert into Stuff  
values(806,'Jishan Mokbul', 23, 4000, 8363, 1017);
```



```
insert into Stuff
values(807,'Mahmuda Omi', 29, 7000, 1363, 1018);

insert into Stuff
values(808,'Fatema Alam', 27, 9000, 9303, 1019);

insert into Stuff
values(809,'Fardin Alam', 24, 1100, 2333, 1020);

insert into Stuff
values(810,'Shopnil Rahat', 23, 8000, 9963, 1021);
```

Inserting in Patient Table:

```
insert into Patient
values(1101,'Asif Rahman', 'male', 'Cumilla', 02, '2-JAN-2019', '3-FEB-2020','Surgery', 409);

insert into Patient
values(1102,'Atikur Rahman', 'male', 'Noakhali', 04, '7-JAN-2019', '13-APR-2020','Fever', 408);

insert into Patient
values(1103,'Uthsa Saha', 'male', 'Dhaka', 06, '12-JAN-2019', '23-FEB-2020','Fever', 406);

insert into Patient
values(1104,'Avishek Datta', 'male', 'Cumilla', 08, '21-JAN-2019', '13-NOV-2020','Fracture', 408);

insert into Patient
values(1105,'Provy Ullah', 'male', 'Rajshahi', 01, '17-JAN-2019', '3-JUN-2020','Surgery', 410);

insert into Patient
values(1106,'Karib Khan', 'male', 'Chittagong', 05, '22-JAN-2019', '23-FEB-2020','Fever', 402);

insert into Patient
values(1107,'Mamun Khan', 'male', 'Cumilla', 03, '12-FEB-2019', '3-MAR-2020','Fracture', 401);

insert into Patient
values(1108,'Fatema Alam', 'female', 'Noakhali', 07, '22-JAN-2019', '13-FEB-2020','Surgery',
410);

insert into Patient
values(1109,'Bijaya Bhowmick', 'female', 'Dhaka', 09, '12-FEB-2019', '3-MAY-2020','Heart
Attack', 409);
```

```
insert into Patient
values(1110,'Saad Bin Kamal', 'male', 'Feni', 15, '13-JAN-2019', '3-OCT-2020','Surgery', 407);
insert into Patient
values(1111,'Habibullah Mamun', 'male', 'Barishal', 12, '19-JAN-2019', '3-DEC-2020','Heart
Attack', 410);
```

Inserting in Patient Table:

```
insert into Room
values(01,'Normal','Booked',1105);
insert into Room
values(02,'Cabin', 'Booked', 1101);
insert into Room
values(03,'Cabin', 'Booked', 1107);
insert into Room
values(04,'Cabin', 'Booked', 1102);
insert into Room
values(05,'Normal', 'Booked',1106);
insert into Room
values(06,'Normal', 'Booked', 1103);
insert into Room
values(07,'Cabin', 'Booked', 1108);
insert into Room
values(08,'Cabin', 'Booked', 1104);
insert into Room
values(09,'Normal', 'Booked', 1109);
insert into Room(Room_No,Room_Type,Status)
values(10,'Normal', 'Empty');
insert into Room(Room_No,Room_Type,Status)
values(11,'Normal', 'Empty');
```

```

insert into Room
values(12,'Cabin', 'Booked', 1111);

insert into Room(Room_No,Room_Type,Status)
values(13,'Normal', 'Empty');

insert into Room(Room_No,Room_Type,Status)
values(14,'Normal', 'Empty');

insert into Room
values(15,'Normal', 'Booked',1110);

```

So, our project is created.

Query:

1. Find the name of doctors of Surgery department.

```

SQL> select docName
  2  from doctor
  3  where dept='Surgery';

DOCNAME
-----
Karib Uddin
Saad Bin Kamal

SQL>

```

2. Find the stuff name and salary of max salary holder.

```

SQL> select stuffName, salary
  2  from stuff
  3  where salary =(select max(salary)
  4  from stuff);

STUFFNAME          SALARY
-----
Maria Salam          10000

```

3. Find the stuff name of second max salary holder.

```

SQL> select stuffName, salary
  2  from stuff
  3  where salary =(select max(salary)
  4  from stuff
  5  where salary<(select max(salary)
  6  from stuff));

STUFFNAME          SALARY
-----
Atikur Rahman        9000
Fatema Alam          9000

```

4. Find the name and mobile number of those stuffs whose age is greater than 25.

```
SQL> select s.stuffName, a.mobileNo
  2   from administrator a full outer join stuff s
  3   on (a.empid = s.empid)
  4   where s.age>25;
```

STUFFNAME	MOBILENO
Mahmuda Omi	1392035368
Fatema Alam	1399935368

5. Find the name and yearly salary of the oldest stuff.

```
SQL> select stuffName, salary*12 as Yearly_Salary
  2   from stuff
  3   where age =(select max(age)
  4   from stuff);
```

STUFFNAME	YEARLY_SALARY
Mahmuda Omi	84000

6. Find the name of patients whom are suffering from fever and when they admitted in the hospital.

