

Course Project Report on

“HOSPITAL MANAGEMENT”

Carried out By

Batch No:

Name of Students	USN
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Under the Guidance of

Prof.SudhindraB.Deshpande

KLS, GIT, Department of ISE, Belagavi

Course Name: Database Management System

Semester: IV

Course Code: 18IS43

DEPARTMENT of INFORMATION SCIENCE AND ENGINEERING

Academic Year 2019-20

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Course project report and ppt content

1. Title
2. Problem statement for that the project
3. Need Analysis, Variables involved
4. Atleast two alternate solutions to solve the problem defined or meet the need analysis
5. Comparison between the solutions and reason for selecting the final solution
6. Working model of the final solution

Marks allocation:

Marks Allocation:						
	Batch No. :					
1.	Project Title:	Marks Range	USN			
2.	Problem statement (PO2)	0-1				
3.	Need Analysis, Variables involved (PO1,PO2)	0-2				
4.	Alternate solutions to solve the problem(PO3)	0-3				
5.	Comparison between the solutions and reason for selecting the final solution(PO1,PO3,PO4)	0-4				
6.	Working model of the final solution (PO3,PO12)	0-5				
7.	Report and Oral presentation skill (PO9,PO10)	0-5				
	Total	20				

*** 20 marks is converted to 10 marks for CGPA calculation**

1.Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

2.Problem Analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and Engineering sciences.

3.Design/Development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4.Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5.Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6.The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7.Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8.Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9.Individual and team work: Function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings.

10.Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

1. INTRODUCTION:

Database is a collection of related data and data is a collection of facts and figures that can be processed to produce information.

Mostly data represents recordable facts. Data aids in producing information, which is based on facts. For example, if we have data about marks obtained by all students, we can then conclude about toppers and average marks.

A database management system stores data in such a way that it becomes easier to retrieve, manipulate, and produce information.

CHARACTERISTICS:

1. **Real-world entity:** A modern DBMS is more realistic and uses real-world entities to design its architecture.
2. **Relation-based tables:** DBMS allows entities and relations among them to form tables.
3. **Isolation of data and application:** A database system is entirely different than its data. A database is an active entity, whereas data is said to be passive, on which the database works and organizes.
4. **Less redundancy:** DBMS follows the rules of normalization, which splits a relation when any of its attributes is having redundancy in values.
5. **Consistency:** Consistency is a state where every relation in a database remains consistent.
6. **Query Language:** DBMS is equipped with query language, which makes it more efficient to retrieve and manipulate data.

7. **ACID Properties:** DBMS follows the concepts of Atomicity, Consistency, Isolation, and Durability (normally shortened as ACID). These concepts are applied on transactions, which manipulate data in a database.
8. **Multiuser and Concurrent Access:** DBMS supports multi-user environment and allows them to access and manipulate data in parallel.
9. **Multiple views:** DBMS offers multiple views for different users. This feature enables the users to have a concentrate view of the database according to their requirements.
10. **Security:** Features like multiple views offer security to some extent where users are unable to access data of other users and departments.

APPLICATIONS:

1. **Telecom:** There is a database to keeps track of the information regarding calls made, network usage, customer details etc.
2. **Industry:** Where it is a manufacturing unit, warehouse or distribution centre, each one needs a database to keep the records of ins and outs
3. **Banking System:** For storing customer info, tracking day to day credit and debit transactions, generating bank statements etc.
4. **Sales:** To store customer information, production information and invoice details.
5. **Airlines:** To travel though airlines, we make early reservations, this reservation information along with flight schedule is stored in database.
6. **Education sector:** Database systems are frequently used in schools and colleges to store and retrieve the data regarding student details, staff details, course details, exam details, payroll data, attendance details, fees details etc.
7. **Online shopping:** Sites store the product information, your addresses and preferences, credit details and provide you the relevant list of products based on your query.

2. LITERATURE SURVEY:

In the past, healthcare providers have stored clinical records of patients on paper locally. It can be allowed a controlled environment with the clean management of data privacy and security through keeping the paper records in a locked cabin. Even the growing use of personal computers and modern information technology in clinical establishments allowed for a slight attempt to control the privacy and confidentiality of individual medical records. It was because of the decentralized and locally controlled infrastructure of each organization.

