

# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELGAUM-590014



A Mini Project Report On

**“HOSPITAL MANAGEMENT SYSTEM”**

*Submitted in the partial fulfillment of the requirements for the award of the Degree of  
Bachelor of Engineering in Computer Science and Engineering*

Submitted by

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Project Guide



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# THE OXFORD COLLEGE OF ENGINEERING

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### CERTIFICATE

Certified that the mini project work entitled “**HOSPITAL MANAGEMENT SYSTEM**” carried out by **Sahana Shreedhar Kulkarni(10X15CS093)**, **Saptami Shirsat (10X15CS095)**, **Talari Surya Teja(10X15CS114)** bonafide students of The Oxford College of Engineering, Bangalore in partial fulfillment for the award of the Degree of **Bachelor of Engineering in Computer Science and Engineering** of **Visvesvaraya Technological University, Belgaum** during the year 2016-2017. The Mini project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the said degree.

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## **ABSTRACT**

This project consists of three main tabs that is the Home Page which displays the information of the particular hospital, Login Page which allows the admin to access critical information like doctors, nurses, patient information and Contact us Page gives us more details about respective departments. Hospitals currently use a manual system for the management and maintenance of critical information. The current system requires numerous paper forms, with data stores spread throughout the hospital management infrastructure. Often information is incomplete, or does not follow management standards. Forms are often lost in transit between departments requiring a comprehensive auditing process to ensure that no vital information is lost. Multiple copies of the same information exist in the hospital and may lead to inconsistency in data in various data stores. So here at Kingston Hospital the project provides information on a digital platform stored in the form of databases to extract the right information of the patients and the admin as well as the infrastructure. The Website consists of a list of doctors that are currently working, list of the patients who are admitted, list of nurses who are working and a search button is placed in order to search a specific patient in the database. In addition, there is remarks page for the doctor to give some details about the disease faced by each patient. There is also a feature on the website that helps the admin to enter complete details of a new patient with respect to the concerned doctor. This System is designed for the Hospital to replace their existing manual, paper-based system. The new system is to control the following information-patient information. These services are to be provided in an efficient, cost effective manner, with the goal of reducing the time and resources currently required for such tasks. It aims at standardizing data, consolidating data, ensuring data integrity and reducing inconsistencies.

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**SAHANA SHREEDHAR KULKARNI**  
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## CHAPTER 1

### INTRODUCTION

#### 1.1 Preamble

A hospital or healthcare center is a full time activity zone. Hundreds of patients get treated for a variety of problems. Other than trained medical and paramedical professionals who take care of treatment and patient care, there is a fleet of non-medical professionals who take care of administration, billing, finance and HR .Now a days, IT-based Hospital Management System(HMS as they are referred to) make the life easy. These smart and efficient systems take care of operational aspects so that the healthcare center can concentrate on enhanced patient care.

#### 1.2 Problem statement

The previous hospital system which was non-computerized is done manually, by writing the patient details, doctor details and patient details in a book. This process takes long time for any hospital .This method of non-computerized hospital management system is less productive. Sometime the work might remain incomplete. If the paper work goes missing then it creates a lot of confusion.

#### 1.3Proposed solution

All hospital related activities are done using computer system. The hospital management system will create a systematic order for data present in the hospital like list of doctors, nurses and patients. Thus, the above operations are more productive than the previous method of hospital management system. Paperless and data integrity is provided by using the proposed system. Bulk data can be stored easily by the use of database systems. Software can be easily understood by the user with the help of GUI, necessary warnings and guild lines. The proposed system helps in adding new patient details and also delete any patient details if discharged.

## CHAPTER 2

### REQUIREMENT ANALYSIS

#### 2.1 Literature Survey

Our project is based on an online Hospital Management System. We have taken up the website from an online portal 'Kingston Hospital Management'. This website allows the patients to register at the hospital and view the treatments and medicines available at our Hospital. The Management is designed to transform the manual way of searching, sorting, keeping and accessing hospital information into design of record with a solution to the problem being experienced by the current manual method of keeping. Some of the previous methods are now being implemented at our Hospital as well with large hospitals like Biocon and Prejudice, having automated their existing system. A resource and patient based on real-time data capture and intelligent. The purpose of writing this was to find out how various hospitals work and compare it to our current Hospital. Some of the previous work proposed says that health care has been an issue of growing importance for national government. Many national and regional health care plans have been developed in the past decades, in order to control the cost, quality and the availability of health care for all citizens. The application of electronic clinical information system has generated useful insight into the quality of data accuracy and health care provision in primary care settings. This is partly one of the adapted style and approach to data entry influenced by the design presented by the recent structure. They further emphasize, that there is a great need for improved education and protocols for consisting data entry and also subsequent follow up of patient clarification on the policy for duration and frequency treatment. Define medical, health record, or medical documentation of a patient's medical history and care as "medical record" used both as the physical folder of patients and for the body of information which comprises the total of each patient's health history. Medical records are intensely personal document and there are many ethical and legal issues surrounding them such as the degree of third-party access and appropriate storage and disposal. The key advantage of shifting to computer-based patient record is the opportunity to strengthen the link between the hospital records and management information system so that resources uses and quality of care can be analyzed using Hospital database which increases physician efficiency and reduce costs, as well as promote standardization of care.



## CHAPTER 3

### SOFTWARE REQUIREMENT SPECIFICATION

#### **Hardware requirements:**

The hardware requirements are very minimal and the program can be run on most of the machines.

Processor: intel core i3

Processor speed: 2.0 Ghz

RAM:4 GB

Storage space: 1 GB

Resolution: 1204\*768

#### **Software requirements:**

Operating System: Ubuntu

DE: NetBeans 7.3.1

Database: MySQL

## CHAPTER 4

### ANALYSIS AND DESIGN

#### 4.1 Preliminary Design:

A logical data model should be used as the blueprint for designing and creating a physical database. But the physical database cannot be created properly with a simple logical to physical mapping. Many physical design decisions need to be made by the DBA before implementing physical database structures. This may cause deviation of logical data model. But such deviation should occur only based on deep knowledge of the DBMS and the physical environment in which the database will exist.

The front end of this project is java (Net Beans). The GUI consists of tabbed panes like adding patients, list of doctors and nurses. The available doctors are categorized based on their skills. The administrator can add the patient details and mention about the doctor in charge but the patient has to leave when the treatment is over. The front end and the back end is connected using the JDBC (Java Database Connectivity). The frontend is done with the help JavaScript. The Backend is done with the help of MySQL.

