

## Mini Project Report

# HOSPITAL MANAGEMENT SYSTEM

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## Abstract

This project Hospital Management system includes registration of patients, storing their details into the system, and also has computerized billing. The software has the facility to give a unique id for every patient and stores the details of every patient and hospital tests done automatically. It includes a search facility to know the current status of each patient. User can search details of a patient using the id. The Hospital Management System can be entered using a username and password. It is accessible either by an administrator or a doctor. Only they can add data into the database. The data can be retrieved easily. The interface is very user-friendly. The data are well protected for personal use and makes the data processing very fast.

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## **List of Abbreviations**

DBMS - Database management system

JDBC - Java Database Connectivity

ER - Entity Relationship

DDL - Data Definition Language

DML - Data Manipulation Language

DCL - Data Control Language

GUI - Graphical User Interface

IEEE - Institute of Electrical and Electronics Engineers

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## **Introduction ( Motivation and Objectives )**

Database is an organized collection of data. The data is typically organized to model aspects of reality in a way that supports requiring information. A DBMS makes it possible for end users to read, create, update, delete in a database. The DBMS essentially serves as an interface between the end users or application programs, ensuring that data is consistently organized and remains easily accessible. The DBMS manages three things : the data, the database engine to be accessed, locked and modified and the database schema, which defines the database's logical structure. These 3 foundational elements help provide concurrency, security and data integrity. The DBMS can offer both logical and physical independence. That means it can protect users and applications from needing to know where the data is located or having to be concerned about the changes to the physical structure of data.

The main purpose for having a database system for Hospital is to reduce the manual errors involved in various details involved and make it convenient to maintain details about the patients and the doctors. Due to automation, many loopholes that exist in manual maintenance can be removed. The speed of obtaining and processing the details will be fast.

## **Problem Definition**

The project deal with storing of database for a Hospital. It comprises information about the details of the patients, doctors and other relevant information. The hospital management system database project will help to reduce the pen paper work in the hospitals if not completely. There will be many patients admitted in the hospitals. So to keep track about the information like personal details, treatment that is going on etc. There will be doctors who treat these patients. One doctor can treat many patients. So the doctor and the patient are related in the database. This database can also contains the information regarding the doctors, rooms, labs, etc.

The features that can be included in the hospital management system are as follows:

- **Patients database management:** The details related to the patients like name, address, contact number, disease suffered from, treatment given and so on.
- **Staff database management:** The details of the staff like the doctors, rooms, labs and other details can be stored using this application.
- **Information at one stretch:** The information of the staff and the patients can be obtained at just one stretch.

### **Tools and Technologies Used**

- Java NetBean IDE 8.2
- Java JDK 8
- MySQL Workbench 8.0
- JDBC Connectivity
- Ubuntu

