WELLCARE PATIENT MANAGEMENT SYSTEM

By

Bhavik Parmar (23MSIT028)

Under Guidance

of

Internal Guide

Dr. Hardik Pandit

Submitted to

Smt. Chandaben Mohanbhai Patel Institute of Computer Applications
CHARUSAT
Changa

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CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY
Changa

Acknowledgement

Knowledge in itself is a continuous process. At this moment of our substantial enhancement, We rarely find words to express our gratitude towards those who were constantly involved with us.

The completion of any inter disciplinary project depends upon coordination, cooperation and combined efforts of several resources of knowledge, creativity, skill, energy and time. The work being accomplished now, we feel our most sincere urge to recall and knowledge through these lines, trying our best to give full credit wherever it deserves.

We would like to thank our project guide **Dr. Hardik Pandit ,** I/C Principal **Dr. Dharmendra Patel** and I/C Dean **Dr. Sanskruti Patel** who advised and gave us moral support through the duration of our project. Without their constant encouragement we could not have been able to achieve what we have.

It's our good fortune that we had support and well wishes of many. We are thankful to all and those names which have been forgotten to acknowledge here but contributions have not gone unnoticed.

With Sincere Regards,

Bhavik Parmar (23MSIT028)

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COMPANY PROFILE

Company Profile :

Company Name :
Pooja Infotech

Email :
info@poojainfotech.com

Call us :
+91 9265757357

About us :

Pooja Infotech is a global leader in Web Development and Hosting .

PROJECT PROFILE

✞ Project Profile:

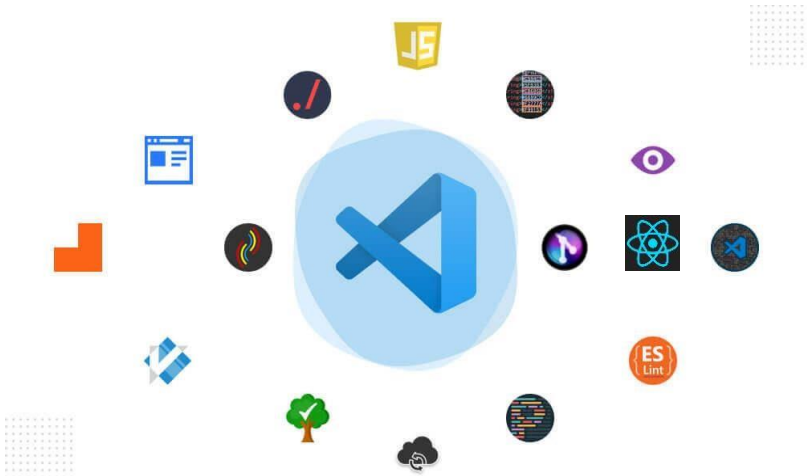
- **Project Name:** WellCare Patient Management System
- **Type of Application:** Web Application
- **Project Description:**
  - The **WellCare Patient Management System** is a comprehensive healthcare solution designed to streamline and optimize patient care, medical record management, and clinic administration. This system facilitates efficient communication between healthcare providers, patients, and administrative staff while ensuring data security and regulatory compliance.
  - The **WellCare Patient Management System** is an advanced and integrated healthcare solution designed to enhance patient care, improve medical record management, and optimize clinic administration. By leveraging modern technology, the system facilitates seamless communication between healthcare providers, patients, and administrative staff while ensuring data security, regulatory compliance, and operational efficiency.
  - Designed for hospitals, clinics, and healthcare institutions, **WellCare** provides a centralized platform for managing patient records, appointments, billing, and prescriptions, ultimately enhancing the overall healthcare experience.

- **Team Size:** 1
- **Front End :** Bootstrap , CSS
- **Back End :** PHP , MYSQL
- **Tools used:** Visual Studio Code

INTRODUCTION TO TOOLS

❖ Introduction to Tools

✪ Visual Studio Code:



- Visual Studio Code (VS Code) is a versatile and lightweight source code editor developed by Microsoft. It's designed to meet the needs of developers across different platforms, including Windows, macOS, and Linux.
- Visual studio code is a user friendly tool, used by many programmers to make programming experience very smooth and easy due with its many in-built features. Visual studio code can be run everywhere.
- It comes with built-in support for JavaScript, TypeScript and Node. It has features of intelligence , Debugging , Built-in git, and extensions to add more languages, Themes , Debuggers etc

➢ Front End Tool:

○ Bootstrap :

- **Bootstrap** is a popular, open-source frontend framework used for designing responsive and mobile-first websites and web applications. Developed by **Twitter**, Bootstrap provides a collection of pre-designed **HTML, CSS, and JavaScript** components that help developers create visually appealing and functionally rich web interfaces quickly and efficiently.
- **Bootstrap** is a powerful, open-source **CSS framework** used for building modern, responsive, and mobile-first web applications. Originally developed by **Twitter**, Bootstrap simplifies web development by providing a well-structured **grid system, pre-styled components, and JavaScript functionalities**, enabling developers to create professional-looking websites quickly.
- Bootstrap is a powerful, responsive, and user-friendly frontend framework that simplifies web development. With its pre-styled components, grid system, and cross-browser compatibility, it enables developers to create modern and consistent websites efficiently. Its flexibility and strong community support make it a top choice for building scalable and visually appealing web applications.