JavaScript often abbreviated as JS, is a high-level, interpreted programming language. It is a language which is also characterized as dynamic, weakly typed, prototype-based and multi-paradigm.

MySQL is an open-source relational database management system. The MySQL development project has made its source code available under the terms of the General Public License, as well as under a variety of proprietary agreements.

## CHAPTER 5

## IMPLEMENTATION

### 5.1 Implementation

- 1. Adding a Patient:** This operation would add details related to the patients like name, address, phone number etc.
- 2. Deleting a Patient:** When the treatment is over the administrator makes sure that the patient details are deleted and also maintains data secrecy.
- 3. View Patients:** This operation displays the list of available patients and their details. It also tells us which doctor is responsible for their treatment.
- 4. View Doctors:** This operation displays the list of Doctors present at the infrastructure based on their category.
- 5. View Nurses:** This operation displays the list of nurses working or available at the hospital.

#### SQL statements:

**1. Insert statement:** The INSERT INTO statement is used to insert new records in a table. The INSERT INTO syntax would be as follows:

```
INSERT INTO tablename VALUES (value1, value2, value3, ...);
```

**2. Update statement:** An SQL UPDATE statement changes the data of one or more records in a table. Either all the rows can be updated, or a subset may be chosen using a condition.

The UPDATE syntax would be as follows:

```
UPDATE table_name SET column_name = value [, column_name = value ...]
```

**3. Delete statement:** The DELETE statement is used to delete existing records in a table. The DELETE syntax would be as follows:

```
DELETE FROM table_name WHERE condition;
```

**4. Create statement:** The CREATE TABLE Statement is used to create tables to store data. Integrity Constraints like primary key, unique key, and foreign key can be defined for the columns while creating the table. The CREATE syntax would be as follows:

```
CREATETABLE table name (column1datatype, column2 datatype, column3 datatype,.. column datatype, PRIMARY KEY ( one or more columns ));
```

## **JavaScript and CSS tags:**

1. **<html>:** HTML tags are the hidden keywords within a web page that define how your web browser must format and display the content.
2. **<script>:** It is used to define a client-side script (JavaScript). The <script> element either contains scripting statements, or it points to an external script file through the src attribute.
3. **<head>:** It is a container for metadata and is placed between the html tag and the body tag
4. **<body>:** It defines the document's body. The <body> element contains all the contents of an HTML document, such as text, hyperlinks, images, tables, lists, etc.
5. **<link>:** This tag defines a hyperlink, which is used to link from one page to another.
6. **<a>:** The <a> tag defines a hyperlink, which is used to link from one page to another. The most important attribute of the <a> element is the href attribute, which indicates the link's destination. By default, links will appear as follows in all browsers: An unvisited link is underlined and blue.
7. **<style>:** This tag is used to define style information for an HTML document. Inside the <style> element you specify how HTML elements.
8. **<button>:** This tag defines a clickable button. Inside a <button> element you can put content, like text or images.
9. **<div>:** This tag defines a division or a section in an HTML document. The <div> element is often used as a container for other HTML elements to style them with CSS or to perform certain tasks with JavaScript.
10. **<form>:** The <form> tag is used to create an HTML form for user input. The <form> element can contain one or more of the following form elements.
11. **<input>:** The <input> tag specifies an input field where the user can enter data. <input> elements are used within a <form> element to declare input controls that allow users to input data. An input field can vary in many ways, depending on the type attribute.

## CHAPTER 6

### TESTING

This chapter gives the outline of all the testing methods that are carried out to get a bug free application. Quality can be achieved by testing the product using different techniques at different phases of the project development.

#### 6.1 Testing process

Testing is an integral part of software development. Testing process, in a way certifies, whether the product, that is developed, compiles with the standards, that it was designed to. Testing process involves building of test cases, against which, the product has to be tested. In some cases, test cases are done based on the system requirements specified for the product/software, which is to be developed.

#### 6.2 Testing objectives

The main objectives of testing process are as follows:

- Testing is a process of executing a program with the intent of finding an error.
- A good test case is one that has high probability of finding an as yet undiscovered error.
- A successful test is one that uncovers an as yet undiscovered error.

#### 6.3 Levels of Testing

Different levels of testing are used in the testing process; each level of testing aims to test different aspects of the system. The basic levels are unit testing, integration testing, system testing and acceptance testing.

## 6.3.1 Unit Testing

Unit testing focuses verification effort on the smallest unit of software design the module. The software built, is a collection of individual modules. In this kind of testing exact flow of control for each module was verified. With detailed design consideration used as a guide, important control paths are tested to uncover errors within the boundary of the module.

**Table 6.1: Negative test case for patient name.**

Function Name	Input	Expected Output	Error	Resolved
Adding patient details.	Surya123 as patient name.	Must take only Surya.	Numbers are being taken as input for name.	pattern="[A-Za-z]{1,29}" in <input> tag.

**Table 6.2: Positive test case for patient name.**

Function Name	Input	Expected Output	Error	Resolved
Adding patient details.	Surya123 as patient name.	Expected output is seen.	-	-

**Table 6.3: Negative test case for phone number.**

Function Name	Input	Expected Output	Error	Resolved
Input patient phone number.	8867516698abc	Must take only 8867516698 as input.	Alphabets are being taken as input for phone number.	pattern="[0789][0-9]{9}" in <input> tag.

**Table 6.4: Positive test case for phone number.**

Function Name	Input	Expected Output	Error	Resolved
Input patient phone number.	8867516698abc	Expected output is seen.	-	-

**Table 6.5: Negative test case for age.**

Function Name	Input	Expected Output	Error	Resolved
Input patient age.	20abc and 12345	Must take only 20 and it cannot exceed 999.	Alphabets are being taken as input for age and age is too big.	pattern="[0-9]{1,3}" in <input> tag.

**Table 6.6: Positive test case for age.**

Function Name	Input	Expected Output	Error	Resolved
Input patient age.	20abc and 12345	Expected output is seen.	-	-

## 6.3.2 Integration testing

The second level of testing is called integration testing. In this, many class-tested modules are combined into subsystems, which are then tested. The goal here is to see if all the modules can be integrated properly. We have identified and debugged.