## Database Design ( ER Diagram )

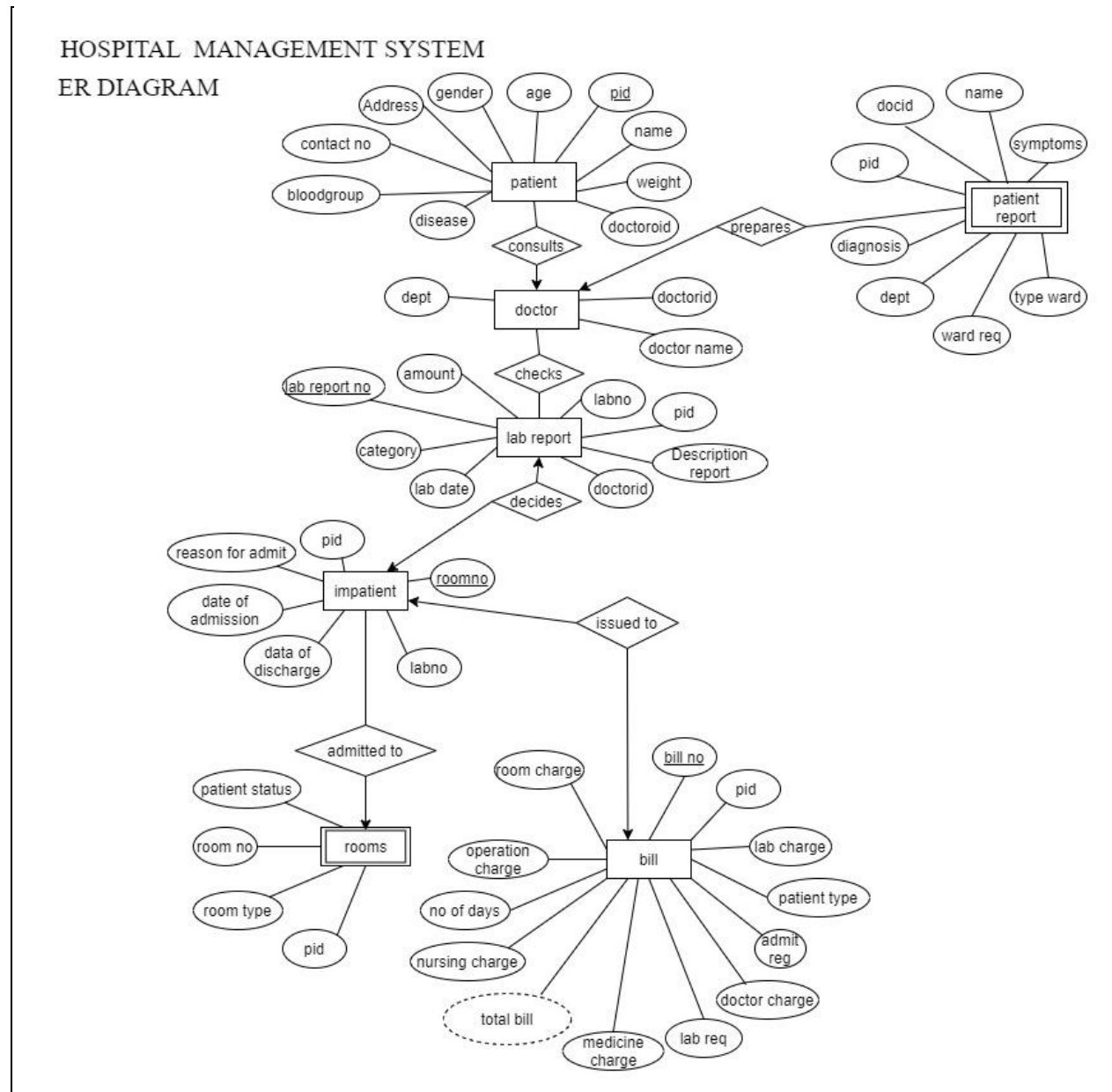


Fig 1 - ER Diagram

## Database Schema

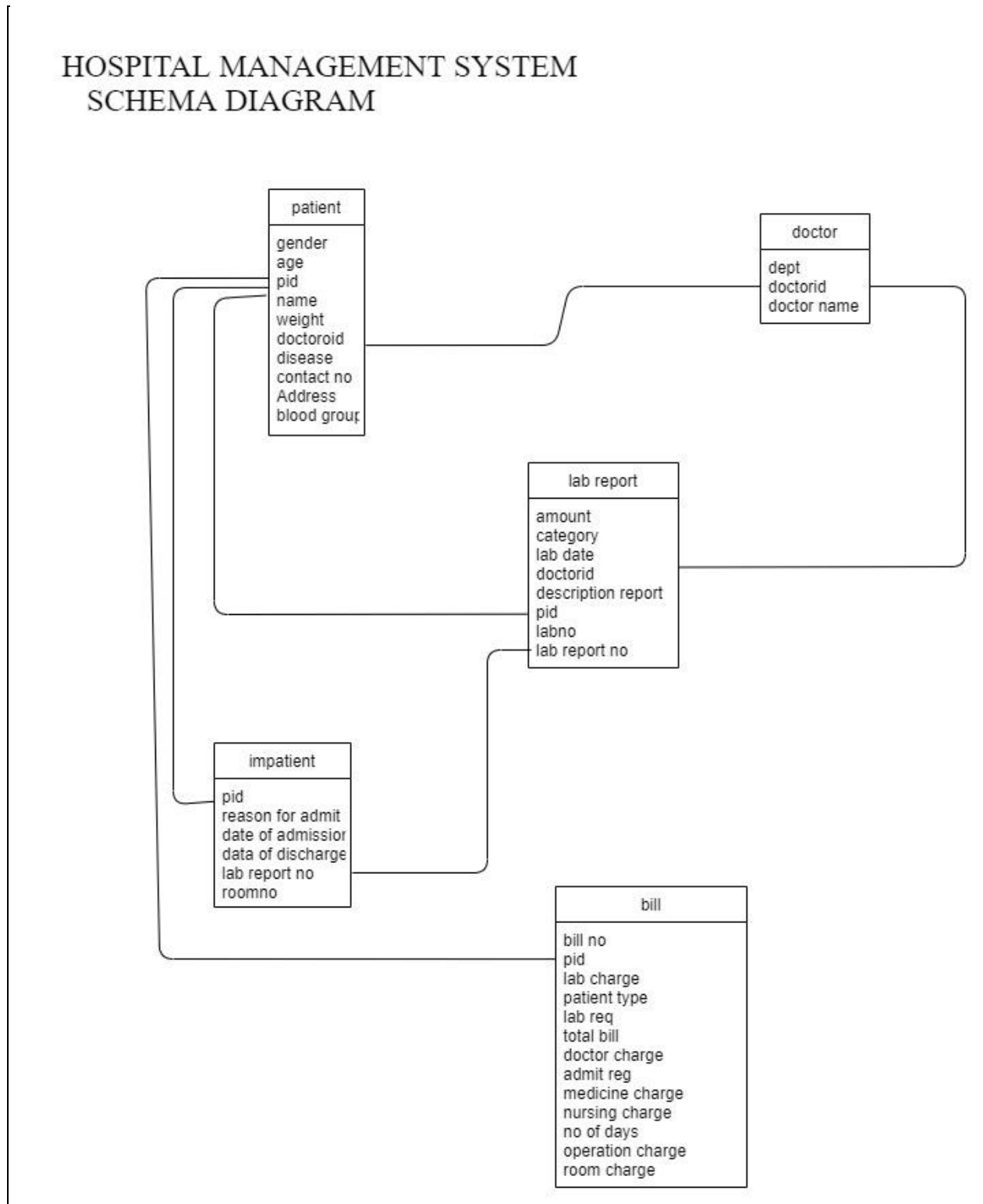


Fig 2 - Database Schema

**DDL**

```
CREATE TABLE doctor(  
doc_id VARCHAR(2) PRIMARY KEY,  
dept VARCHAR(20),  
full_name VARCHAR(20)  
);
```

```
CREATE TABLE patient(  
patient_id VARCHAR(2) PRIMARY KEY,  
full_name VARCHAR(20),  
contact VARCHAR(10),  
age VARCHAR(2),  
gender VARCHAR(10),  
weight VARCHAR(3),  
bloodgrp VARCHAR(10),  
address VARCHAR(300),  
disease VARCHAR(20),  
doc_id VARCHAR(2),  
FOREIGN KEY(doc_id) REFERENCES doctor(doc_id)  
);
```

```
CREATE TABLE patient_report(  
patient_id VARCHAR(2),  
dept VARCHAR(20),  
doc_id VARCHAR(2),  
full_name VARCHAR(20),  
symptoms VARCHAR(30),  
diagnosis VARCHAR(30),
```



```

medicine VARCHAR(30),
wardreq varchar(5),
typeward varchar(20),
FOREIGN KEY(patient_id) REFERENCES patient(patient_id),
FOREIGN KEY(doc_id) REFERENCES doctor(doc_id)
);

```

```

CREATE TABLE labreport(
patient_id VARCHAR(2),
lab_report_no VARCHAR(2) PRIMARY KEY,
lab_id VARCHAR(2),
doc_id VARCHAR(2),
category VARCHAR(20),
amount VARCHAR(10),
descriptionreport VARCHAR(30),
lab_date VARCHAR(10),
FOREIGN KEY(patient_id) REFERENCES patient(patient_id),
FOREIGN KEY(doc_id) REFERENCES doctor(doc_id)
);

