HOSPITAL MANAGEMENT SYSTEM

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<u>INTRODUCTION</u>

An organized system is essential for handling hospital records. We introduce an efficient, secure and user friendly application for patients and employees in a hospital. Nowadays security is more important for any type of user record. In general, this project aims to enhance efficiency and at the same time maintain information accurateness. Our work is useful for easy user interface. We are planning to utilize the powerful database management, data retrieval and data manipulation. We will provide more ease for managing the data than manually maintaining the documents. Our work is useful for saving valuable time and reduces the big paperwork.

ABSTRACT

This is a java based project that replicates a hospital management system. In this project the patient can book an appointment with a doctor and can also view their medical record. Doctors can update the medical record of a patient and also they can prescribe and medicines and medical tests required for the patient. This project also handles pharmacy related functions like adding new medicines into the database and checking the availability of a particular medicine. Lab technicians can generate reports for the tests issued by the doctor. The Hospital Management System can be entered using a username and password. It is accessible either by an employee or a patient. Only the administrator can create an account for a new employee. 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.

SYSTEM REQUIREMENTS

Hardware System Configuration:

Requirements	Value
Processor	Core i3
Speed	2 GHz or higher
RAM	256 MB or higher
Hard Disk	20 GB or higher

Software System Configuration:

Requirements	Value
Operating System	Ubuntu 18.04/Windows 7/NT/2000
System Architecture	Intel(x86), AMD64 and Intel EM64T
Developing Tool	JDK 17.0.2
Database	MYSQL 5.7
Front End	JavaFX

DATABASE SCHEMA

PATIENT:

ATTRIBUTES	DATA TYPE	CONSTRAINT
PID	INT	NOT NULL
USERNAME	VARCHAR(20)	-
PASSWORD	VARCHAR(20)	-
NAME	VARCHAR(20)	-
AGE	INT	-
GENDER	VARCHAR(20)	-
HEIGHT	INT	-
WEIGHT	INT	-
HISTORY	VARCHAR(500)	-

DOCTOR:

ATTRIBUTES	DATA TYPE	CONSTRAINT
D_ID	INT	NOT NULL
USERNAME	VARCHAR(20)	-
PASSWORD	VARCHAR(20)	-
NAME	VARCHAR(20)	-
AGE	INT	-
GENDER	VARCHAR(20)	-
DEPARTMENT	VARCHAR(30)	-
CONTACT_NO	VARCHAR(20)	-
QUALIFICATION	VARCHAR(100)	-

ADMIN:

ATTRIBUTES	DATA TYPE	CONSTRAINT
A_ID	INT	NOT NULL
USERNAME	VARCHAR(20)	-
PASSWORD	VARCHAR(20)	-
NAME	VARCHAR(20)	-
AGE	INT	-
GENDER	VARCHAR(20)	-
CONTACT_NO	VARCHAR(20)	-
QUALIFICATION	VARCHAR(100)	-

LABTECH:

ATTRIBUTES	DATA TYPE	CONSTRAINT
LT_ID	INT	NOT NULL
USERNAME	VARCHAR(20)	-
PASSWORD	VARCHAR(20)	-
NAME	VARCHAR(20)	-
AGE	INT	-
GENDER	VARCHAR(20)	-
CONTACT_NO	VARCHAR(20)	-
QUALIFICATION	VARCHAR(100)	-

PHARMACIST:

ATTRIBUTES	DATA TYPE	CONSTRAINT
PH_ID	INT	NOT NULL
USERNAME	VARCHAR(20)	-
PASSWORD	VARCHAR(20)	-
NAME	VARCHAR(20)	-
AGE	INT	-
GENDER	VARCHAR(20)	-
CONTACT_NO	VARCHAR(20)	-
QUALIFICATION	VARCHAR(100)	-

MEDICINE:

ATTRIBUTES	DATA TYPE	CONSTRAINT
M_ID	INT	NOT NULL
NAME	VARCHAR(20)	-
BATCH_NO	VARCHAR(20)	-
PRICE	INT	-
STOCK	INT	-
EXP_DATE	DATE	-