# HOSPITAL MANAGEMENT SYSTEM

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**Table 6.7: Negative test case for Login.**

Function Name	Input	Expected Output	Error	Resolved
Input username and password.	username=admin password=123.	Must take username=admin 123 and password=12345.	Taking any username and password as valid authentication.	if(uname.equals("admin123")&&pass.equals("12345")) is true then the user is authorised.

**Table 6.8: Positive test case for Login.**

Function Name	Input	Expected Output	Error	Resolved
Input username and password.	username=admin password=123.	Incorrect username or password	-	-



## CONCLUSION

This study embarked on the hospital management system which substitutes the current method of sorting, handling, searching, and keeping of hospital records. This concludes the importance and indispensable nature of the computer and its application in the hospital. The database aimed at reducing paper work in the reception area to reduce the time wasted by patients in the course of waiting for their files to be retrieved. This also reduced the space occupied by the files and provide adequate security for patient's medical record. Based on the finding of this study, the design of hospital patient database record will be a solution to the problem being experienced by the current manual method of keeping patient medical records. The study has critically identified the importance associated with using electronic in keeping hospital record to eliminate missing files and enhance retrieval of patient's record. The management of General Hospital North Bank has agreed that the manual method of keeping patient records should be changed to computerized hospital records which will help them to eliminate inefficiency associated with the manual method. Through the exhaustive study and analysis made in this research, it was recommended that General hospital and other medical center that had been providing health care service should have an automated system for effective operations.

## Appendix A: Snapshots

Figure A.1: Home page.

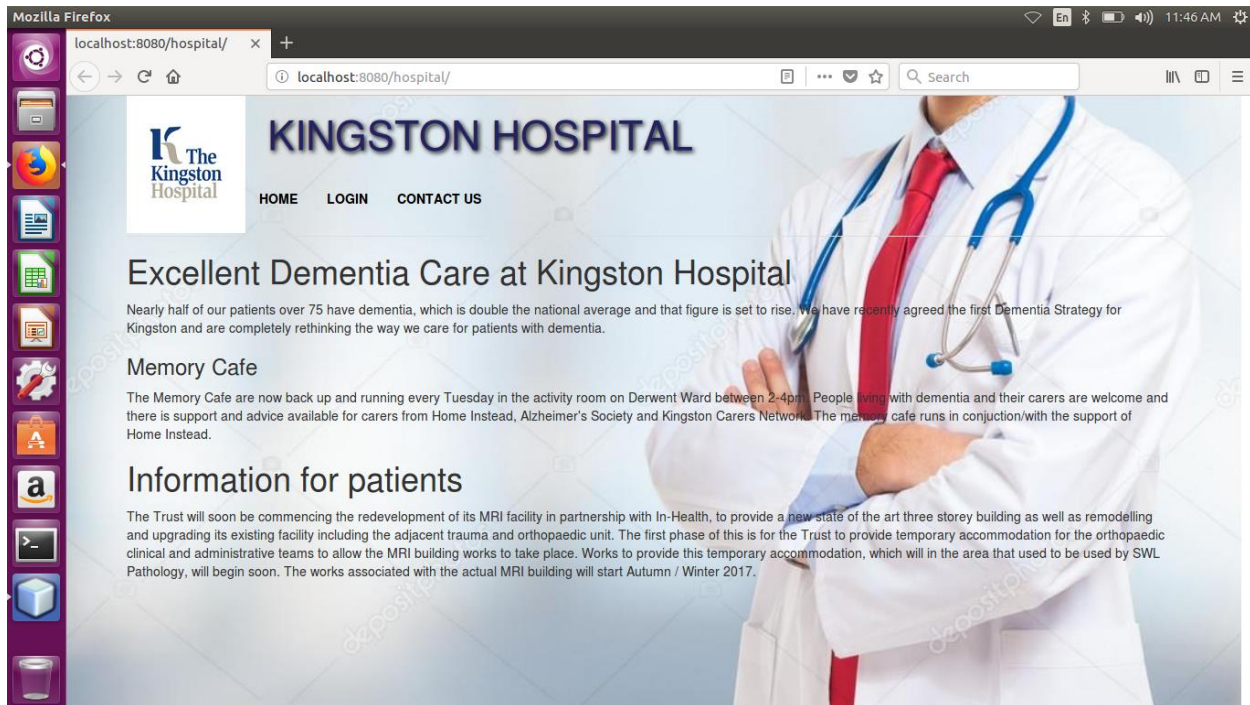


Figure A.2: Login page.

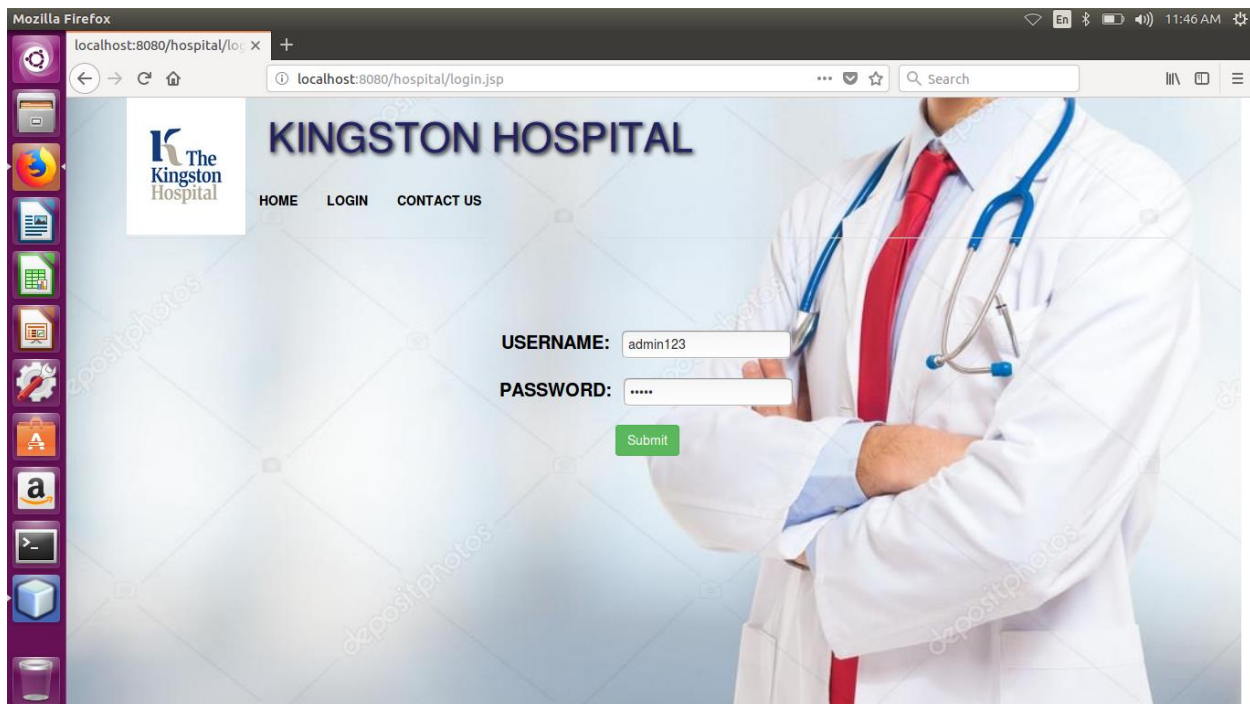


Figure A.3: Contact us page.