```

```

create table room(
patient_id VARCHAR(2),
patient_status VARCHAR(20),
room_no VARCHAR(4) PRIMARY KEY,
room_type VARCHAR(10),
FOREIGN KEY(patient_id) REFERENCES patient(patient_id) );

```

```

create table impatient(

```

```

patient_id VARCHAR(2),
lab_report_no VARCHAR(2),
date_of_admission VARCHAR(10),
date_of_discharge VARCHAR(10),
room_no VARCHAR(4),
reason_for_admit varchar(30),
FOREIGN KEY(room_no) REFERENCES room(room_no),
FOREIGN KEY(patient_id) REFERENCES patient(patient_id),
FOREIGN KEY(lab_report_no) REFERENCES labreport(lab_report_no)
);

```

```

create table bill(
patient_id VARCHAR(2),
bill_no VARCHAR(3) PRIMARY KEY,
patient_type VARCHAR(20),
doctor_charge VARCHAR(10),
medicine_charge VARCHAR(10),
nursing_charge VARCHAR(10),
labreq VARCHAR(5),
lab_charge VARCHAR(10),
admitreq varchar(5),
no_of_days VARCHAR(3),
room_charge VARCHAR(10),
operationcharge VARCHAR(10),
total_bill VARCHAR(10),
FOREIGN KEY(patient_id) REFERENCES patient(patient_id)
);

```

## **DML**

```
UPDATE patient SET weight = 80 WHERE pid = 1;
UPDATE patient SET age = 20 WHERE pid = 1;
UPDATE patient SET Address = "" WHERE pid = 1;
UPDATE patient SET contact_no = 9988665544 WHERE pid = 1;
UPDATE patient SET disease = "" WHERE pid = 1;
UPDATE patient SET doctor_id = 21 WHERE pid = 1;
```

## **DCL**

```
GRANT ALL PRIVILEGES ON hspl_mgmt_sys TO admin;
```

## **PLSQL Procedure/Function**

```
Delimiter //
Create Procedure Sum()
BEGIN
SET total_bill =
nursing_charge+doctor_charge+room_charge+lab_charge+operation_charge+medicine_charge
FROM bill WHERE pid = 1
END //
DELIMITER ;
```