➢ Back End Tool:

⭘ PHP & MYSQL :

▪ **PHP (Hypertext Preprocessor)** is an open-source, server-side scripting language designed for web development. It enables developers to create **interactive and dynamic web pages** by processing user inputs, managing sessions, and interacting with databases.

▪ **PHP (Hypertext Preprocessor)** is a widely used **server-side scripting language** that is specifically designed for web development. It allows developers to create **dynamic and interactive web pages** by executing scripts on the server before delivering the content to a web browser.

- PHP is embedded in HTML and integrates seamlessly with databases, making it a powerful tool for building **database-driven applications, content management systems (CMS), e-commerce platforms, and web services**.

- **MySQL** is an open-source **relational database management system (RDBMS)** used to store, manage, and retrieve structured data efficiently. It is widely used in web applications that require a reliable **backend database**.

- MySQL is commonly used in combination with **PHP**, forming the **LAMP (Linux, Apache, MySQL, PHP)** stack, which powers millions of dynamic websites, e-commerce platforms, and web applications.

- MySQL is a powerful and flexible relational database management system that is widely used in various industries for both small-scale and enterprise-level applications. Its robust SQL capabilities, scalability, and open-source nature make it an excellent choice for developers and organizations. With its support for transactions, replication, and performance optimizations, MySQL is well-suited for applications requiring reliable, high-performance data management.

SYSTEM STUDY

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1. Existing System :

- A Patient Management System (PMS) is an essential software solution used by healthcare providers, such as hospitals, clinics, and private practices, to manage various aspects of patient care and administrative processes. It helps streamline operations, improve patient experience, and enhance the quality of care. Below is a description of an existing Patient Management System, detailing the components and features typically found in such systems.

2. Proposed System :

WellCare Patient Management System

The proposed system, WellCare, aims to transform the healthcare sector by introducing a modern, user-friendly, and efficient web-based platform for patient management. This platform will leverage cutting-edge technologies and innovative features to enhance the experience of patients, doctors, and administrators by providing seamless access to medical records, appointments, and other essential healthcare services. Below are the key features and components of the proposed system:

1. Web-Based Platform:

- WellCare will be a comprehensive web-based platform accessible via desktop and mobile devices.
- Users will be able to access and navigate the platform easily through a user-friendly interface, ensuring seamless interaction and usability.

2. User Authentication and Profiles:

- WellCare will support secure user authentication mechanisms to ensure privacy and access control.
- Users can create personalized profiles based on their roles (patients, doctors, and administrators) to manage medical records, appointments, and settings efficiently.

3. Patient Registration and Management:

- Patients can register on the platform by providing basic personal details, medical history, and contact information.
- Doctors and administrators can manage patient profiles, update medical records, and access health history securely.

4. Appointment Scheduling System:

- Patients can book appointments with doctors based on availability, preferred time slots, and specializations.
- Doctors and clinic administrators can manage appointments using an interactive calendar, reducing scheduling conflicts.

5. Electronic Medical Records (EMR):

- WellCare will store and manage electronic medical records (EMR), ensuring easy access to past diagnoses, prescriptions, and treatment history.
- Patients and doctors can securely view and update medical records whenever necessary.

6. Prescription Management System:

- Doctors can digitally prescribe medications based on patient diagnoses.
- Patients can view and download prescriptions directly from their profiles.
- Integrated pharmacy connections will enable easy access to prescribed medicines.

3. Scope of System :

This project traverses a lot of areas ranging from business concept to computing field, and required to perform several researches to be able to achieve the project objectives. The area covers include:

- In computer system the person has to fill the various forms & number of copies of the forms can be easily generated at a time.

- In computer system, it is not necessary to create the manifest but we can directly print it, which saves our time.
- To assist the staff in capturing the effort spent on their respective working areas.
- To utilize resources in an efficient manner by increasing their productivity through automation.
- The system generates types of information that can be used for various purposes.
- It satisfy the user requirement
- Be easy to understand by the user and operator
- Be easy to operate
- Have a good user interface
- Be expandable
- Delivered on schedule within the budget.

4. Aim & Objective of Proposed System :

- **Aims :**

  Enhance Patient Care: To improve the quality and efficiency of patient care by ensuring accurate and timely access to patient information, medical history, and treatment plans.

  • Streamline Healthcare Operations: To optimize administrative and clinical workflows, reducing delays and improving resource management in healthcare facilities.

  • Ensure Data Security & Privacy: To protect patient information through secure systems that comply with legal and regulatory standards, ensuring confidentiality and integrity of medical records.

  • Improve Patient Engagement: To empower patients by providing them with easy access to their medical information, appointments, and direct communication with healthcare providers.

  • Facilitate Regulatory Compliance: To ensure adherence to healthcare regulations such as HIPAA, GDPR, and others, ensuring that healthcare providers meet industry standards for privacy and data management.

- **Objectives :**

Efficient Patient Registration: To streamline the process of patient intake, reducing paperwork and ensuring accurate patient details are captured.

