

# **Hospital Management System using**



**SKILL  LYNC**

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## ØAbstract

Hospital management system using Java helps hospitals and healthcare organizations manage daily operations efficiently.

The system includes modules such as patient registration, appointment scheduling, medical records management, billing, inventory management, etc.

The hospital management system uses Java is designed to streamline the workflow of healthcare professionals. One of the main challenges is ensuring data security and privacy.

The system should be designed in such a way that it can protect patient information from unauthorized access or theft.

Another challenge is training healthcare professionals to use the system effectively. The system should be user-friendly and easy to use, and healthcare professionals should receive proper training to ensure that they can use it efficiently.

The hospital management system using Java is an essential tool for healthcare organizations looking to streamline their daily operations and improve patient care.

It offers several key features such as patient registration, appointment scheduling, medical records management, billing, inventory management, etc. While implementing the system comes with its own set of challenges, the benefits far outweigh them. With the hospital management system using Java, healthcare professionals can provide better care to their patients and improve the overall efficiency of the organization.

# ØIntroduction

The Hospital Management System is a software application that helps manage the day-to-day operations of a hospital. It includes features such as patient registration, appointment scheduling, billing and invoicing, inventory management, and more. The system is designed to streamline the workflow of the hospital and improve the overall efficiency of its operations.

The Hospital Management System is built using Java programming language, which is known for its robustness and scalability. The system is highly customizable and can be tailored to meet the specific needs of each hospital. It is also easy to use and requires minimal training for staff members.

## Tools used

- Apache Netbeans
- My SQL Workbench

## Ø Core language

Java is a **programming language** and a **platform**. Java is a high level, robust, object-oriented and secure programming language.

Java was developed by *Sun Microsystems* (which is now the subsidiary of Oracle) in the year 1995. *James Gosling* is known as the father of Java. Before Java, its name was *Oak*. Since Oak was already a registered company, so James Gosling and his team changed the name from Oak to Java.

## Ø The main Function used in this Project using java:-

### ➤ Java swing

The javax.swing package provides classes for java swing API such as JButton, JTextField, JTextArea, JRadioButton, JCheckbox, JMenu, JColorChooser etc.

### ➤ Java jbutton

The JButton class is used to create a labeled button that has platform independent implementation. The application result in some action when the button is pushed. It inherits AbstractButton class.

### ➤ **Java label**

The object of JLabel class is a component for placing text in a container. It is used to display a single line of read only text. The text can be changed by an application but a user cannot edit it directly. It inherits JComponent class.

### ➤ **Java jtextfield**

The object of a JTextField class is a text component that allows the editing of a single line text. It inherits JTextComponent class.

### ➤ **Java jTextArea**

The object of a JTextArea class is a multi line region that displays text. It allows the editing of multiple line text. It inherits JTextComponent class.

### ➤ **Java jCheckBox**

The JCheckBox class is used to create a checkbox. It is used to turn an option in it Cash, Master card, and Visa-card for payment. Clicking on a CheckBox changes its state .

### ➤ **Java JPanel**

The JPanel is a simplest container class. It provides space in which an application can attach any other component. It inherits the JComponents class.

It doesn't have title bar.

## ➤ **Java JFrame**

The `javax.swing.JFrame` class is a type of container which inherits the `java.awt.Frame` class. `JFrame` works like the main window where components like labels, buttons, textfields are added to create a GUI.

Unlike `Frame`, `JFrame` has the option to hide or close the window with the help of `setDefaultCloseOperation(int)` method.

## ➤ **Java Action Listener interface**

The Java Action Listener is notified whenever you click on the button or menu item. It is notified against Action Event. The Action Listener interface is found in `java.awt.event` package. It has only one method: `actionPerformed()`.

## ➤ **Java mouse Listener interface**

The Java `MouseListener` is notified whenever you change the state of mouse. It is notified against `MouseEvent`. The `MouseListener` interface is found in `java.awt.event` package. It has five methods.

## ➤ **Java Layout manager**

The Layout Managers are used to arrange components in a particular manner. The **Java Layout Managers** facilitates us to control the positioning and

size of the components in GUI forms. `LayoutManager` is an interface that is implemented by all the classes of layout managers. There are the following classes that represent the layout managers:

1. `java.awt.BorderLayout`
2. `java.awt.FlowLayout`
3. `java.awt.GridLayout`
4. `java.awt.CardLayout`
5. `java.awt.GridBagLayout`
6. `javax.swing.BoxLayout`
7. `javax.swing.GroupLayout`
8. `javax.swing.ScrollPaneLayout`
9. `javax.swing.SpringLayout` etc.