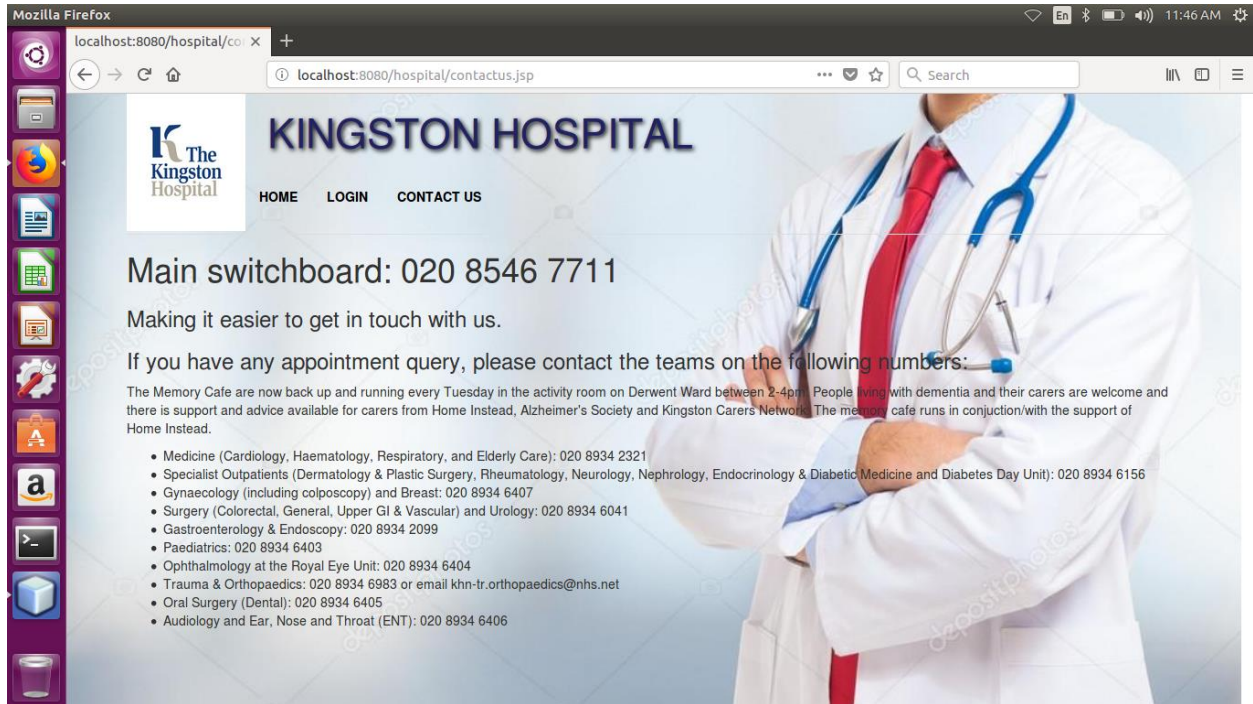
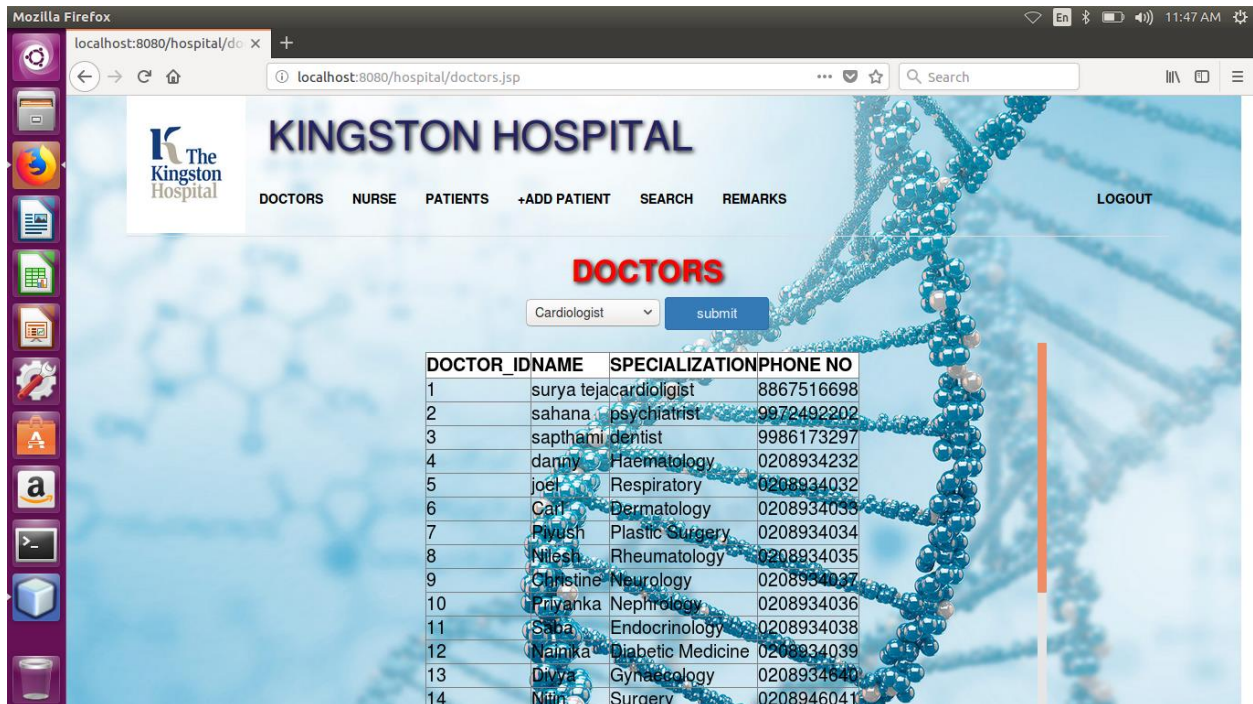