BUYMED:

ATTRIBUTES	DATA TYPE	CONSTRAINT
P_ID	INT	-
M_ID	INT	-

LAB:

ATTRIBUTES	DATA TYPE	CONSTRAINT
TEST_NAME	VARCHAR(20)	-
TEST_REPORT	VARCHAR(100)	-
D_ID	VARCHAR(20)	-
P_ID	INT	-

APPOINTMENT:

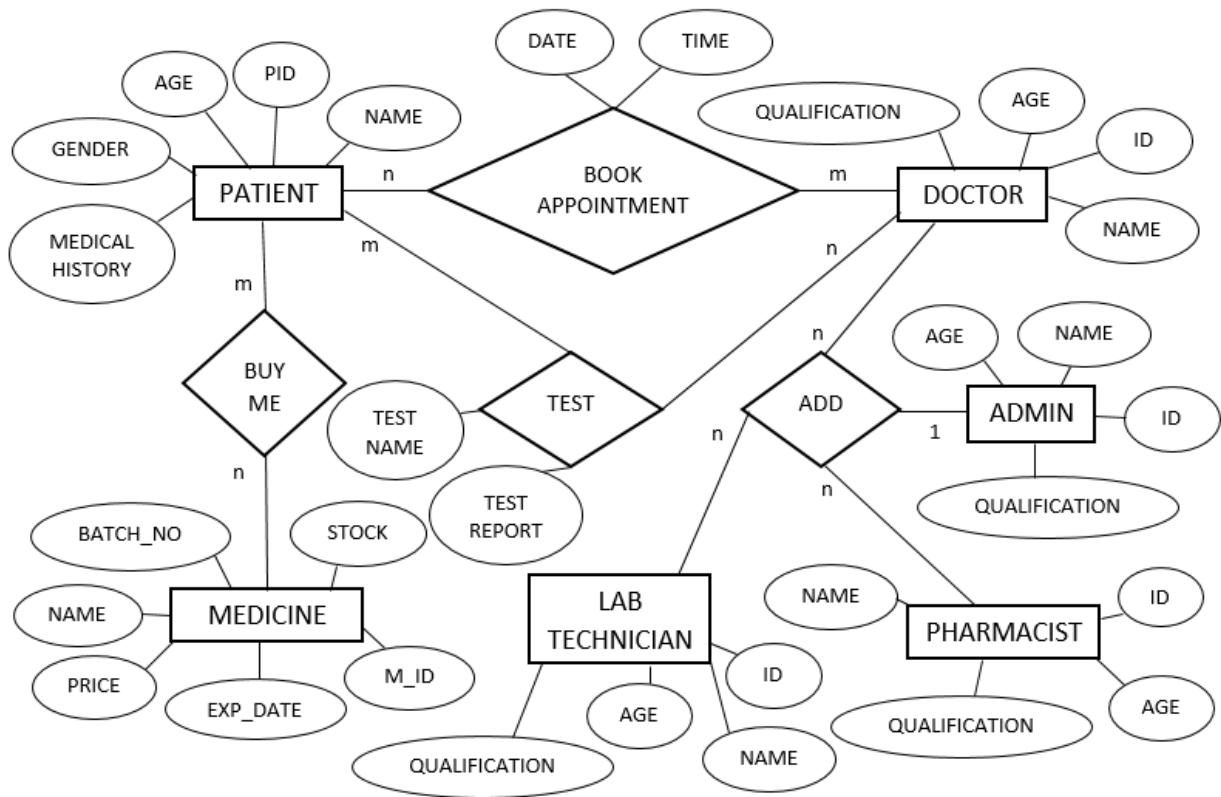| ATTRIBUTES	DATA TYPE	CONSTRAINT
PID	INT	-
D_ID	INT	-