## **Frontend GUI Screenshots**

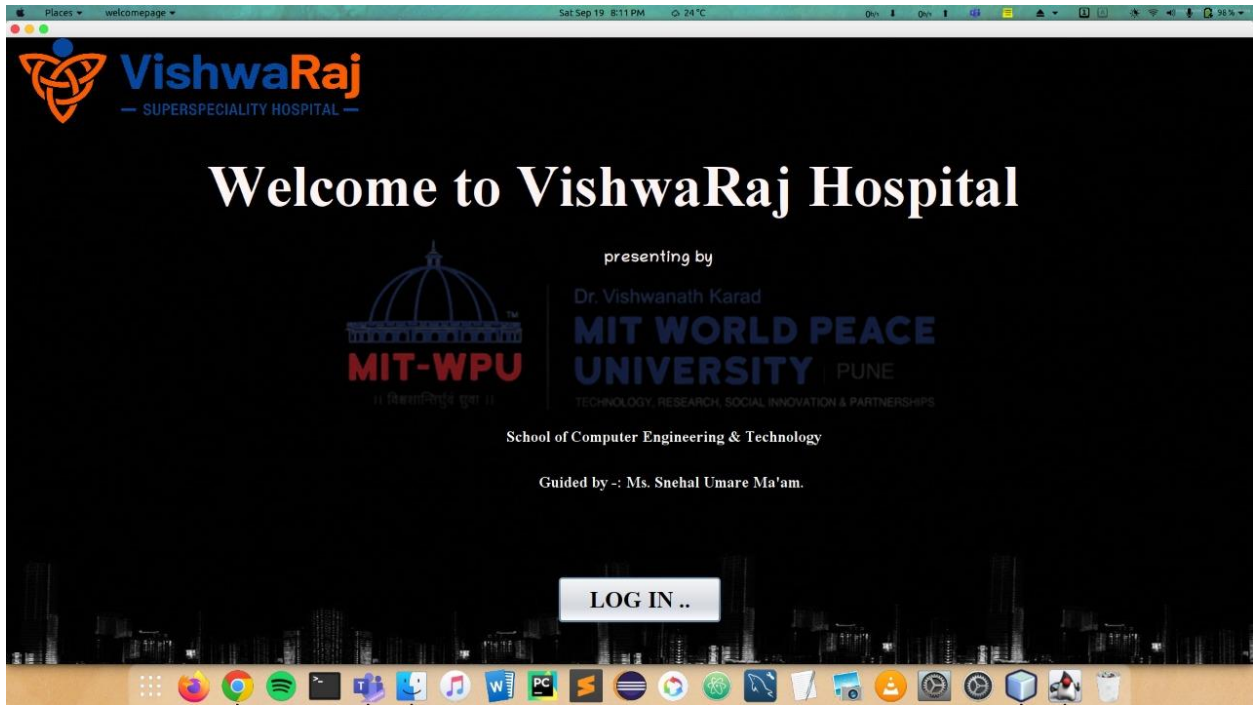


Fig 3 - Home Page

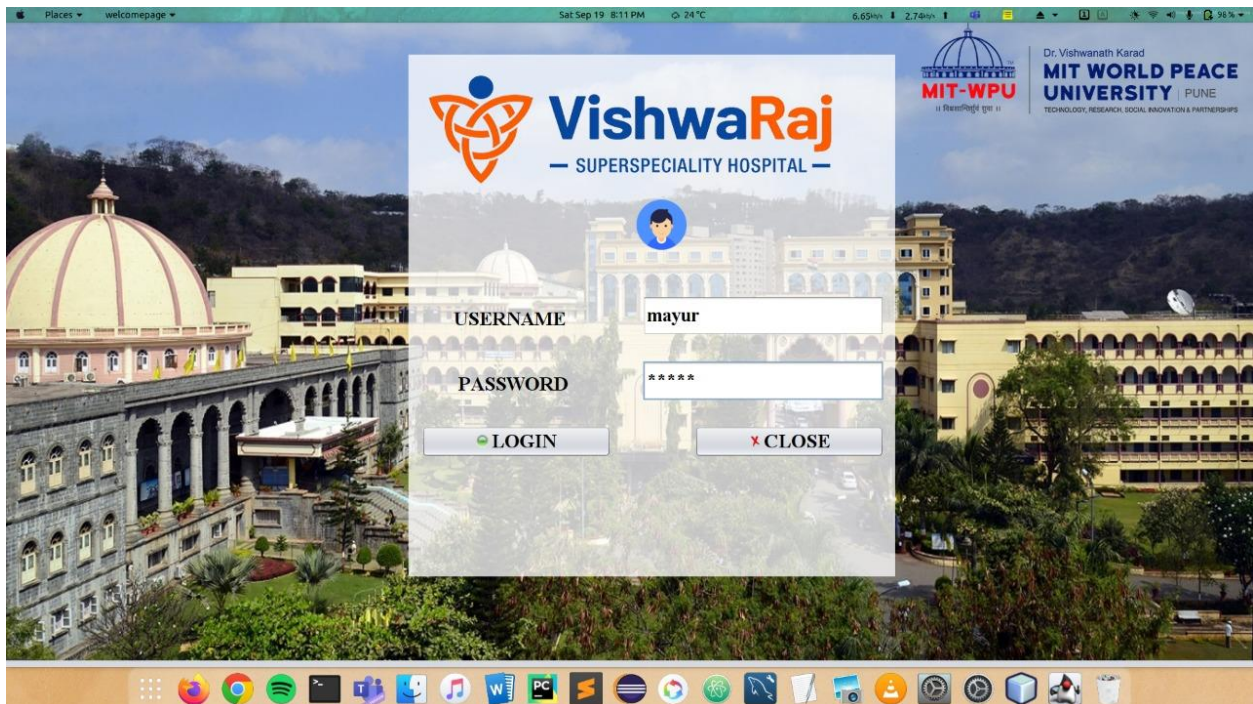


Fig 4 - Admin Login Page

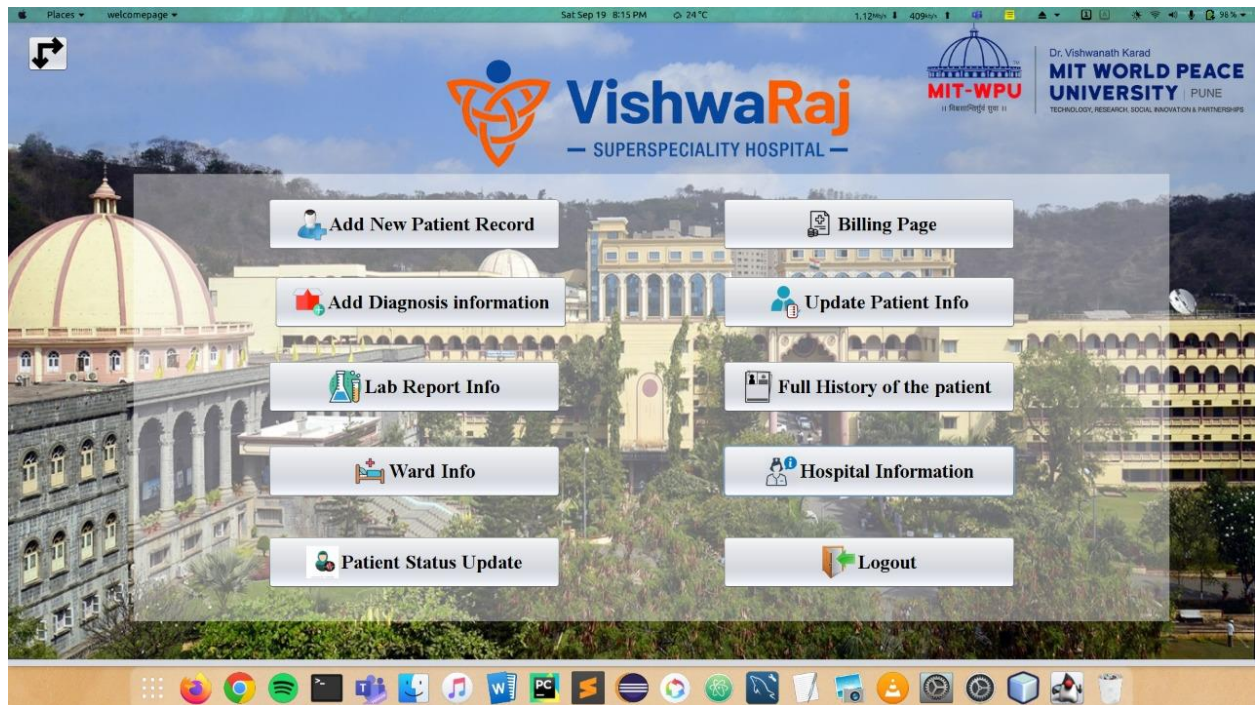


Fig 5 - Admin Home Page

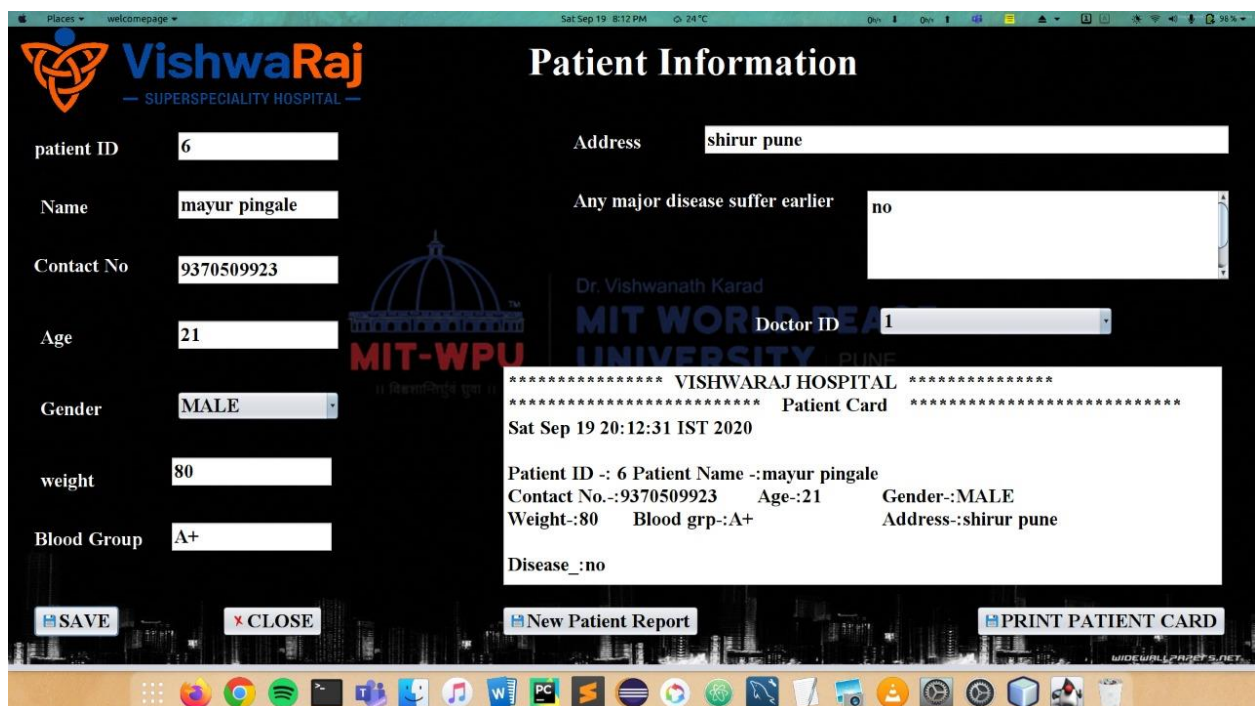


Fig 6 - Patient Information





Fig 7 - Doctor Login Page

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**Patient Report**

Patient ID

patient_id	full_name	contact	age	gender	weight	bloodgrp	address	disease	doc_id
6	mayur pingale	9370509923	21	MALE	80	A+	shirur pune	no	1

Department

Doctor ID

Doctor Name

Symptoms

Diagnosis

Medicine

Ward required ? ☒ yes

Type of Ward