```
SQL> select Patient_Name, Date_of_admit
  2   from patient
  3   where Disease='Fever';
```

PATIENT_NAME	DATE_OF_A
Atikur Rahman	07-JAN-19
Uthsa Saha	12-JAN-19
Karib Khan	22-JAN-19

7. Find the room no and room type of those patient whom had heart attack.

```
SQL> select r.Room_No, Room_Type
  2   from patient p full outer join room r
  3   on (p.Patient_Id = r.Patient_Id)
  4   where p.Disease='Heart Attack';
```

ROOM_NO	ROOM_TYPE
9	Normal
12	Cabin

8. Find the name and room number of those patient whom are staying in cabin.

```
SQL> select r.Room_No, p.Patient_Name
  2   from patient p full outer join room r
  3   on (p.Patient_Id = r.Patient_Id)
  4   where r.Room_Type='Cabin';
```

ROOM_NO	PATIENT_NAME
2	Asif Rahman
3	Mamun Khan
4	Atikur Rahman
7	Fatema Alam
8	Avishek Datta
12	Habibullah Mamun

6 rows selected.

9. Find the name of those patient whom are taking treatment from

```
SQL> select p.Patient_Name
  2   from patient p full outer join doctor d
  3   on (p.docId= d.docId)
  4   where d.docName='Saad Bin Kamal';

PATIENT_NAME
-----
Avishek Datta
Atikur Rahman
```

10. Find the name of those doctors whom are treating more than one patient.

```
SQL> select count(p.docId)as Num_of_Patients, d.docName
  2   from patient p full outer join doctor d
  3   on (p.docId= d.docId)
  4   group by d.docName
  5   having count(p.docId)>1;

NUM_OF_PATIENTS DOCNAME
-----
                2 Econozzaman
                2 Saad Bin Kamal
                3 Md Arafat
```

11. Find the name of those doctor whom are treating the patients of the hospital and order the list by how much patient taking treatment from that doctor.

```
SQL> select d.docName
  2   from patient p full outer join doctor d
  3   on (p.docId= d.docId)
  4   group by d.docName
  5   having count(p.docId) >=1
  6   order by count(p.docId) desc;

DOCNAME
-----
Md Arafat
Econozzaman
Saad Bin Kamal
Fahmida Nizam
Awsaaf Ahmed
Sakib Ahmed
Rimon Ahmed

7 rows selected.
```

12. Create a view of name, gender and disease of those patient whom are live in noakhali.

```
SQL> create view Noakhailla as
  2   select Patient_Name, Gender, Disease
  3   from patient
  4   where Address='Noakhali';

View created.

SQL> select* from noakhailla;

PATIENT_NAME      GENDER    DISEASE
-----
Atikur Rahman     male      Fever
Fatema Alam       female    Surgery
```

13. Find the name name, gender and disease of those patient whose name starts with 'A'.

```
SQL> select Patient_Name, Gender, Disease
  2   from patient
  3   where Patient_Name like 'A%';
```

PATIENT_NAME	GENDER	DISEASE
Asif Rahman	male	Surgery
Atikur Rahman	male	Fever
Avishek Datta	male	Fracture

14. Find the name and mobile number of those stuff whose salary is between 7000 to 12000.

```
SQL> select s.stuffName, a.mobileNo
  2   from administrator a full outer join stuff s
  3   on (a.empid = s.empid)
  4   where s.salary between 7000 and 12000;
```

STUFFNAME	MOBILENO
Samia Akter	9392835360
Atikur Rahman	7392835362
Maria Salam	2939283536
Uthsa Saha	1392835368
Mr. Tamal	1392835868
Mahmuda Omi	1392035368
Fatema Alam	1399935368
Shopnil Rahat	1002835368

8 rows selected.

15. Find the name of those doctor whom are treating the patients of the hospital for how much patient taking treatment from that doctor as status,

Count=1 =Average

Count >1 =Good

```
SQL> select d.docName,
  2   Case
  3   When count(p.docId) =1 then 'Average'
  4   When count(p.docId) >1 then 'Good'
  5   Else 'Nothing'
  6   End "Status"
  7   from patient p full outer join doctor d
  8   on (p.docId= d.docId)
  9   group by d.docName
 10   having count(p.docId) >=1
 11   order by count(p.docId) desc;
```

DOCNAME	Status
Md Arafat	Good
Econozzaman	Good
Saad Bin Kamal	Good
Fahmida Nizam	Average
Awsaaf Ahmed	Average
Sakib Ahmed	Average
Rimon Ahmed	Average

7 rows selected.

Discussion: So, we have design a hospital management system. During creating this project, I have faced some difficulties that after I exit from sql plus, the values that I have inserted in the tables get vanished. So, we have to be very fully while dealing with sql plus. I hope this project will help a hospital to store their information.