DATE	DATE	-
TIME	INT	-

USE CASE DIAGRAM
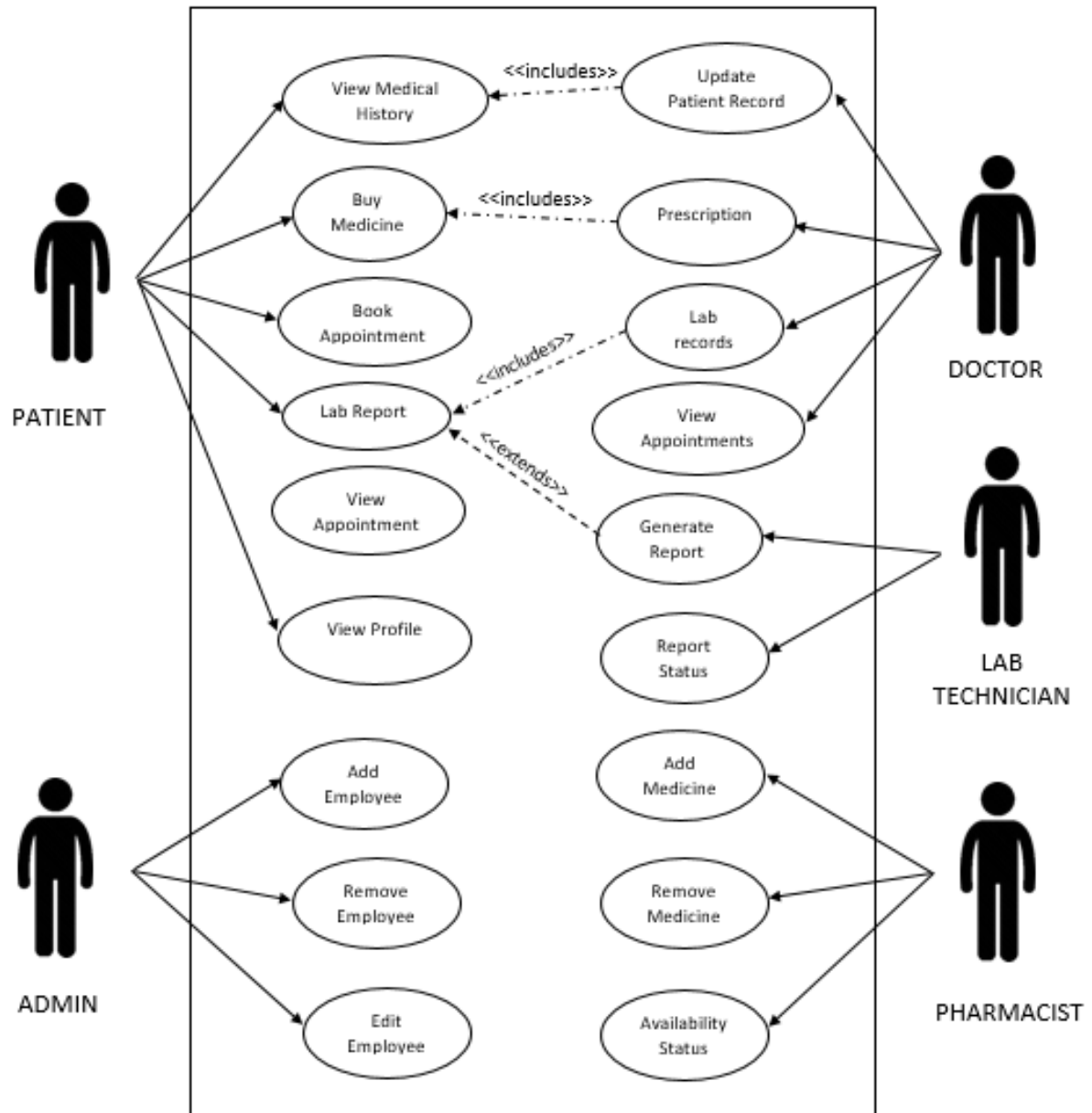
DATAFLOW DIAGRAM
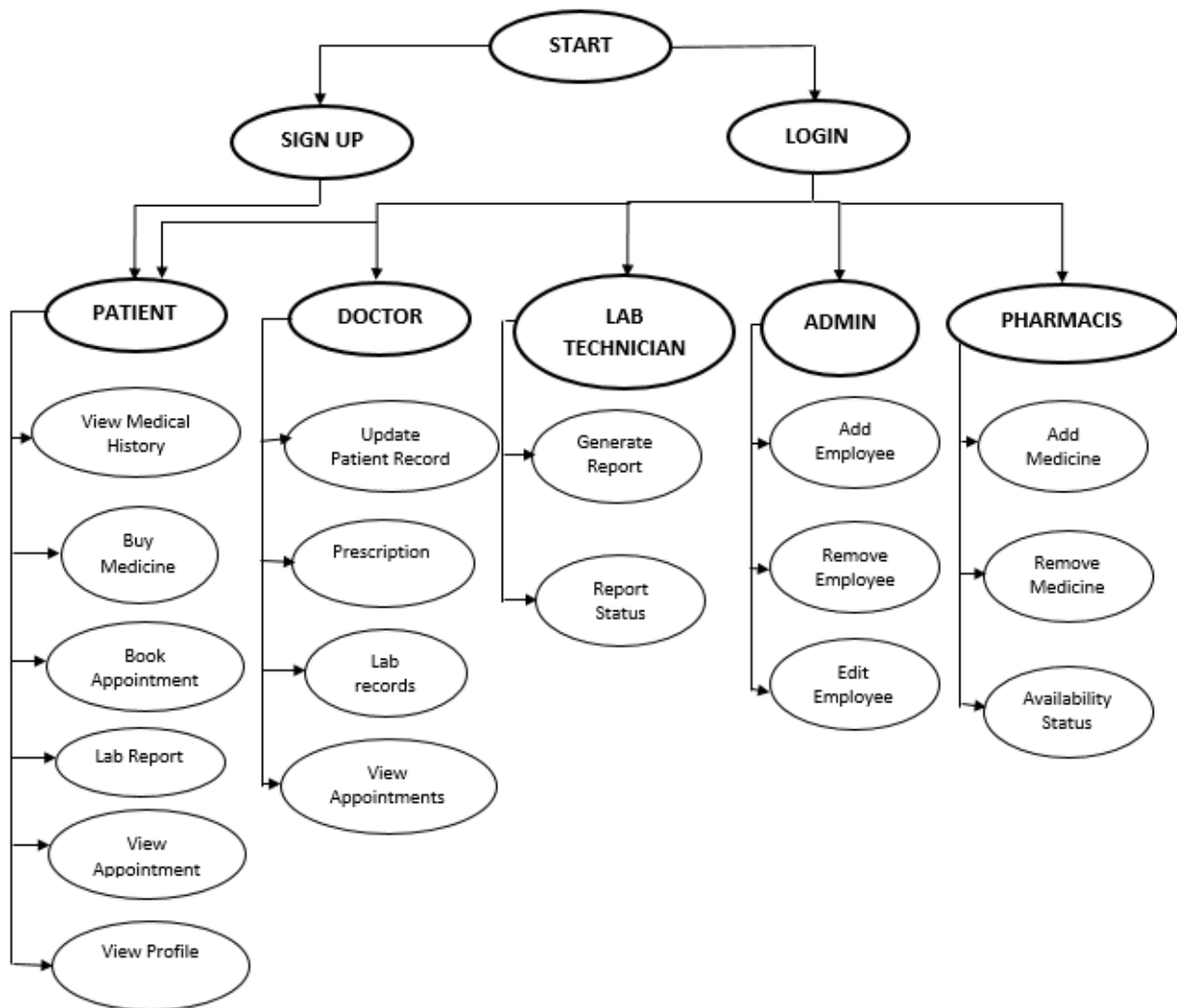
ER DIAGRAM