However, nowadays outsourcing of IT infrastructure and other services (e.g. Billing processing, accounting for medical practice) ends in a complex system wherein sensitive information is stored and processed at many exceptional places. For this reason, it will become appealing to store and process healthcare data. The healthcare monitoring systems promise a more cost – efficient service and quality of best service, the complexity to control data security and privacy will increase.

E-Health, a fast-growing area in the healthcare industries, faces the challenges of privacy and security issues. Simplest, with high confidence in security and confidentiality, can each patient and healthcare providers substantially benefit from the large efficiency and quality of service of healthcare information system. Patient protection is a crucial issue in the healthcare organizations.

Electronic Health Records (EHRs) form a fundamental part of the healthcare system and it's imperative that EHRs be secure. Issues of confidentiality and abuse of data cause many healthcare providers to oppose the coordination of medical databases no matter their potential benefits

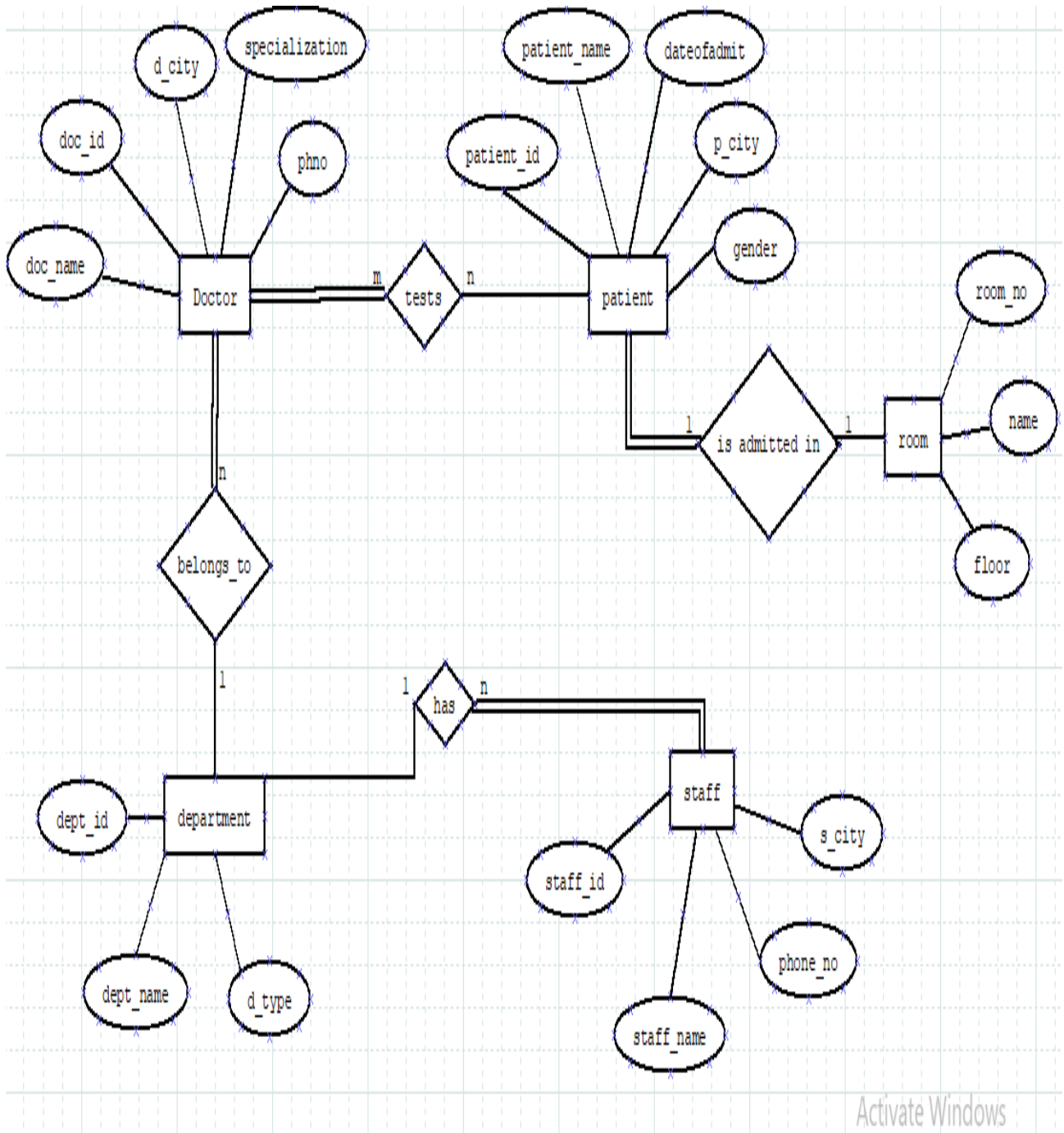
“As in any information system, security of EHRs is a critical challenge. Confidentiality, integrity, and availability are attributes of information security.” “Confidentiality means that of informational privacy characteristic of positive relationships, which includes the medical doctor-patient relationship. Personal information received inside the direction of that relationship ought to not be found out with others until the patient is made aware of this purpose and consents to disclosure.”