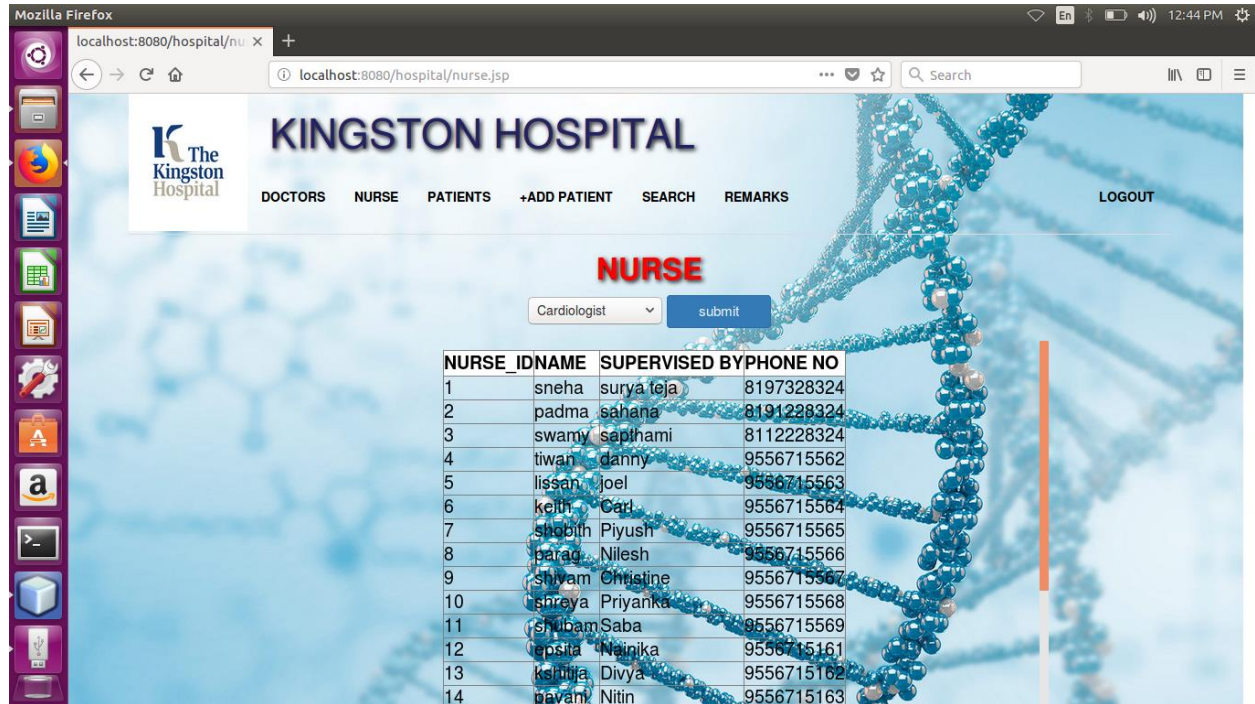
Figure A.4: List of doctors.





# HOSPITAL MANAGEMENT SYSTEM

Figure A.5: List of nurses.



KINGSTON HOSPITAL

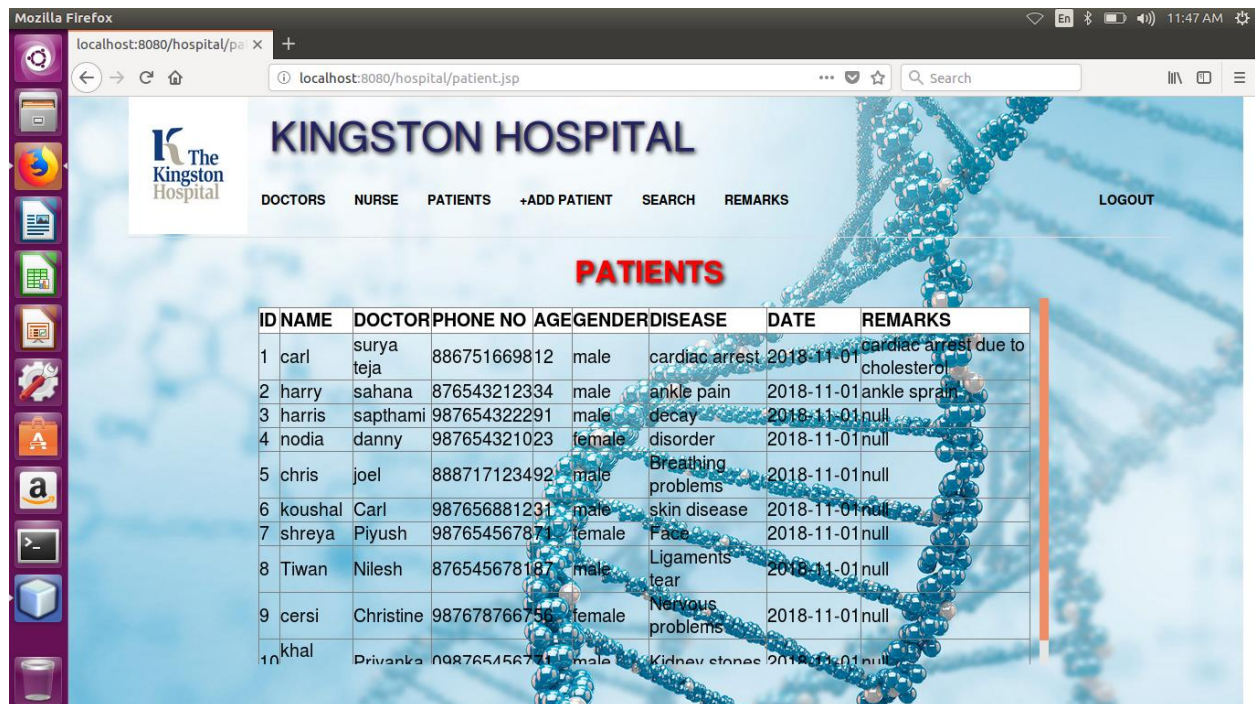
DOCTORS NURSE PATIENTS +ADD PATIENT SEARCH REMARKS LOGOUT

**NURSE**

Cardiologist submit

NURSE_ID	NAME	SUPERVISED BY	PHONE NO
1	sneha	surya teja	8197328324
2	padma	sahana	8191228324
3	swamy	sapthami	8112228324
4	tiwan	danny	9556715562
5	lissan	joel	9556715563
6	keith	Carl	9556715564
7	shobith	Piyush	9556715565
8	parag	Nilesh	9556715566
9	shivam	Christine	9556715567
10	shreya	Priyanka	9556715568
11	shubam	Saba	9556715569
12	apsita	Nainika	9556715161
13	kshithi	Divya	9556715162
14	nayan	Nitin	9556715163

Figure A.6: List of admitted patients.