- Automated Appointment Scheduling: To simplify the appointment process for both patients and healthcare providers, reducing scheduling conflicts and improving operational efficiency.
- Centralized Medical Record Management: To store, update, and retrieve electronic health records (EHR) in real time, ensuring that healthcare providers have easy access to complete and accurate patient histories.
- Facilitate Communication: To provide secure and easy communication channels between patients and healthcare providers, enhancing care coordination.
- Real-Time Reporting and Analytics: To generate data-driven insights for healthcare administrators and providers, helping improve decision-making and resource utilization.
- Improve Workflow Automation: To automate routine tasks, such as appointment reminders, medication management, and task assignments, enhancing workflow efficiency.
- Support Telemedicine Services: To integrate remote consultation features for providing care to patients via video, chat, or voice calls, expanding access to healthcare.
- Maintain Inventory Management: To track and manage medical supplies, ensuring proper stock levels and reducing waste.
- Track and Ensure Compliance: To monitor adherence to healthcare laws, regulations, and internal policies, ensuring that all practices meet industry standards.

5. Feasibility Study :

Feasibility study can help you determine whether or not you should proceed with your project. It is essential to evaluate cost and benefit. It is essential to evaluate cost and benefit of the proposed system. Three types of feasibility study are taken into consideration.

1. **Operational Feasibility:**

It is the easy and simplicity of operation of proposed system. System does not require any special skill set for users to operate it. In fact, it is designed to be used by almost everyone.

- User-friendly Interface: The system's user-friendly interface for both customers and staff minimizes training requirements.
- Automated Processes: Online booking and reporting will automate manual tasks, freeing up staff time for customer service and other important tasks.
- Real-time Data: Real-time vehicle availability and booking information will improve operational efficiency and reduce errors.
- Scalability: The system can be scaled by adding resources (servers) or functionalities as the business grows.
- Data-driven Decision Making: Reports and analytics will provide valuable insights to optimize pricing, fleet management, and marketing strategies.

2. **Technical Feasibility:**

To develop this project, Bootstrap and PHP were used, which are widely adopted technologies well-suited for building dynamic and responsive web applications. Here's why they align well with the project's needs:

- Responsive UI: Bootstrap ensures a mobile-friendly and responsive design, providing a seamless user experience across different devices.
- Rapid Development: With Bootstrap's pre-built components and grid system, UI development is faster and more efficient.
- Server-side Processing: PHP is a powerful server-side scripting language, ideal for handling patient records, user authentication, and secure data transactions.
- Database Integration: PHP seamlessly integrates with MySQL or other relational databases, allowing for efficient storage, retrieval, and management of patient data.
- Security Features: PHP provides various security mechanisms, such as input validation and encryption, essential for handling sensitive medical information.
- Extensive Community Support: Both Bootstrap and PHP have large developer communities and extensive documentation, making it easier to find solutions and optimize performance.

3. Economical Feasibility:

Here, we find the total cost and benefit of the proposed system over current system. For this project, will be Economically feasible. The cost of development of the project is very less as all the necessary tools for development are open source.

- As it is a website it can be access from laptop, tablet etc.

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SYSTEM ANALYSIS

➢ Requirements Specification (along with System Modules):

1. Development Side:

- Front End: Bootstrap, CSS
- Back End: PHP , MYSQL
- Documentation: MS Word
- Diagrams: Draw.io
- Tool: Visual Studio Code

2. Software:

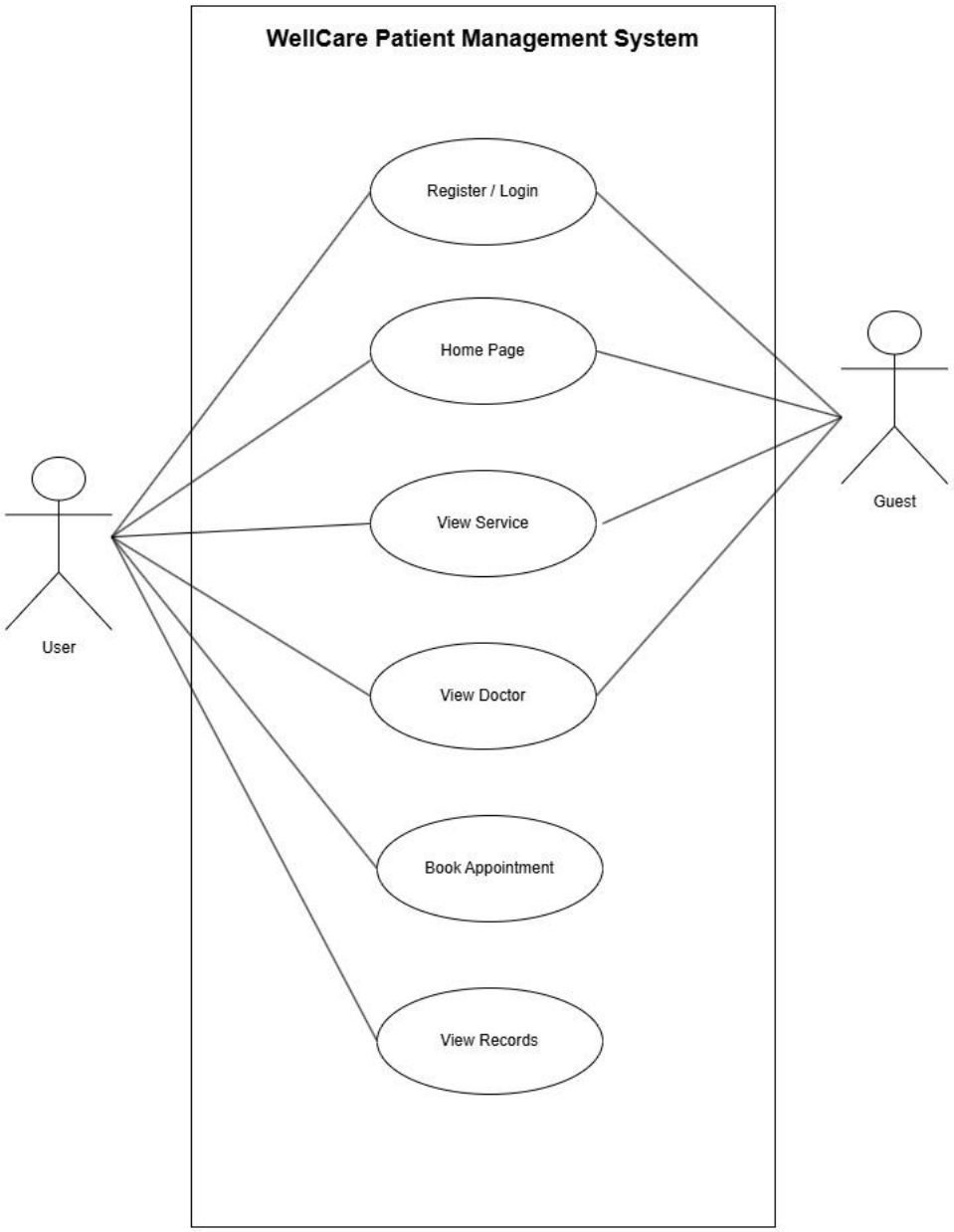
- Operating System: Windows 10 or 11, macOS 10.10, or Ubuntu 16 are recommended for the best compatibility and performance.