### ➤ **Java Calender**

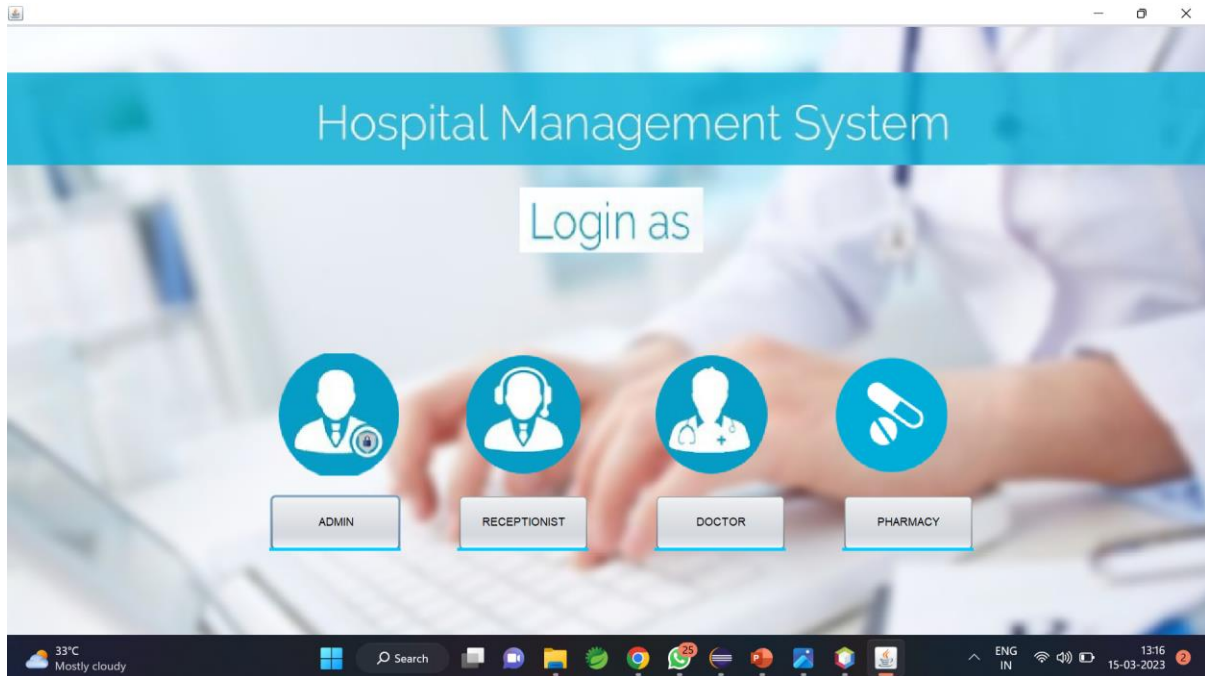
`JCalendar` is a Java date chooser bean for graphically picking a date. `JCalendar` is composed of several other Java beans, a `JDayChooser`, a `JMonthChooser` and a `JYearChooser`. All these beans have a locale property, provide several icons (Color 16×16, Color 32×32, Mono 16×16 and Mono 32×32) and their own locale property editor. So they can easily be used in GUI builders. Also part of the package is a `JDateChooser`, a bean composed of an `IDateEditor` (for direct date editing) and a button for opening a `JCalendar` for selecting the date