KINGSTON HOSPITAL

DOCTORS NURSE PATIENTS +ADD PATIENT SEARCH REMARKS LOGOUT

**PATIENTS**

ID	NAME	DOCTOR	PHONE NO	AGE	GENDER	DISEASE	DATE	REMARKS
1	carl	surya teja	8867516698	12	male	cardiac arrest	2018-11-01	cardiac arrest due to cholesterol
2	harry	sahana	8765432123	34	male	ankle pain	2018-11-01	ankle sprain
3	harris	sapthami	9876543229	91	male	decay	2018-11-01	null
4	nodia	danny	9876543210	23	female	disorder	2018-11-01	null
5	chris	joel	8887171234	92	male	Breathing problems	2018-11-01	null
6	koushal	Carl	9876568812	31	male	skin disease	2018-11-01	null
7	shreya	Piyush	9876545678	71	female	Face	2018-11-01	null
8	Tiwan	Nilesh	8765456781	87	male	Ligaments tear	2018-11-01	null
9	cersi	Christine	9876787667	56	female	Nervous problems	2018-11-01	null
10	khal	Priyanka	0987654567	71	female	Kidney stones	2018-11-01	null

# HOSPITAL MANAGEMENT SYSTEM

Figure A.7: Add patient.

**KINGSTON HOSPITAL**

DOCTORS NURSE PATIENTS **+ADD PATIENT** SEARCH REMARKS LOGOUT

**+ADD PATIENT**

Add Patient Delete Patient

PATIENT ID	DOCTOR ID	NAME	PHONE NUMBER	AGE	GENDER	DISEASE	DATE	REMARKS
1	1	carl	8867516698	12	male	cardiac arrest	2018-11-01	cardiac arrest due to cholesterol
2	2	harry	8765432123	34	male	ankle pain	2018-11-01	ankle sprain
3	3	harris	9876543222	91	male	decay	2018-11-01	null
4	4	nodia	9876543210	23	female	disorder	2018-11-01	null
5	5	chris	8887771234	92	male	Breathing problems	2018-11-01	null
6	6	koushal	9876538812	31	male	skin disease	2018-11-01	null
7	7	shreya	9876545678	71	female	Face	2018-11-01	null
8	8	Tiwan	8765456781	87	male	Ligaments tear	2018-11-01	null

Figure A.8: Add patient form.

**KINGSTON HOSPITAL**

DOCTORS NURSE PATIENTS **+ADD PATIENT** SEARCH REMARKS LOGOUT

**ADD PATIENT**

Category: Cardiologist

Patient Name: surya teja talari

Phone number: 098765432123456

Age: 24

Gender: Male

Disease: asthma

Submit

PATIENT ID	DOCTOR ID	NAME	PHONE NUMBER	AGE	GENDER	DISEASE	DATE	REMARKS
1	1	carl	8867516698	12	male	cardiac arrest	2018-11-01	cardiac arrest due to cholesterol
2	2	harry	8765432123	34	male	ankle pain	2018-11-01	ankle sprain
3	3	harris	9876543222	91	male	decay	2018-11-01	null
4	4	nodia	9876543210	23	female	disorder	2018-11-01	null
5	5	chris	8887771234	92	male	Breathing problems	2018-11-01	null
6	6	koushal	9876538812	31	male	skin disease	2018-11-01	null
7	7	shreya	9876545678	71	female	Face	2018-11-01	null
8	8	Tiwan	8765456781	87	male	Ligaments tear	2018-11-01	null



# HOSPITAL MANAGEMENT SYSTEM

Figure A.9: Delete patient form.

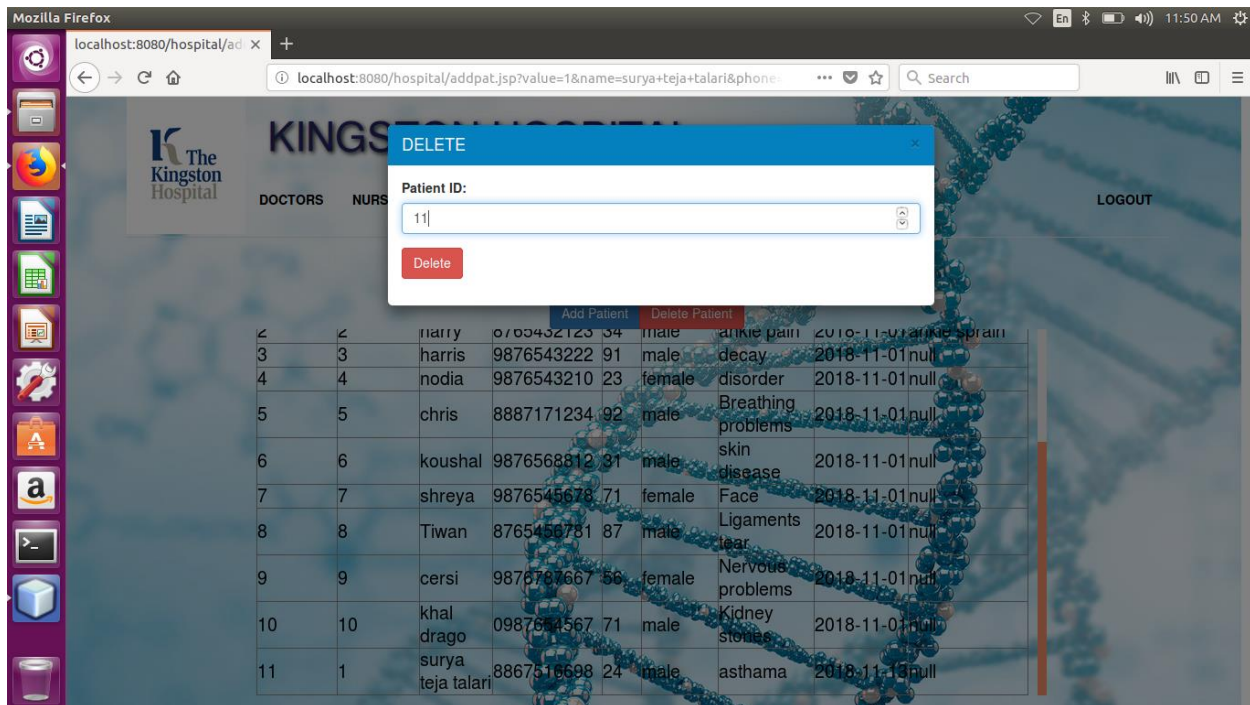


Figure A.10: Search patient.