3. Language used:

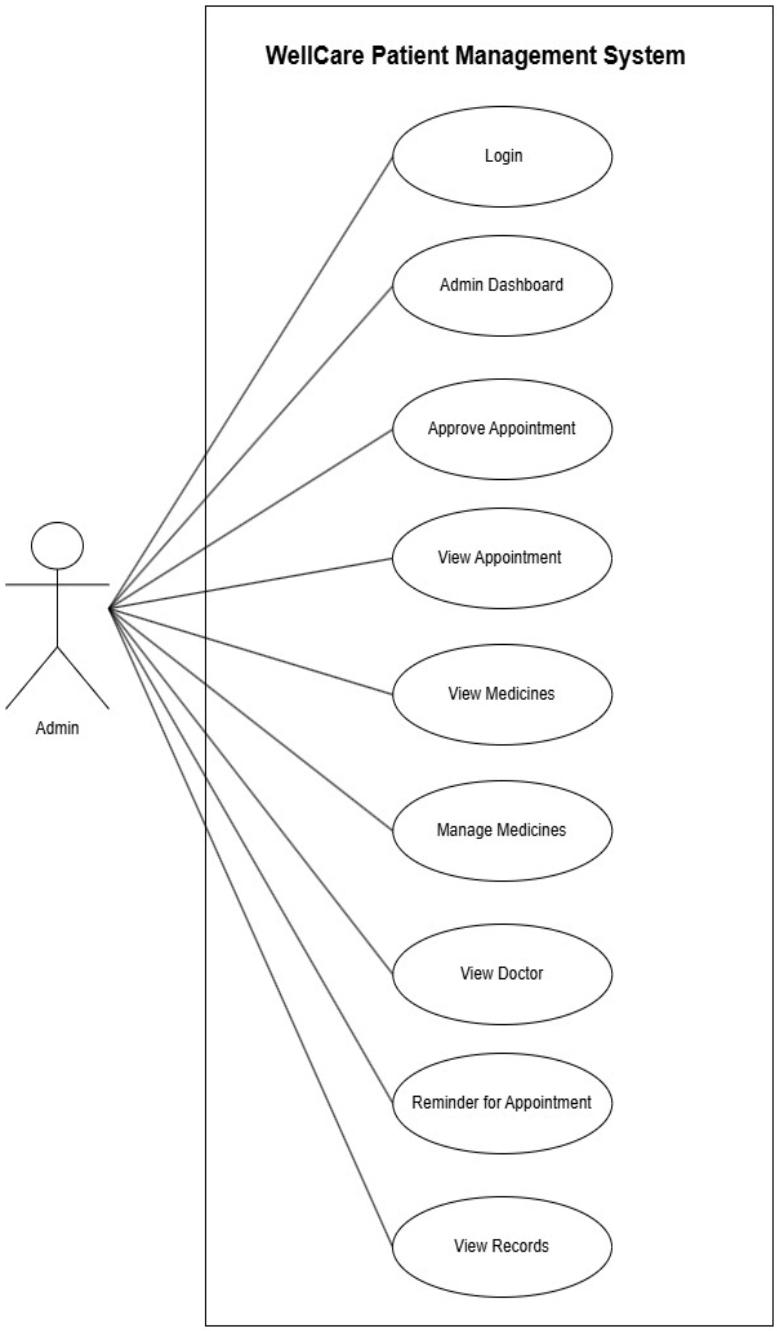
- PHP

Use Case Diagram:

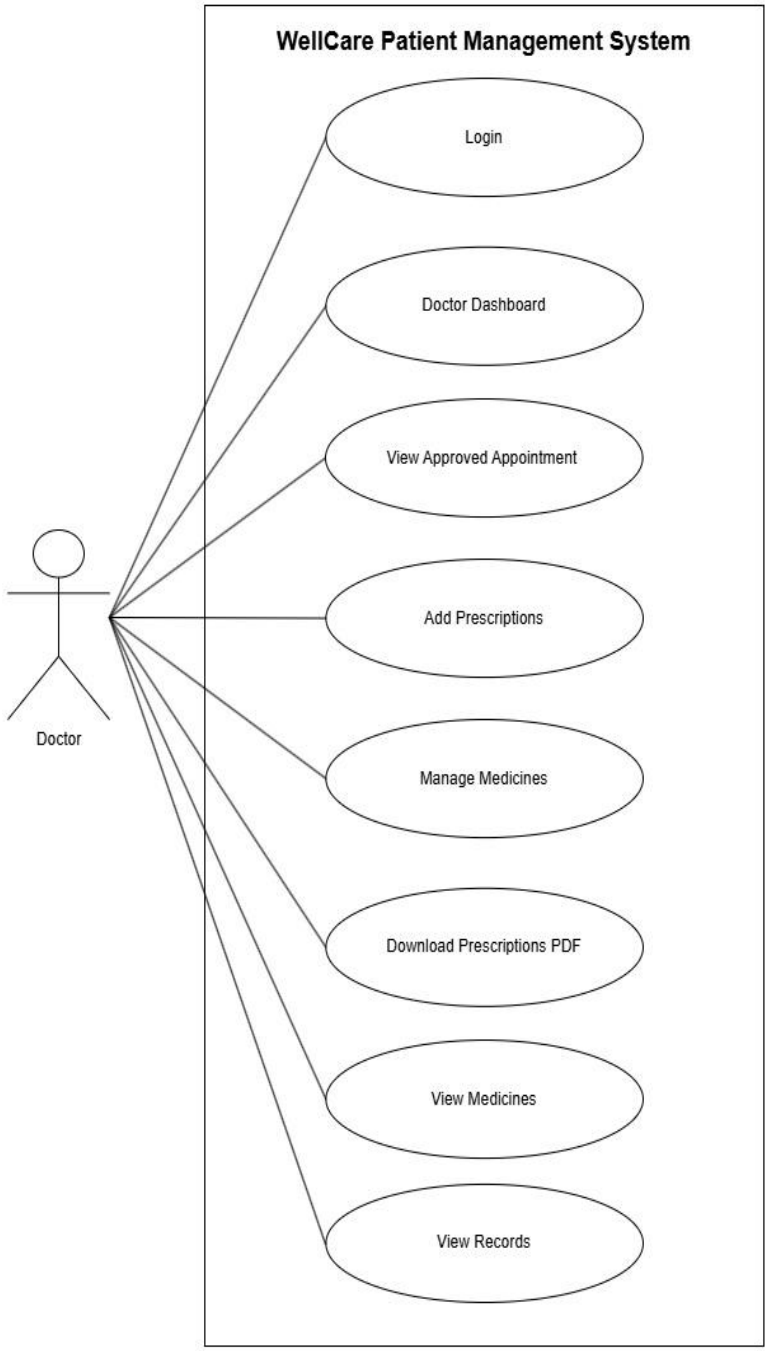
- User:



- Admin:

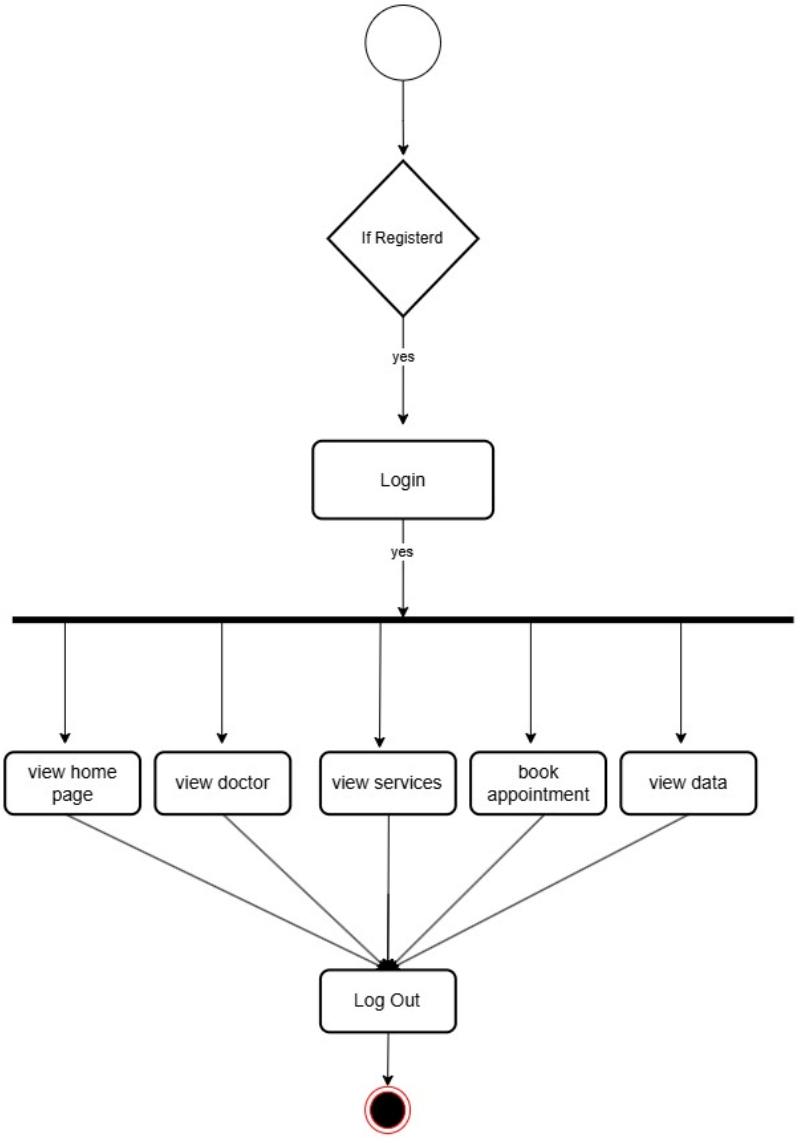

WellCare Patient Management System
Login
Admin Dashboard
Approve Appointment
View Appointment
View Medicines
Manage Medicines
View Doctor
Reminder for Appointment
View Records
Admin

- Doctor :

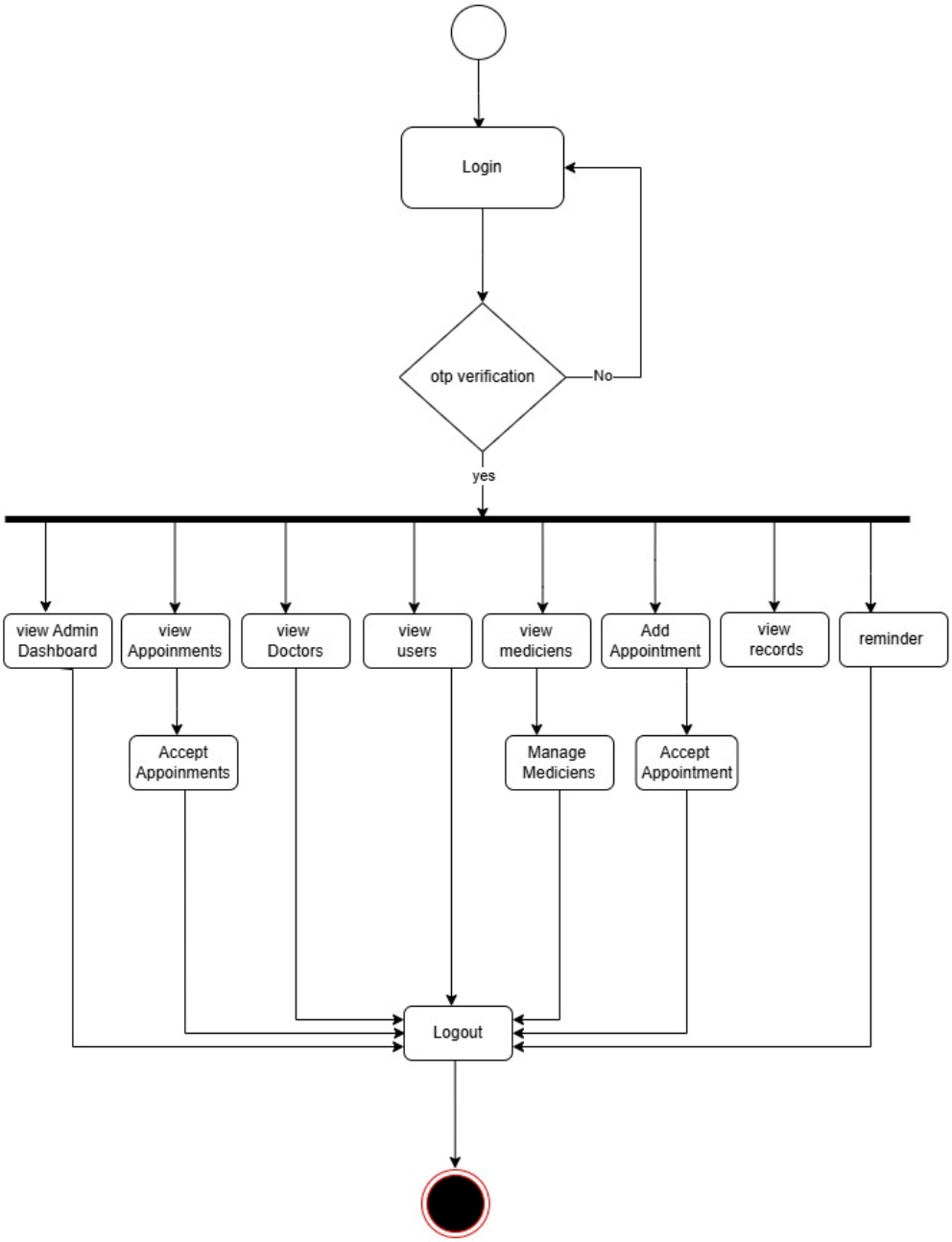

WellCare Patient Management System
Login
Doctor Dashboard
View Approved Appointment
Add Prescriptions
Manage Medicines
Download Prescriptions PDF
View Medicines
View Records
Doctor