Patient Records mean any information associated with patients that are accumulated at some point of the care. Electronic Patient Record (EPR) approaches any patient record that can be available electronically. Electronic Patient Record means to transfer paper-based patient records as a digital form a good way to keep on digital devices. Technology has the potential to move healthcare services to an extra proactive and consumer oriented model of care and enhance the cost, quality, and accessibility of healthcare services which decrease the errors of treatment by way of enabling patients to comply with their route of treatment and providing communication channels between patients and healthcare professionals.

The healthcare information needs to abide by the regulation of privacy to ensure patients' confidentiality; there's a rule to protect health information privacy in many countries. The Health Insurance Portability and Accountability Act emphasize the privacy of health information, and 41 all healthcare organizations and providers are obliged to follow the privacy and security regulations.

3. DATABASE DESIGN:

3.1. ER MODEL:



3.2. RELATIONAL MODEL:

Department:

Dept_id
Dept_name
Dept_type

Doctor:

Doc_name
Doc_id
Phone
D_city
Specialization
Dept_id

Patient:

Patient_id
Patient_name
City
Gender
Date_of_admit

Staff:

Staff_id
Staff_name
Phone
City
Dept_id

Room:

Room_no
Name
Floor
Patient_id

Tests:

Doc_id
Patient_id

3.3. ER-RELATIONAL MAPPING:

SCHEMA:

Department:

Dept_id	Dept_name	Dept_type
---------	-----------	-----------

Doctor:

Doc_name	Doc_id	Phone	D_city	Specialization	Dept_id
----------	--------	-------	--------	----------------	---------

Patient:

Patient_id	Patient_name	City	Gender	Dae_of_admit
------------	--------------	------	--------	--------------

Staff:

Staff_id	Staff_name	Phone	City	Dept_id
----------	------------	-------	------	---------

Room:

Room_no	Name	Floor	Patient_id
---------	------	-------	------------

Tests:

Doc_id	Patient_id
--------	------------

4. NORMALIZATION:

Department:

Dept_id	Dept_name	Dept_type
---------	-----------	-----------

Doctor:

Doc_name	Doc_id	Phone	D_city	Specialization	Dept_id
----------	--------	-------	--------	----------------	---------

Doctor-Department

Doc_id	Dept_id
--------	---------

Patient:

Patient_id	Patient_name	City	Gender	Dae_of_admit
------------	--------------	------	--------	--------------

Staff:

Staff_id	Staff_name	Phone	City	Dept_id
----------	------------	-------	------	---------

Staff-Department

Staff_id	Dept_id
----------	---------

Room:

Room_no	Name	Floor	Patient_id
---------	------	-------	------------

Tests:

Doc_id	Patient_id
--------	------------

Room-Patient

Room_no	Patient_id
---------	------------

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Semester: IV

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5. TABLE CREATIONS:

```
create table department(dept_idint primary  
key,dept_namevarchar(15),dept_typevarchar(20));
```

```
create table doctor(doc_idint primary key,doc_namevarchar(15),specialization  
varchar(15),phnobigint,d_cityvarchar(15),dept_idint,foreign key(dept_id)references  
department(dept_id)on delete cascade);
```

```
create table patient(patient_idint primary key,patient_namevarchar(15),gender  
varchar(8),patient_cityvarchar(10),dateofadmit date);
```

```
create table staff(staff_idint primary  
key,staff_namevarchar(15),phone_nobigint,s_cityvarchar(10),dept_idint,foreign  
key(dept_id)references department(dept_id)on delete cascade);
```

```
create table room(room_no varchar(10) primary key,namevarchar(15),floor  
varchar(15),patient_idint,foreign key(patient_id)references patient(patient_id)on delete  
cascade);
```

```
create table tests(doc_idint,patient_idint);
```

```
Enter password:  
Welcome to the MySQL monitor.  Commands end with ; or \g.  
Your MySQL connection id is 18  
Server version: 8.0.18 MySQL Community Server - GPL  
  
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Oracle is a registered trademark of Oracle Corporation and/or its  
affiliates. Other names may be trademarks of their respective  
owners.  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
  
mysql> use hospital;  
Database changed  
mysql> create table department(dept_id int primary key,dept_name varchar(15),dept_type varchar(20));  
Query OK, 0 rows affected (0.19 sec)  
  
mysql> select *from department;  
Empty set (0.00 sec)  
  
mysql> create table doctor(doc_id int primary key,doc_name varchar(15),specialization varchar(15),phno bigint,d_city varchar(15),dept_id int,foreign key(dept_id)references department(dept_id)on delete cascade);  
Query OK, 0 rows affected (0.06 sec)  
  
mysql> create table patient(patient_id int primary key,patient_name varchar(15),gender varchar(8),patient_city varchar(10),dateofadmit date);  
Query OK, 0 rows affected (0.18 sec)  
  
mysql> create table staff(staff_id int primary key,staff_name varchar(15),phone_no bigint,s_city varchar(10),dept_id int,foreign key(dept_id)references department(dept_id)on delete cascade);  
Query OK, 0 rows affected (0.08 sec)  
  
mysql> create table room(room_no varchar(10) primary key,name varchar(15),floor varchar(15),patient_id int,foreign key(patient_id)references patient(patient_id)on delete cascade);  
Query OK, 0 rows affected (0.05 sec)  
  
mysql> create table tests(doc_id int,patient_id int);  
Query OK, 0 rows affected (0.16 sec)  
  
mysql>
```

6. POPULATING TABLES:

insert into department values(101,'neurology','MICU');

insert into department values(102,'nephrology','IMC');

insert into department values(103,'oncology','PCU');

insert into department values(104,'cardiology','CCU');

insert into department values(105,'gynecology','ICU');

```
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 19
Server version: 8.0.18 MySQL Community Server - GPL

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Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use hospital
Database changed
mysql> insert into department values(101,'neurology','MICU');
Query OK, 1 row affected (0.00 sec)

mysql> insert into department values(102,'nephrology','IMC');
Query OK, 1 row affected (0.00 sec)

mysql> insert into department values(103,'oncology','PCU');
Query OK, 1 row affected (0.00 sec)

mysql> insert into department values(104,'cardiology','CCU');
Query OK, 1 row affected (0.00 sec)

mysql> insert into department values(105,'gynecology','ICU');
Query OK, 1 row affected (0.00 sec)

mysql> select *from department;
+----+-----+-----+
| dept_id | dept_name | dept_type |
+----+-----+-----+
| 101 | neurology | MICU |
| 102 | nephrology | IMC |
| 103 | oncology | PCU |
| 104 | cardiology | CCU |
| 105 | gynecology | ICU |
+----+-----+-----+
5 rows in set (0.00 sec)

mysql>
```

insert into doctor values(350,'Raghvendra','neurologist',9876312342,'blgm',101);

insert into doctor values(351,'Karthik','gynecologist',9356654142,'bglkt',105);

insert into doctor values(352,'Anirudha','cardiologist',9773312347,'bjpr',104);

insert into doctor values(353,'Varun','nephrologist',9563146342,'satara',102);

insert into doctor values(354,'Nidhi','oncologist',9248963542,'blgm',103);

insert into doctor values(355,'Asawir','physician',9456423123,'jmkd',101);