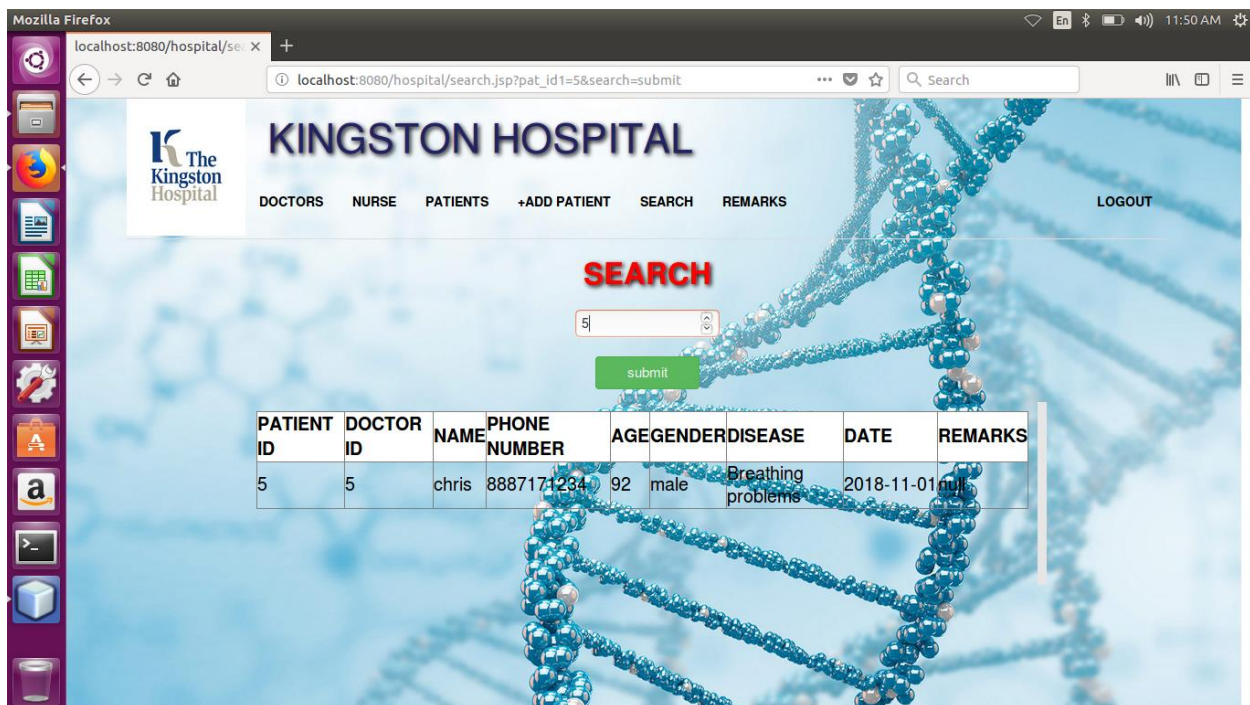


Figure A.11: Add remark.

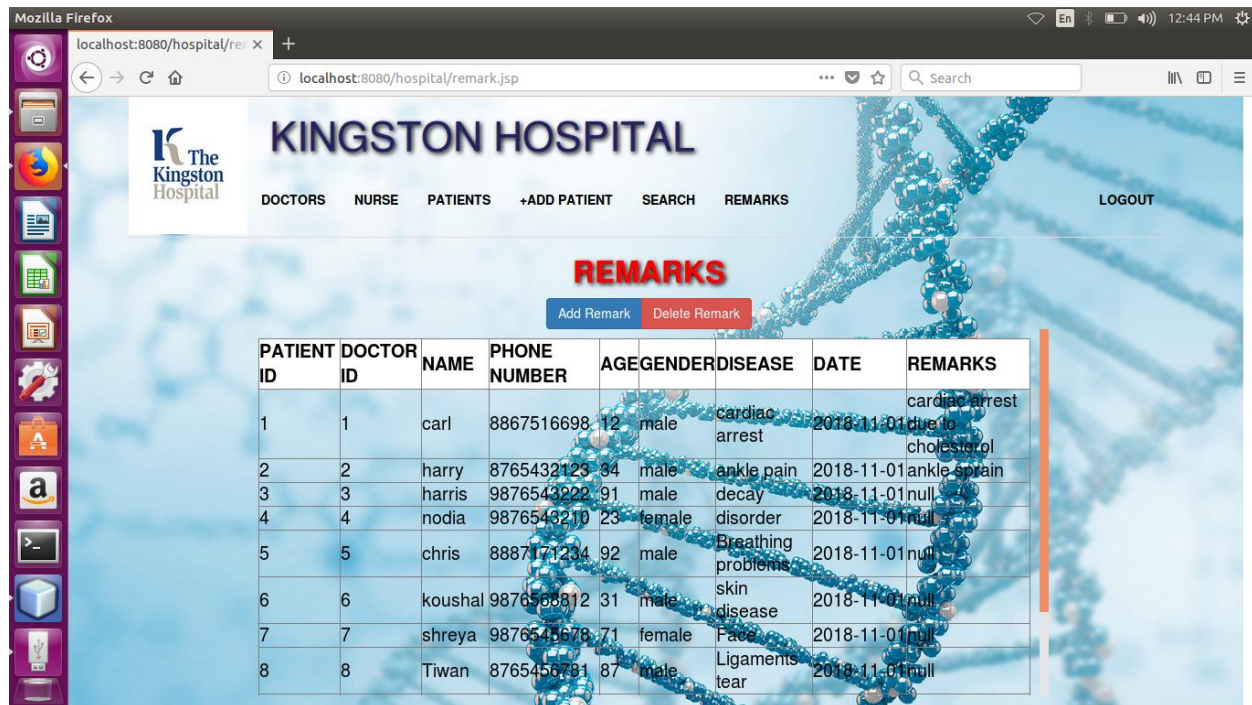


Figure A.12: Add remark form.