## ➤ JDBC

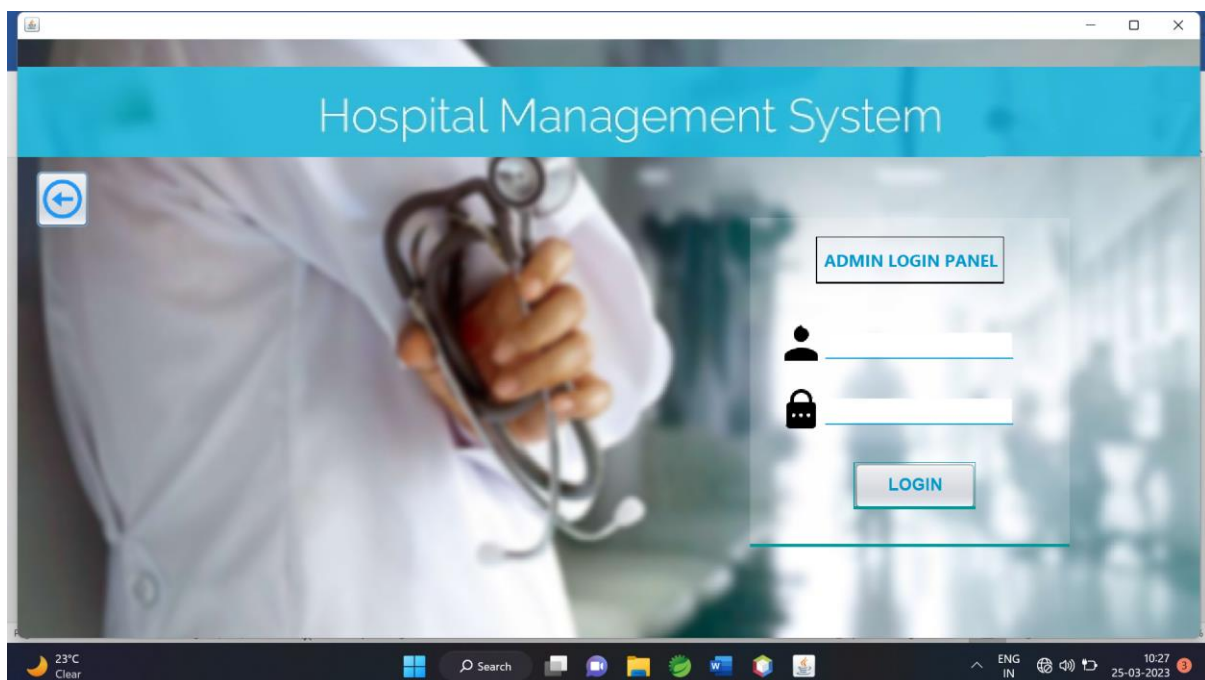
JDBC or Java Database Connectivity is a Java API to connect and execute the query with the database. It is a specification from Sun microsystems that provides a standard abstraction(API or Protocol) for java applications to communicate with various databases. It provides the language with java database connectivity standards. It is used to write programs required to access databases. JDBC, along with the database driver, can access databases and spreadsheets. The enterprise data stored in a relational database(RDB) can be accessed with the help of JDBC APIs.



## Application preview:-



## Login panel



## Admin Login panel

## As we Login Admin Features :-



## Doctor Details

The 'ADD DOCTORS' form includes the following fields: Doctor ID, First Name, Last Name, Age, Blood Group, Gender, Department, Address, Aadhar no., Phone No., Marital Status, City, Joining Date, Leaving Date, Visit Timing, Days, Username, and Password. There are 'Add Doctor', 'Clear', and 'Browse' buttons.



**Add Doctors**



**Delete Doctors**

The 'DELETE DOCTORS' form includes the following fields: Doctor ID, First Name, Last Name, Age, Blood Group, Gender, Department, Address, Aadhar no., Phone No., Marital Status, City, Joining Date, Leaving Date, Visit Timing, Days, Username, and Password. There are 'SEARCH DOCTOR', 'DELETE', and 'Browse' buttons.

**SEARCH DOCTORS**

Doctor ID

First Name  Last Name

Age  Blood Group

Gender  Department

Address

Aadhar no.  Phone No.

Marital Status  City

Joining Date  Leaving Date  Username

Visit Timing  Days  Password



**Search Doctors**



**Update Doctors**

**UPDATE DOCTORS**

Doctor ID

First Name  Last Name

Age  Blood Group

Gender  Department

Address

Aadhar no.  Phone No.

Marital Status  City

Joining Date  Leaving Date  Username

**VIEW DOCTORS**


Search

| D_id      | firstname | lastname | age | bloodgr... | gender | address | aadhar_no | marital... | city   | speciali... | phoneno   | joiningd... | leavingd...  | username | password | doctorp... | timing   | days    |
|-----------|-----------|----------|-----|------------|--------|---------|-----------|------------|--------|-------------|-----------|-------------|--------------|----------|----------|------------|----------|---------|
| DOCT-1... | Ajmiya    | Sakkar   | 24  | A+         | Male   | Nagpur  | 283761... | Single     | Nagpur | Surgeon     | 937398... | 2023-01...  | Still Wor... | ajs      | 1234     | [B@23e...  | 10:00 am | Mon-Wed |




**View Doctors**

# Lower Staff Detail



## Lower Staff Detail



### STAFF ID

First Name

Age

Last Name

Gender

Select Gender

Aadhar no.