insert into doctor values(356,'Shivani','dermatologist',9453225342,'bjpr',105);

```

mysql> insert into doctor values(350,'Raghvendra','neurologist',9876312342,'blgm',101);
Query OK, 1 row affected (0.00 sec)

mysql> insert into doctor values(351,'Karthik','gynecologist',9356654142,'bglkt',105);
Query OK, 1 row affected (0.00 sec)

mysql> insert into doctor values(352,'Anirudha','cardiologist',9773312347,'bjpr',104);
Query OK, 1 row affected (0.00 sec)

mysql> insert into doctor values(353,'Varun','nephrologist',9563146342,'satara',102);
Query OK, 1 row affected (0.00 sec)

mysql> insert into doctor values(354,'Nidhi','oncologist',9248963542,'blgm',103);
Query OK, 1 row affected (0.00 sec)

mysql> insert into doctor values(355,'Asawir','physician',9456423123,'jmkd',101);
Query OK, 1 row affected (0.00 sec)

mysql> insert into doctor values(356,'Shivani','dermatologist',9453225342,'bjpr',105);
Query OK, 1 row affected (0.00 sec)

mysql> select *from doctor;
+-----+-----+-----+-----+-----+-----+
| doc_id | doc_name | specialization | phno | d_city | dept_id |
+-----+-----+-----+-----+-----+-----+
| 350 | Raghvendra | neurologist | 9876312342 | blgm | 101 |
| 351 | Karthik | gynecologist | 9356654142 | bglkt | 105 |
| 352 | Anirudha | cardiologist | 9773312347 | bjpr | 104 |
| 353 | Varun | nephrologist | 9563146342 | satara | 102 |
| 354 | Nidhi | oncologist | 9248963542 | blgm | 103 |
| 355 | Asawir | physician | 9456423123 | jmkd | 101 |
| 356 | Shivani | dermatologist | 9453225342 | bjpr | 105 |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)

mysql>

```

insert into patient values(201,'Pratiksha','Female','gdg',2020/08/18);

insert into patient values(202,'Sanjana','Female','dandeli',2020/04/12);

insert into patient values(203,'Chetan','Male','bjpr',2020/06/14);

insert into patient values(204,'Chidambar','Male','gdg',2020/07/16);

insert into patient values(205,'Aravind','Male','mdhl',2020/08/03);

insert into patient values(206,'Shweta','Female','blgm',2020/02/23);

insert into patient values(207,'Sayli','Female','blgm',2020/07/26);

insert into patient values(208,'Krutika','Female','hubli',2020/02/20);

```
mysql> insert into patient values(201,'Pratiksha','Female','gdg',2020/08/18);
Query OK, 1 row affected, 1 warning (0.14 sec)

mysql> insert into patient values(202,'Sanjana','Female','dandeli',2020/04/12);
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> insert into patient values(203,'Chetan','Male','bjpr',2020/06/14);
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> insert into patient values(204,'Chidambar','Male','gdg',2020/07/16);
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> insert into patient values(205,'Aravind','Male','mdhl',2020/08/03);
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> insert into patient values(206,'Shweta','Female','blgm',2020/02/23);
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> insert into patient values(207,'Sayli','Female','blgm',2020/07/26);
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> insert into patient values(208,'Krutika','Female','hubli',2020/02/20);
Query OK, 1 row affected, 1 warning (0.00 sec)

mysql> select *from patient;
+-----+-----+-----+-----+-----+
| patient_id | patient_name | gender | patient_city | dateofadmit |
+-----+-----+-----+-----+-----+
| 201 | Pratiksha | Female | gdg | 0000-00-00 |
| 202 | Sanjana | Female | dandeli | 0000-00-00 |
| 203 | Chetan | Male | bjpr | 0000-00-00 |
| 204 | Chidambar | Male | gdg | 0000-00-00 |
| 205 | Aravind | Male | mdhl | 0000-00-00 |
| 206 | Shweta | Female | blgm | 0000-00-00 |
| 207 | Sayli | Female | blgm | 0000-00-00 |
| 208 | Krutika | Female | hubli | 0000-00-00 |
+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)

mysql>
```

insert into staff values(10,'Sona',9876543234,'blgm',101);

insert into staff values(11,'Seenu',9453222734,'hubli',102);

insert into staff values(12,'Naveen',9845858734,'gdg',103);

insert into staff values(13,'Meghana',9854654144,'bjpr',104);

insert into staff values(14,'Manoj',9544632634,'blore',101);