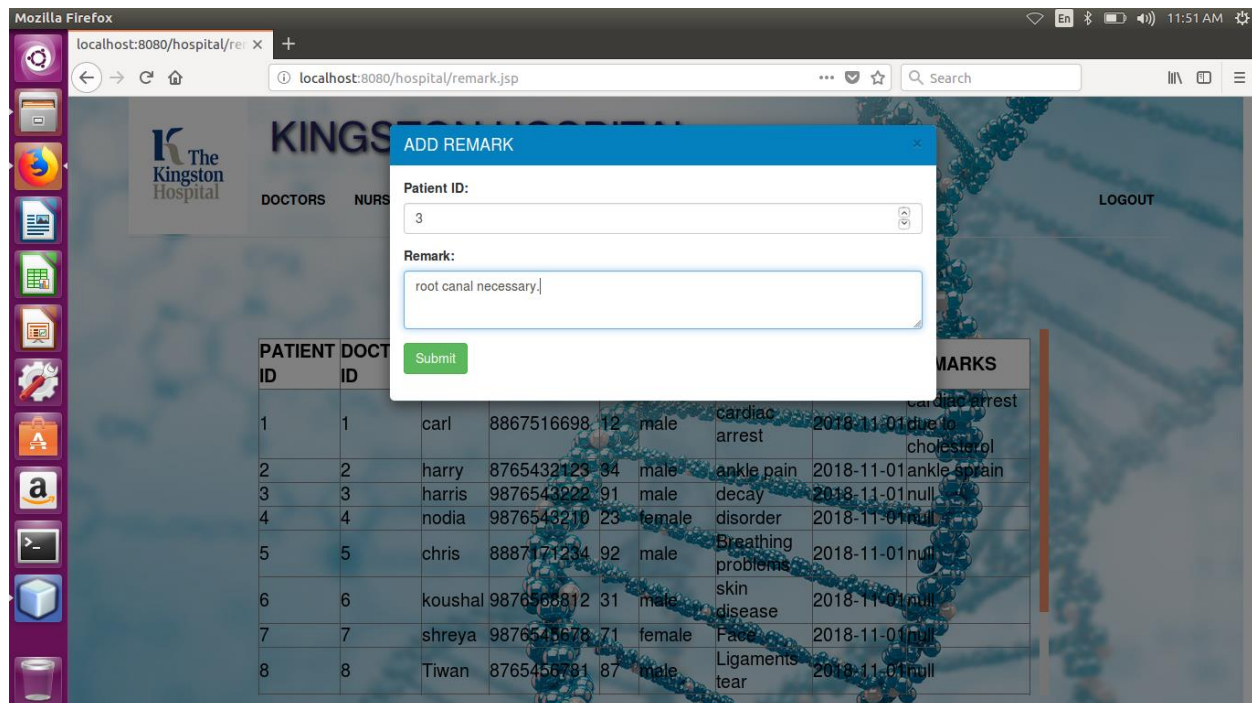




Figure A.13: Delete remark form.

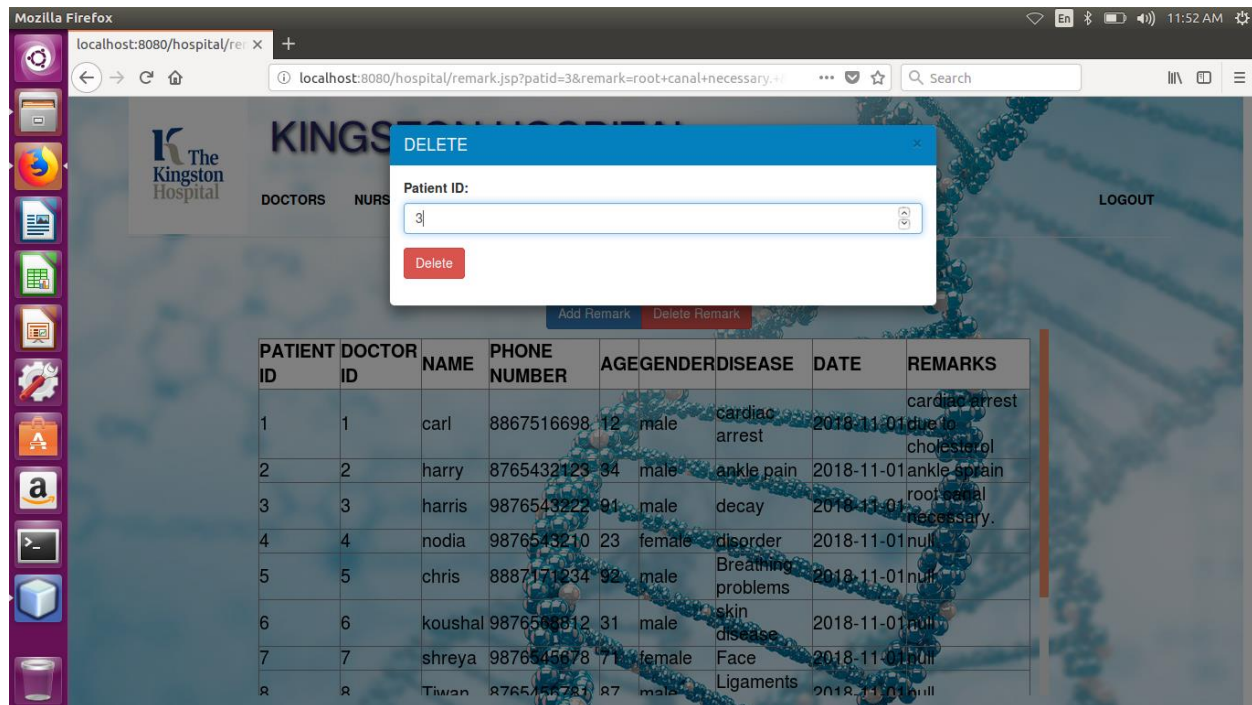


Figure A.14: Logout.