Phone no.

Address

City

Search

Staff Type

Select Staff Type

Browse

ADD EMPLOYEE

REMOVE EMPLOYEE


UPDATE EMPLOYEE

23°C Clear


 Search 

ENG IN  08:53 25-03-2023

# Receptionist Details



## RECEPTIONIST DETAILS



### RECEPTIONIST ID

First Name

Age

Last Name

Gender

Select Gender

Phone no

City

Address

Aadhar no.

username

SEARCH

Password

Browse

ADD RECEPT

REMOVE RECEP

UPDATE RECEP

23°C Clear

 Search 

ENG IN  09:00 25-03-2023

# Patient Details

**ADD PATIENTS**

Patient ID  **ADD PATIENT** **CLEAR**

First Name  Last Name

Age  Marital Status

Gender  Date

Address

Aadhar no.  Phone No.

Patient Type  Bed No.  **Browse**



**Add Patients**



**DeletePatient**

**DELETE PATIENTS**

Patient ID  **SEARCH PATIENT** **DELETE**

First Name  Last Name

Age  Marital Status

Gender  Date

Address

Aadhar no.  Phone No.

Patient Type



**Search Patients**

**SEARCH PATIENTS**

Patient ID  **SEARCH PATIENT**

First Name  Last Name

Age  Marital Status

Gender  Date

Address

Aadhar no.  Phone No.

Patient Type

Windows application window titled "UPDATE PATIENTS". The window features a navigation bar at the top with icons for "Add Patient", "Delete Patient", "Search Patient", "Update Patient", and "View Patient". The main content area has a header "UPDATE PATIENTS" and a sidebar with a patient icon. The form includes fields for "Patient ID" (with a "SEARCH PATIENT" button), "First Name", "Last Name", "Age", "Marital Status" (dropdown), "Gender" (dropdown), "Date", "Address", "Aadhar no.", "Phone No.", and "Patient Type" (dropdown). An "UPDATE" button is located at the top right of the form area.



Update Patients



View Patients

Windows application window titled "VIEW PATIENTS". The window features a navigation bar at the top with icons for "Add Patient", "Delete Patient", "Search Patient", "Update Patient", and "View Patient". The main content area has a header "VIEW PATIENTS" and a sidebar with a patient icon. Below the header is a "Search" label and a search input field. Below the search field is a table with the following columns: P\_id, FirstName, LastName, Age, MaritalS..., Gender, Address, aadhar\_no, PatientT..., Date, PhoneNo, BedNo, disease, detail, tablename, dailydose, company, Patientp... The table is currently empty.

**BED DETAILS**

ADD BED REMOVE BED UPDATE BED

Bed Number

Category

Room#

| bed | category     | room |
|-----|--------------|------|
| 1   | General Ward | 101  |

## Bed Availability

**DEPARTMENT SECTION**

| D_no   | departmentname | departmentdiscription |
|--------|----------------|-----------------------|
| DEP101 | Nerology       | asdfgh                |