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**Patient Report Card**

Sat Sep 19 20:13:07 IST 2020


Department -: Radiologists      Doctor ID -: 1

Patient ID -: 6      Symptoms -: fever

Diagnosis: viral      Medicines -: dcold

Ward Request: YES      Type of Ward -: ICU

Fig 8 - Patient Report Card


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Patient ID

## LAB REPORT

patient_id	full_name	contact	age	gender	weight	bloodgrp	address	disease	doc_id
6	mayur pingale	9370509923	21	MALE	80	A+	shirur pune	no	1

LAB Report No.   
 Lab No.   
 Doctor ID   
 Category   
 Amount   
 Date

Description Report

no

\*\*\*\*\* VISHWARAJ HOSPITAL \*\*\*\*\*

\*\*\*\*\* Patient LAB Report Card \*\*\*\*\*

\*\*\*\*\*

Current Date:- Sat Sep 19 20:13:22 IST 2020

LAB DATE:- 2020-09-19

Patient ID:- 6      Lab Report No.-: 6


LAB Number -: 1      Doctor ID -: 1

Category: Blood Sample      Amount Of Sample:- 10

Description Report : no

Signature

Fig 9 - Lab Report


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Patient ID

## ADMIT WARD

patient_id	full_name	contact	age	gender	weight	bloodgrp	address	disease	doc_id
6	mayur ping...	9370509923	21	MALE	80	A+	shirur pune	no	1

LAB Report No.   
 Date of Admission   
 Date of Discharge   
 Allocate Room No.   
 Reason For Admit