insert into staff values(15,'Rakesh',9321354137,'mysr',103);

```
mysql> insert into staff values(10,'Sona',9876543234,'blgm',101);
Query OK, 1 row affected (0.00 sec)

mysql> insert into staff values(11,'Seenu',9453222734,'hubli',102);
Query OK, 1 row affected (0.00 sec)

mysql> insert into staff values(12,'Naveen',9845858734,'gdg',103);
Query OK, 1 row affected (0.00 sec)

mysql> insert into staff values(13,'Meghana',9854654144,'bjpr',104);
Query OK, 1 row affected (0.00 sec)

mysql> insert into staff values(14,'Manoj',9544632634,'blore',101);
Query OK, 1 row affected (0.00 sec)

mysql> insert into staff values(15,'Rakesh',9321354137,'mysr',103);
Query OK, 1 row affected (0.00 sec)

mysql> select *from staff;
+-----+-----+-----+-----+-----+
| staff_id | staff_name | phone_no | s_city | dept_id |
+-----+-----+-----+-----+-----+
| 10 | Sona | 9876543234 | blgm | 101 |
| 11 | Seenu | 9453222734 | hubli | 102 |
| 12 | Naveen | 9845858734 | gdg | 103 |
| 13 | Meghana | 9854654144 | bjpr | 104 |
| 14 | Manoj | 9544632634 | blore | 101 |
| 15 | Rakesh | 9321354137 | mysr | 103 |
+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql>
```

```

insert into room values('F1','premium_room','First',201);

insert into room values('F2','economy_room','First',204);

insert into room values('F3','general_ward','First',206);

insert into room values('S1','premium_room','Second',202);

insert into room values('S2','economy_room','Second',208);

```

```

mysql> insert into room values('F1','premium_room','First',201);
Query OK, 1 row affected (0.00 sec)

mysql> insert into room values('F2','economy_room','First',204);
Query OK, 1 row affected (0.00 sec)

mysql> insert into room values('F3','general_ward','First',206);
Query OK, 1 row affected (0.00 sec)

mysql> insert into room values('S1','premium_room','Second',202);
Query OK, 1 row affected (0.00 sec)

mysql> insert into room values('S2','economy_room','Second');
ERROR 1136 (21501): Column count doesn't match value count at row 1
mysql> insert into room values('S2','economy_room','Second',208);
Query OK, 1 row affected (0.00 sec)

mysql> select *from room;
+-----+-----+-----+-----+
| room_no | name       | floor | patient_id |
+-----+-----+-----+-----+
| F1      | premium_room | First | 201        |
| F2      | economy_room | First | 204        |
| F3      | general_ward | First | 206        |
| S1      | premium_room | Second | 202       |
| S2      | economy_room | Second | 208       |
+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql>

```

```

insert into tests values(350,205);

insert into tests values(351,201);

insert into tests values(351,203);

insert into tests values(352,204);

insert into tests values(356,208);