Department Number

Department Name

Department Discription

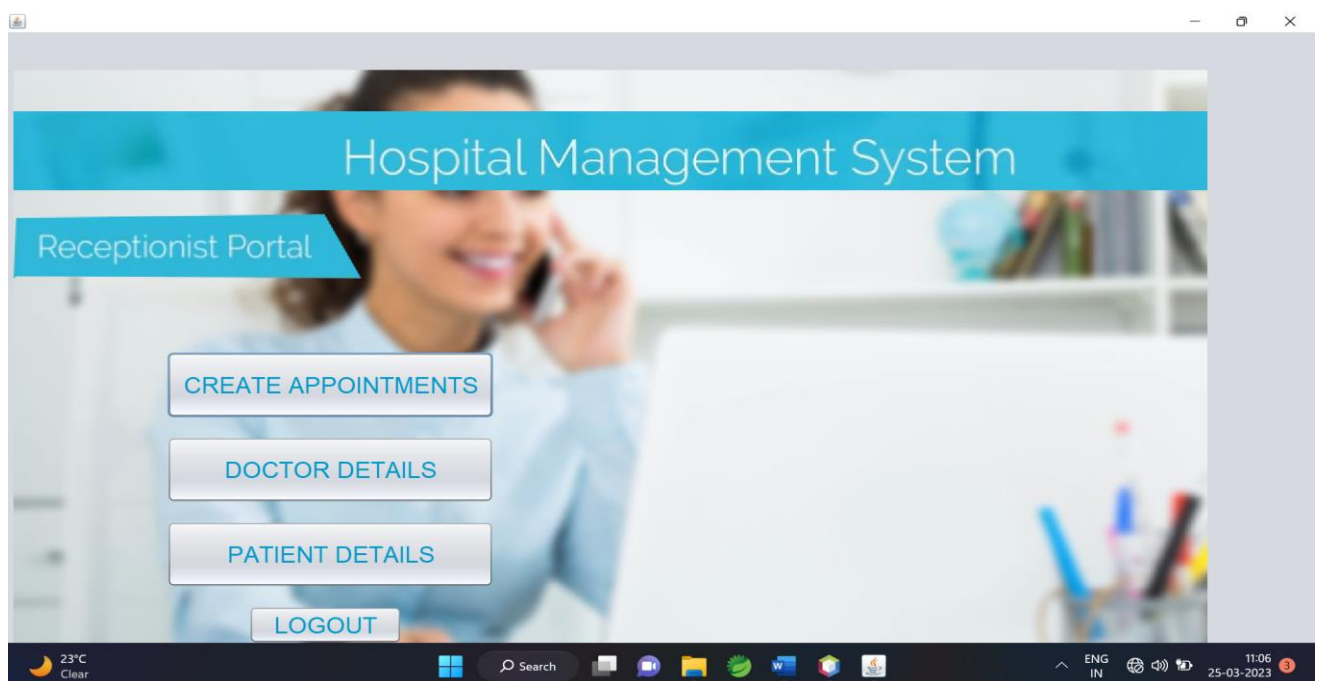
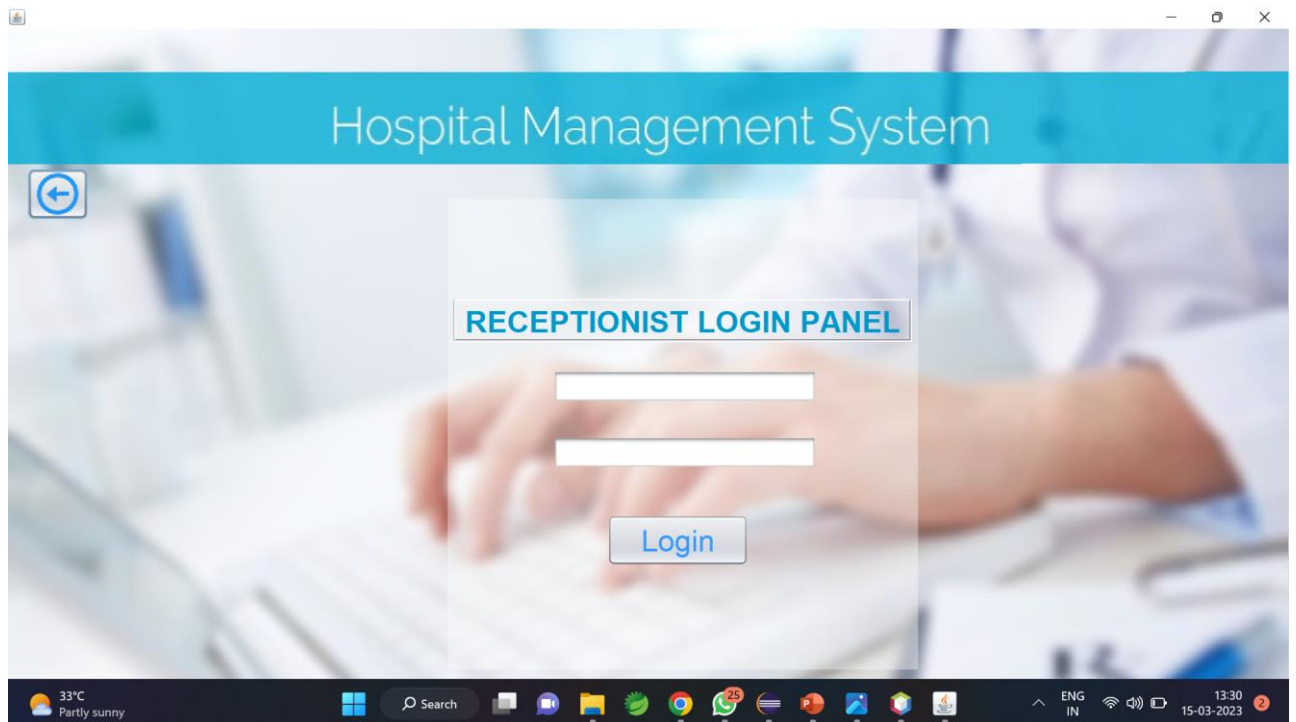
Search