DESIGN

Patient:

Faith Multispeciality Hospital
We are here to make you healthy.........

= MENU

Book Appointment | Get Lab Report | View Medical History | Buy Medicines | View Appointments | View Your Profile

Book Your Appointment with the Doctor.......

Department : [▼] **Find Doctors**

Doctor : [▼]

Date : [   ] [📅] **Find Available timeslots**

Time : [▼]

+ Book Appointment

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= MENU

Book Appointment | Get Lab Report | View Medical History | Buy Medicines | View Appointments | View Your Profile

Get Your Lab Report ....

Enter You Test ID : [Enter your test ID]

Search

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≡ MENU ▾

Book Appointment | Get Lab Report | View Medical History | Buy Medicines | View Appointments | View Your Profile

View Your Appointments :

Patient ID	Doctor ID	Doctor Name	Department	Date	Time	Status
Label	Label	Label	Label	Label	Label	Label
Label	Label	Label	Label	Label	Label	Label
Label	Label	Label	Label	Label	Label	Label
Label	Label	Label	Label	Label	Label	Label
Label	Label	Label	Label	Label	Label	Label

Faith Multispeciality Hospital
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≡ MENU ▾

Book Appointment | Get Lab Report | View Medical History | Buy Medicines | View Appointments | View Your Profile

Buy Medicine :

Enter the prescription No. :   enter the prescription No. :   **Search**

Grand Total : Sum

Book the Medicine...

Your Medical History........

Lorem ipsum dolor sit amet, consectetur adipisci elit, sed eiusmod tempor incidunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrum exercitation...

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We are here to make you healthy.........

= MENU

Book Appointment | Get Lab Report | View Medical History | Buy Medicines | View Appointments | View Your Profile

Your Profile :

Username :   Label

Name   :   Label

Patient ID :   Label

Age   :   Label

Gender :   Label

Height :   Label

Weight :   Label

Doctor

Screen 1

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DOCTOR NAME

- UPDATE PATIENT RECORD
- LAB RECORDS
- PRESCRIPTION
- VIEW APPOINTMENTS
- VIEW PROFILE

LOGOUT

Patient Record No: [   ]   ENTER

Screen 2

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DOCTOR NAME

- UPDATE PATIENT RECORD
- LAB RECORDS
- PRESCRIPTION
- VIEW APPOINTMENTS
- VIEW PROFILE

LOGOUT

Patient Record No: ABCD
Name: ABCD
Age: ABCD

Previous Medical History
Label

Add to Medical History
[   ]

SUBMIT

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DOCTOR NAME

UPDATE PATIENT RECORD

LAB RECORDS

PRESCRIPTION

VIEW APPOINTMENTS

VIEW PROFILE

LOGOUT

Patient Record No: [_____]

Check Test Reports   Add Tests

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DOCTOR NAME

UPDATE PATIENT RECORD

LAB RECORDS

PRESCRIPTION

VIEW APPOINTMENTS

VIEW PROFILE

LOGOUT

Tests: [_____▼]   ADD

Label

SUBMIT

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DOCTOR NAME

UPDATE PATIENT RECORD

LAB RECORDS

PRESCRIPTION

VIEW APPOINTMENTS

VIEW PROFILE

LOGOUT

Medicine

[▼] [▼] [▼] **ADD**

Prescription

SUBMIT

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DOCTOR NAME

UPDATE PATIENT RECORD

LAB RECORDS

PRESCRIPTION

VIEW APPOINTMENTS

VIEW PROFILE

LOGOUT

Appointments:

Date	Time	Name of the Patient	Patient Record No
		No content in table	

Admin

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ADMIN NAME

ADD EMPLOYEE

REMOVE EMPLOYEE

EDIT EMPLOYEE

LOGOUT

Username

Password

ID

Name

Gender

Age

Type of Employee

Department

Contact No

Qualification

ADD EMPLOYEE

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ADMIN NAME

ADD EMPLOYEE

REMOVE EMPLOYEE

EDIT EMPLOYEE

LOGOUT

Type of Employee

Employee ID

REMOVE EMPLOYEE

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ADMIN NAME

ADD EMPLOYEE

REMOVE EMPLOYEE

EDIT EMPLOYEE

LOGOUT

Type of Employee

Employee ID

SEARCH EMPLOYEE

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ADMIN NAME

ADD EMPLOYEE

REMOVE EMPLOYEE

EDIT EMPLOYEE

LOGOUT

Username	abc
Password	abc
Name	abc
Gender	abc
Age	abc
Contact No	abc
Qualification	abc

EDIT EMPLOYEE

Lab

Report Status Screen

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LAB TECHNICIAN NAME

GENERATE REPORT

REPORT STATUS

LOGOUT

Report Status

Patient ID

Status   Label

CHECK STATUS

Faith Multispeciality Hospital
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LAB TECHNICIAN NAME

GENERATE REPORT

REPORT STATUS

LOGOUT

Generate Report

Patient ID   ENTER

Pharmacy

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PHARMACIST NAME

ADD MEDICINE

REMOVE MEDICINE

AVAILABILITY STATUS

LOGOUT

Name of the Medicine

Medicine ID

Price

Stock

Type of Medicine

ADD MEDICINE

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PHARMACIST NAME

ADD MEDICINE

REMOVE MEDICINE

AVAILABILITY STATUS

LOGOUT

Medicine Availability

Medicine Name

Stock Remaining   Stock Remaining

CHECK STOCK

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PHARMACIST NAME

ADD MEDICINE

REMOVE MEDICINE

AVAILABILITY STATUS

Medicine ID

Medicine Name

REMOVE MEDICINE

LOGOUT

Sign Up

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Sign In

Username

Password

Name

Age

Gender

History

Height

Weight

Home   SIGN IN

Login

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Patient Login   Employee Login

Login

Username
Password

LOGIN

Do not have an account?   SIGN IN

Faith Multispeciality Hospital
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Patient Login   Employee Login

Login

Type of Employee
Username
Password

LOGIN

MODULE DESCRIPTION

This project requires nine tables. They are Patient, Doctor, Admin, LabTech, Pharmacist, Medicine, BuyMed, Appointment and Lab.

The Patient stores all the patient information that a doctor needs.

The Doctor, Admin, LabTech, Pharmacist tables stores the details of employee.

The Medicine table store the information of medicines available and have fields like expiry date and stock remaining.

The BuyMed table is to store the medicines prescribed by the doctor to the patient. Here the patient ID and the medicine ID act as the foreign key.

The Appointment table is used to store the information of the appointment booked by a patient for a particular doctor.

Lab table handles all the tests initiated for a patient by the Doctor. The Lab Technician can access this table to update the test report.

JDBC CONNECTIVITY

This is a sample connectivity code we have used in our project. This connection is for the login page. An existing patient can login to their portal using their username and password. This is then checked with the Patient table to see if such a record exist. If it does it shifts the control to patient portal. Else it display and error message.

```
try
        {
                Class.forName("com.mysql.jdbc.Driver");
                Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:3306/hospital","root","
password");
                Statement stmt=con.createStatement();
                query="Select username,password from patient where
username='"+username+"' and password='"+password+"'";
                ResultSet rs=stmt.executeQuery(query);

                if(rs.next())
                {

                        //Go to patient page

                }

                else
                {
                        a.setContentText("Username or Password Do Not
Match");

                        a.show();
                }

                con.close();

```

Similar connection code is used to connect all the UI pages with the Modules in the database.

CONCLUSION

Hospital management system is a powerful database and JavaFX based application software capable of storing data and managing order. It has various features for each employee as well as for the patient. Query is run in the backend to display the necessary records and if some illegal function is executed an alert message is given to the user.

<u>REFERENCES</u>

https://www.geeksforgeeks.org/

https://www.tutorialspoint.com/index.htm

https://www.youtube.com