```

```

mysql> insert into tests values(350,205);
Query OK, 1 row affected (0.03 sec)

mysql> insert into tests values(351,201);
Query OK, 1 row affected (0.00 sec)

mysql> insert into tests values(351,203);
Query OK, 1 row affected (0.00 sec)

mysql> insert into tests values(352,204);
Query OK, 1 row affected (0.00 sec)

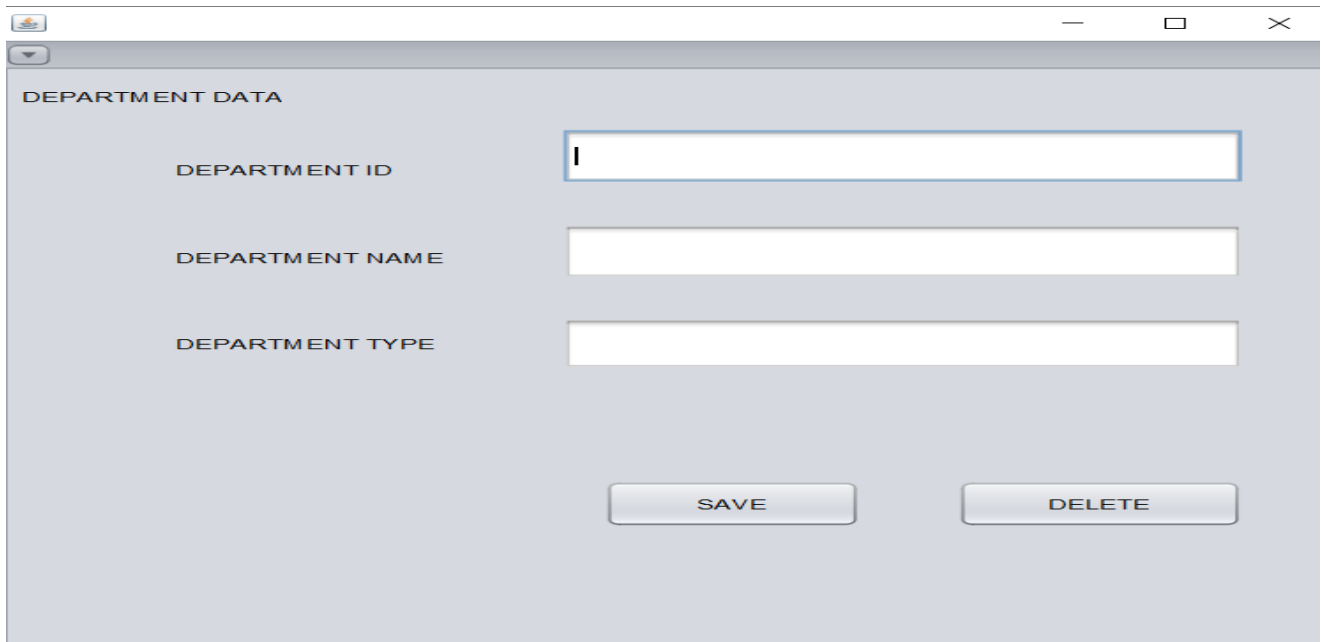
mysql> insert into tests values(356,208);
Query OK, 1 row affected (0.00 sec)

mysql> select *from tests;
+-----+-----+
| doc_id | patient_id |
+-----+-----+
| 350    | 205        |
| 351    | 201        |
| 351    | 203        |
| 352    | 204        |
| 356    | 208        |
+-----+-----+
5 rows in set (0.04 sec)

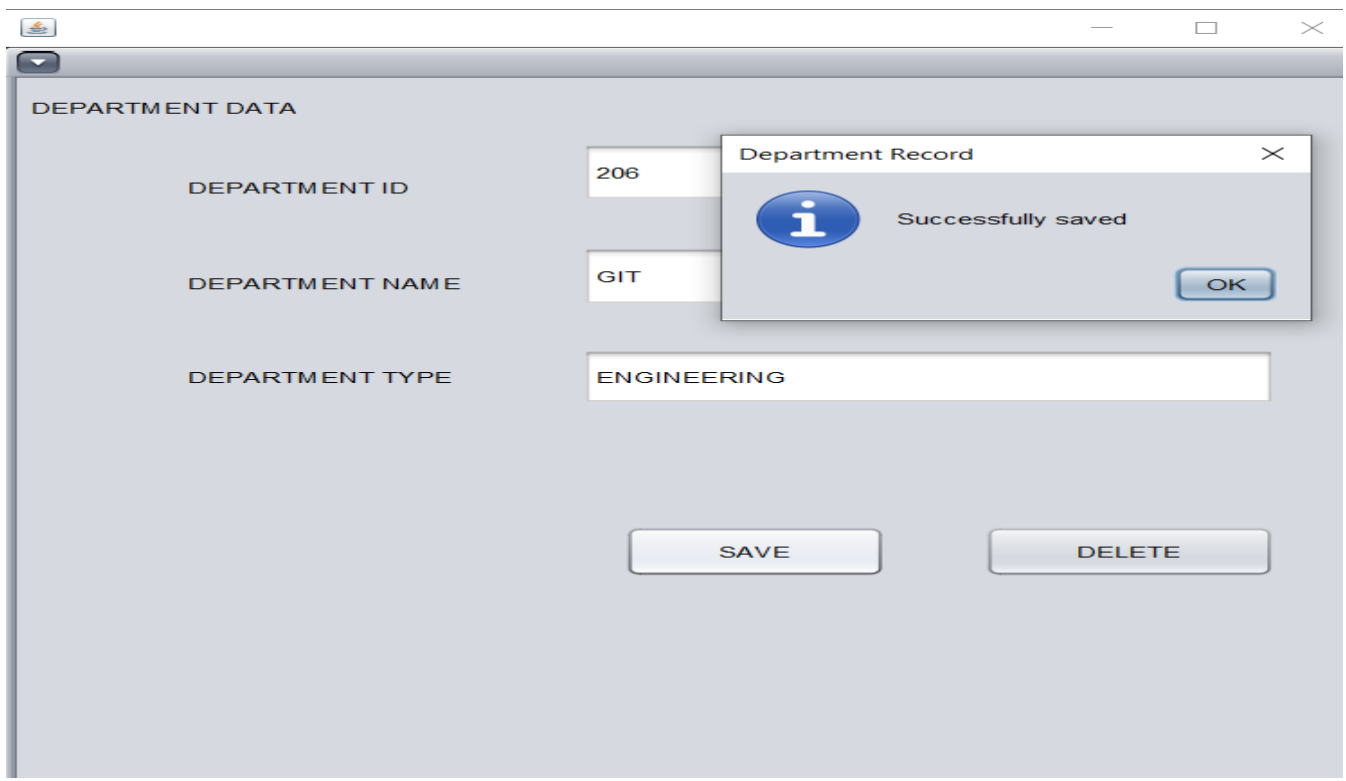
mysql>