ADD DEPARTMENT DELETE DEPARTMENT UPDATE DEPARTMENT

## Department details



# Receptionist Login Panel



# Receptionist Portal



The 'Set Appointment' interface features a blue header with the title 'Set Appointment'. Below the header, there is a search bar labeled 'DOCTOR NAME' with a 'SEARCH' button. Underneath the search bar is a table with columns: Doctor ID, First Name, Lastname, Age, Blood Gr..., Gender, Specializ..., Address, Aadhar\_no, Phoneno, Maritalst..., City, Joining d..., Leaving..., Username, and Password. The table contains several empty rows. At the bottom of the form area is a 'NEXT' button. The Windows taskbar at the bottom shows the date as 25-03-2023 and the time as 09:02.

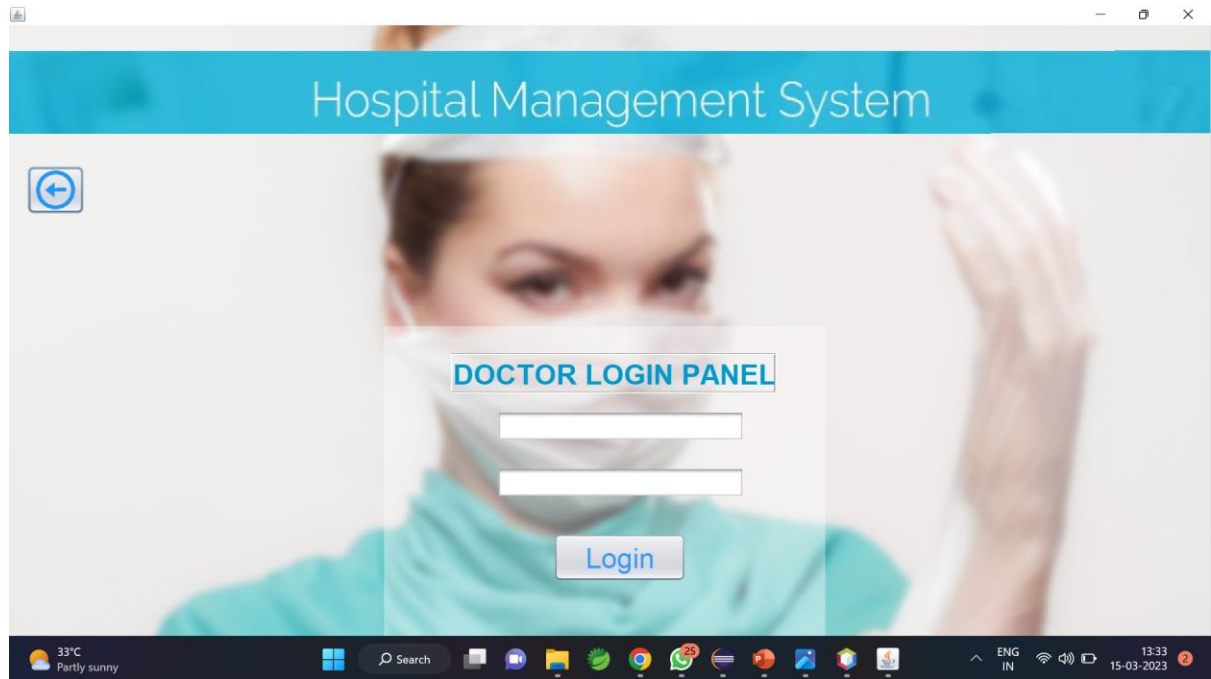
## Create Appointment

## Doctor Details

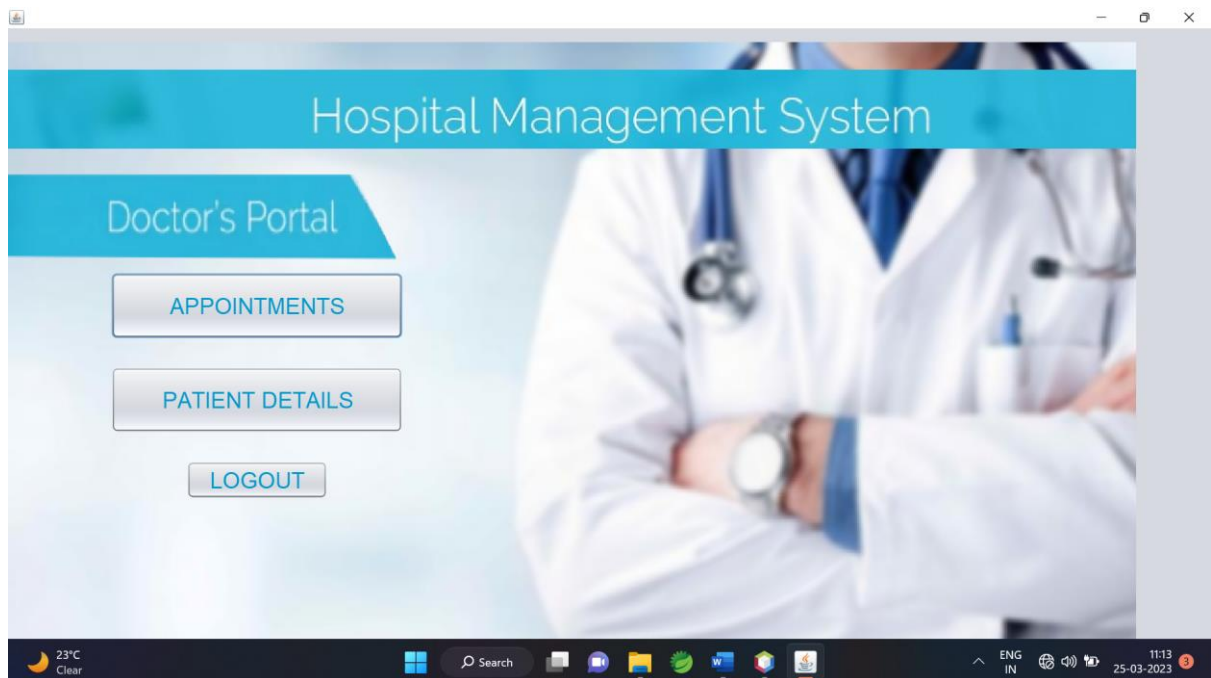
The 'Doctor Details' interface has a blue header with the title 'DOCTOR DETAILS'. It includes a search bar labeled 'DOCTOR NAME' with the text 'Sekar' entered and a 'SEARCH' button. Below the search bar is a table with columns: D\_id, firstname, lastname, age, bloodgr..., gender, address, aadhar..., marital..., city, special..., phoneno, joining..., leaving..., username, password, doctorp..., timing, and days. The first row of data shows: DOCT..., Ajinkya, Sekar, 24, A+, Male, Nagpur, 283761..., Single, Nagpur, Surgeon, 937395..., 2023-0..., Still Wo..., ajs, 1234, [B@79..., 10:00 am, Mon- W... Below the table is a large image showing three doctors in white coats. The Windows taskbar at the bottom shows the date as 25-03-2023 and the time as 09:02.

## Patient Details

The 'Patient Details' interface features a blue header with the title 'PATIENT DETAILS'. It contains several input fields for patient information: Patient ID, Last Name, Age, First Name, Marital Status (a dropdown menu), Gender (a dropdown menu), Date, Address, Aadhar no., Phone No., and Patient Type (a dropdown menu). To the right of these fields are three buttons: 'ADD PATIENT', 'UPDATE', and 'DELETE'. Below the input fields is a table with columns: P\_id, FirstN..., LastN..., Age, Marit..., Gender, Address, aadha..., Patien..., Date, Phone..., BedNo, disease, detail, tablet..., dailyd..., compa..., and Patien... Below the table is a search bar labeled 'Search Patient'. The Windows taskbar at the bottom shows the date as 25-03-2023 and the time as 09:03.