\*\*\*\*\* VISHWARAJ HOSPITAL \*\*\*\*\*

\*\*\*\*\* Patient ADMIT WARD \*\*\*\*\*

\*\*\*\*\*

Current Date:- Sat Sep 19 20:13:43 IST 2020

Patient ID:- 6      Lab Report No.-: 6

Date Of Admission -: 2020-09-19

Date Of Discharge: 2020-09-26

Patient Room Number : 6

Reason For Admit in Hospital : no

Fig 10 - Admit Ward



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Patient ID

## Room and Status

patient_id	full_name	contact	age	gender	weight	bloodgrp	address	disease	doc_id
6	mayur ping...	9370509923	21	MALE	80	A+	shirur pune	no	1

Status of Patient

Room NO.

Room Type

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\*\*\*\*\* Room And Status \*\*\*\*\*

\*\*\*\*\*

Current Date:- Sat Sep 19 20:14:01 IST 2020

Patient ID:- 6

Status Of Patient :- fine

Patient Room Number : 6

Patient Room Type: ICU

Signature

Fig 11 - Room and Status

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Patient ID

## Billing Counter

patient_id	full_name	contact	age	gender	weight	bloodgrp	address	disease	doc_id
6	mayur ping...	9370509923	21	MALE	80	A+	shirur pune	no	1

Bill No.

Patient Type

Doctor Charge

Medicine Charge

Lab :- ☐ yes

Admit ?? ☐ yes

Total Charge

Lab Charge

No. of days

Room Charge

Nurse Charge

Operation Charge

\*\*\*\*\* VISHWARAJ HOSPITAL \*\*\*\*\*

\*\*\*\*\* Patient Bill Card \*\*\*\*\*

\*\*\*\*\*

Current Date:- Sat Sep 19 20:14:39 IST 2020

Patient ID:-6 Bill Number:-:6

\*\*\*\*\*Patient Type -:Admit patient\*\*\*\*\*

Doctor Charge -: 100 rs /-

Medicine Charge -: 1000 rs /-

LAB Report -: YES

LAB Charge -: 1500 rs /-

Admit ? -: YES

No.of Days in Hospital -: 7

Room Charge -: 3500 rs /-

Nursing Charge -: 1000 rs /-

Operation Charge -: 12000 rs /-

Fig 12 - Billing Counter



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Patient ID

patient_id	full_name	contact	age	gender	weight	bloodgrp	address	disease	doc_id
6	mayur ping...	9370509923	21	MALE	80	A+	shirur pune	no	1

patient_id	dept	doc_id	full_name	symptoms	diagnosis	medicine	wardreq	typeward
6	Radiologists	1	Dr.mayur pin...	fever	viral	dcold	YES	ICU

patient_id	lab_report_no	lab_id	doc_id	category	amount	descriptionreport	lab_date
6	6	1	1	Blood Sample	10	no	2020-09-19

patient_id	lab_report_no	date_of_admission	date_of_discharge	room_no	reason_for_admit
6	6	2020-09-19	2020-09-26	6	no

patient_id	bill_no	patient_type	doctor_charge	medicine_charge	labreq	lab_charge	admitreq	no_of_days	room_charge	nursing_charge	operationcharge	total_bill
6	6	Admit p...	100	1000	YES	1500	YES	7	3500	1000	12000	19100

Fig 13 - Full History of Patient

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## Hospital Information

**VishwaRaj** Hospital prides itself in providing the best services for the most critical departments.

We are equipped with the best state-of-the-art technology, 24\*7 back up of senior consultants and a dedicated allied health professionals team.

Email ID -: vishwarajhospital@mitwpu.ac.im

Contact Number : 9665536539 / 9370509923

Follow us on : Instagram / Facebook / twitter

Fig 14 - Hospital Information

## **Conclusion**

Taking into account all the mentioned details, we can make the conclusion that the hospital management system is the inevitable part of the lifecycle of the modern medical institution. It automates numerous daily operations and enables smooth interactions of the users. Developing the hospital system software was a great opportunity to create the distinct, efficient and fast delivering healthcare model.