```

7. USER INTERFACE DESIGNS:



A screenshot of a software window titled "DEPARTMENT DATA". The window has a standard Windows-style title bar with minimize, maximize, and close buttons. Inside the window, there are three input fields: "DEPARTMENT ID" (containing the letter 'I'), "DEPARTMENT NAME", and "DEPARTMENT TYPE". At the bottom of the window, there are two buttons: "SAVE" and "DELETE".



A screenshot of the same "DEPARTMENT DATA" window, but now with data entered: "DEPARTMENT ID" is "206", "DEPARTMENT NAME" is "GIT", and "DEPARTMENT TYPE" is "ENGINEERING". A modal dialog box titled "Department Record" is overlaid on top of the form. The dialog contains an information icon (a blue circle with a white 'i'), the text "Successfully saved", and an "OK" button. The "SAVE" and "DELETE" buttons are still visible at the bottom of the main window.

DEPARTMENT DATA

DEPARTMENT ID	206
DEPARTMENT NAME	
DEPARTMENT TYPE	

Record

Successfully deleted

OK

SAVE DELETE

DOCTOR DETAILS

DOCTOR ID	
DOCTOR NAME	
SPECIALIZATION	
PHONE NUMBER	
CITY	
DEPARTMENT ID	


SAVE DELETE

DOCTOR DETAILS

DOCTOR ID	480
DOCTOR NAME	SUZY BAE
SPECIALIZATION	RFRR
PHONE NUMBER	7556515
CITY	VFFD
DEPARTMENT ID	101

SAVE DELETE

Doctor Record

 Successfully saved


OK

DOCTOR DETAILS

DOCTOR ID	260
DOCTOR NAME	BAE SUZY
SPECIALIZATION	PEDATRICIAN
PHONE NUMBER	8646552612
CITY	BELAGAVI
DEPARTMENT ID	101

SAVE DELETE

Record

 Successfully deleted

OK

8. SQL QUERIES:

1. What is the name of the doctor who treats the patient with patient_id 207?

```
select D.doc_name from doctor as D,patient as P,tests as T where P.patient_id=207 and
D.doc_id=T.doc_id and P.patient_id=T.patient_id;
```

```
+-----+
| doc_name |
+-----+
| Varun   |
+-----+
```

2. Select name and number of all doctors who had more than one patient.

```
select doc_name,count(doc_id) from doctor as D,patient as P where
P.patient_id=D.doc_id group by doc_name having count(doc_id)>1;
```

Empty set

3. List all patient names, doctor names for whom the doctor id is greater than 353

```
select patient_name,doc_name from doctor D,patient P,tests T where T.doc_id>353 and
D.doc_id=T.doc_id and P.patient_id=T.patient_id;
```

```
+-----+-----+
| patient_name | doc_name |
+-----+-----+
| Krutika     | Shivani  |
| Sanjana     | Asawir   |
| Shweta      | Nidhi    |
+-----+-----+
```

9. CONCLUSION:

A DBMS is systematic operational system which consists of tools making data, data saving and data manipulation and easier task. DBMS is the majorly used through out the world for data handling. Thus it's a good data manager till today. If some one ask you questions how do we protect data from crashes? Why to complicated? The solution is to get a DBMS.

A **data model** not only improves the conceptual quality of an application, it also lets you leverage database features that improve data quality. Developers can weave constraints into the fabric of a model and the resulting database. For example, every table should normally have a primary key.

Normalization is the process of efficiently organizing data in a database. There are two main objectives of the normalization process: eliminate redundant data (storing the same data in more than one table) and ensure data dependencies make sense (only storing related data in a table).

Third Normal Form (3NF) is considered *adequate* for normal relational database design because most of the 3NF tables are free of insertion, update, and deletion anomalies. Moreover, 3NF always ensures functional dependency preserving and lossless

10. REFERENCES:

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