**Doctor Login panel**



**Doctor's Portal**

The screenshot shows a web application window titled "View Appointment". At the top, there is a blue header bar with a home icon and the title. Below the header, there is a search section with the label "DOCTOR NAME" and a text input field, followed by a "SEARCH" button. The main content area contains a table with four columns labeled "Title 1", "Title 2", "Title 3", and "Title 4". The table has multiple empty rows for data entry.


## Appointments

The screenshot shows a web application window titled "PATIENT'S PORTAL". The background is a blurred image of a person's hand holding a pill. In the top right corner, there is a blue circular button with a left-pointing arrow. The main area features two large, semi-transparent white boxes. The left box contains an icon of a person with a green plus sign and the text "ADD PATIENT DETAILS". The right box contains an icon of a red pill bottle and the text "CHECK PATIENT HISTORY". At the bottom of the window, there is a Windows taskbar showing the date as 25-03-2023 and the time as 09:03.

## Patient Details

The screenshot shows a web application window titled "UPDATE PATIENTS". The interface is divided into several sections. On the left, there is a "Patient ID" search section with a text input field and a "SEARCH PATIENT" button. Below this, there are input fields for "First Name", "Last Name", "Age", "Marital Status" (a dropdown menu), "Gender" (a dropdown menu), "Date", "Address", "Aadhar no.", and "Patient Type" (a dropdown menu). In the center, there is a "Discription & Details" section with a large text area. To the right of this, there is a "MEDICINE PRESCRIPTION" section with input fields for "Name Of Tablet" (a dropdown menu), "Ref#", "Daily Dose", "Dose(mg)", "Possible SideEffects", and "Company". At the bottom right of the main form area, there is a blue "UPDATE" button. The Windows taskbar at the bottom shows the date as 25-03-2023 and the time as 09:04.

## Add Patient Details






## CHECK PATIENT HISTORY

Patient ID


SEARCH


23°C  
Clear



ENG  
IN09:04  
25-03-2023

Check Patient  
Details





## MEDICINE DETAILS

ADD MEDICINE

REMOVE MEDICINE

UPDATE MEDICINE

| name | dailydose | refno | dose | sideeff... | issuedat | expiryd... | compo... | storages | price | quantity |
|------|-----------|-------|------|------------|----------|------------|----------|----------|-------|----------|
|------|-----------|-------|------|------------|----------|------------|----------|----------|-------|----------|

Name Of Tablet

Daily Dose

Ref#

Dose(mg)

Possible SideEffects

Issue Date

Expiry Date




Compony name

Storage Advice

Price

Qunatity Available

33°C  
Partly sunny



ENG  
IN13:35  
15-03-2023

Pharmacy panel

## **Benefits of Using Java in Hospital Management Systems**

Java is a popular programming language used in the development of hospital management systems. One of the main benefits of using Java is its platform independence, which allows the software to run on any operating system without the need for modifications.

Additionally, Java offers robust security features, making it an ideal choice for managing sensitive patient data. Its object-oriented design also allows for easier maintenance and scalability of the system.

## **Key Features of Hospital Management System Using Java**

Some of the key features of a hospital management system using Java include patient registration and management, appointment scheduling and tracking, electronic medical record (EMR) management, billing and invoicing, and inventory management.

Other features may include real-time analytics and reporting, integration with third-party applications, and support for multiple languages and currencies.

## **Challenges in Implementing Hospital Management System Using Java**

While hospital management systems using Java offer many benefits, there are also some challenges in implementing them. One of the main challenges is the need for proper training and education for staff members to effectively use the system.

Additionally, the initial cost of implementation and ongoing maintenance can be high, and there may be resistance from staff members who are used to traditional paper-based systems.

## **Case Study: Successful Implementation of Hospital Management System Using Java**

One example of a successful implementation of a hospital management system using Java is at XYZ Hospital. The system streamlined their patient registration and appointment scheduling processes, reducing wait times and improving patient satisfaction.

The system also improved inventory management, reducing waste and saving the hospital money. Overall, the hospital saw significant improvements in efficiency and productivity after implementing the system.

## **Conclusion**

Hospital management systems using Java offer many benefits for healthcare organizations, including improved efficiency, better patient care, and increased security of sensitive data.

While there may be challenges in implementing such systems, the potential benefits make it worth considering for any healthcare organization looking to streamline their operations and improve patient outcomes.