Activity Diagram:

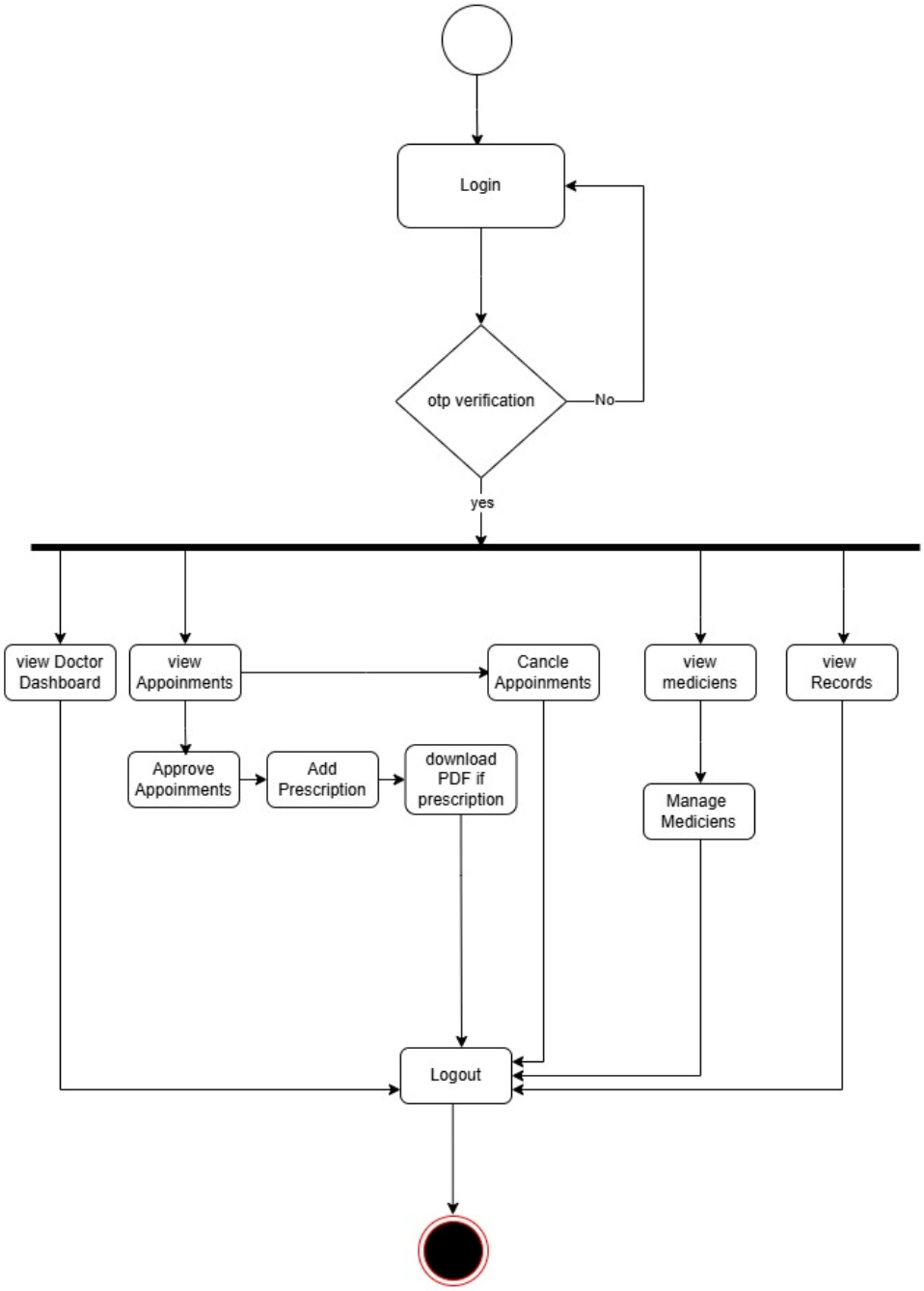
- User:



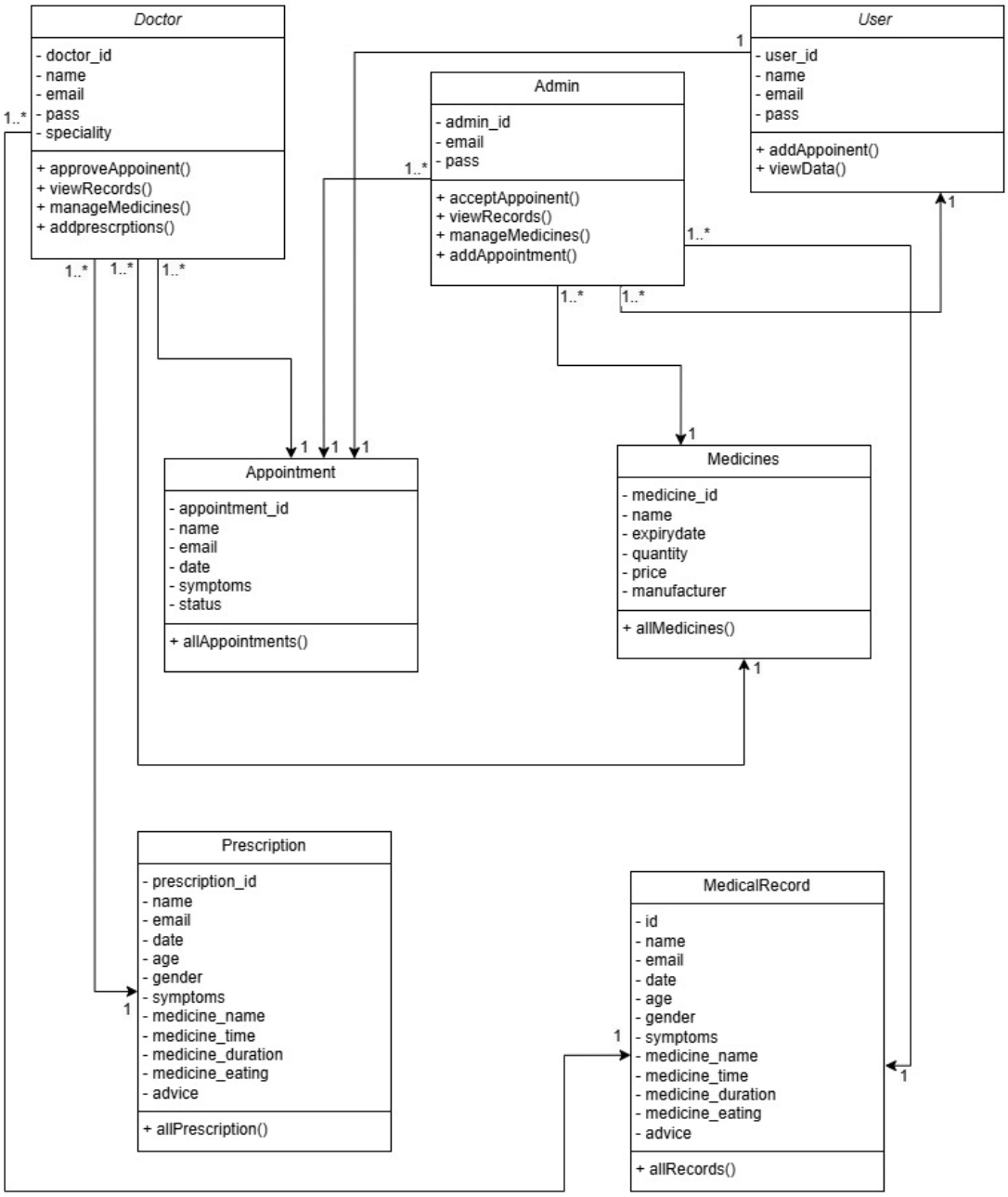
- Admin:


Login
otp verification
No
yes
view Admin Dashboard
view Appoinments
view Doctors
view users
view mediciens
Add Appointment
view records
reminder
Accept Appoinments
Manage Mediciens
Accept Appointment
Logout

- Doctor :


Login
otp verification
No
yes
view Doctor Dashboard
view Appoinments
Cancle Appoinments
view mediciens
view Records
Approve Appoinments
Add Prescription
download PDF if prescription
Manage Mediciens
Logout

Class Diagram:



SYSTEM DESIGN

Data Dictionary :

This is normally represented as the data about data. It is also termed as metadata some times which gives the data about the data stored in the database. It defines each data term encountered during the analysis and design of a new system. Data elements can describe files or the processes.

- **Collection Name:** Admin

Sr. No	Column Name	Datatype	Default
1	id	Int	None
2	username	String	None
3	email	String	None
4	pass	String	None
5	reset_token	String	None
6	token_expiry	Date	NULL

- **Collection Name:** Appointment

Sr. No	Column Name	Datatype	Default
1	id	Int	None
2	doctor_id	Int	NULL
3	fname	String	None
4	email	String	None
5	phone	String	None
6	date	Date	None
7	msg	String	None
8	status	Boolean	Pending

- **Collection Name:** Medicines

Sr. No	Column Name	Datatype	Default
1	id	Int	None
2	m_name	String	None
3	m_manufacturer	String	None
4	m_expiry	String	None
5	m_quantity	String	None
6	m_price	String	None

- **Collection Name:** Doctor

Sr. No	Column Name	Datatype	Default
1	id	Int	None
2	uname	String	None
3	email	String	None
4	phone	String	None
5	speciality	String	None
6	pass	String	None
7	create_at	Date	Current Timestamp
8	reset_token	String	None
9	token_expiry	Date	NULL

- **Collection Name:** Prescription

Sr. No	Column Name	Datatype	Default
1	id	Int	None
2	doctor_id	Int	NULL
3	p_name	String	None
4	p_age	Int	None
5	p_gender	Boolean	None
6	p_email	String	None
7	date	Date	None
8	symptoms	String	None
9	m_name	String	None
10	m_time	String	None
11	m_eating	String	None
12	m_duration	String	None
13	d_notes	String	None

- **Collection Name:** User

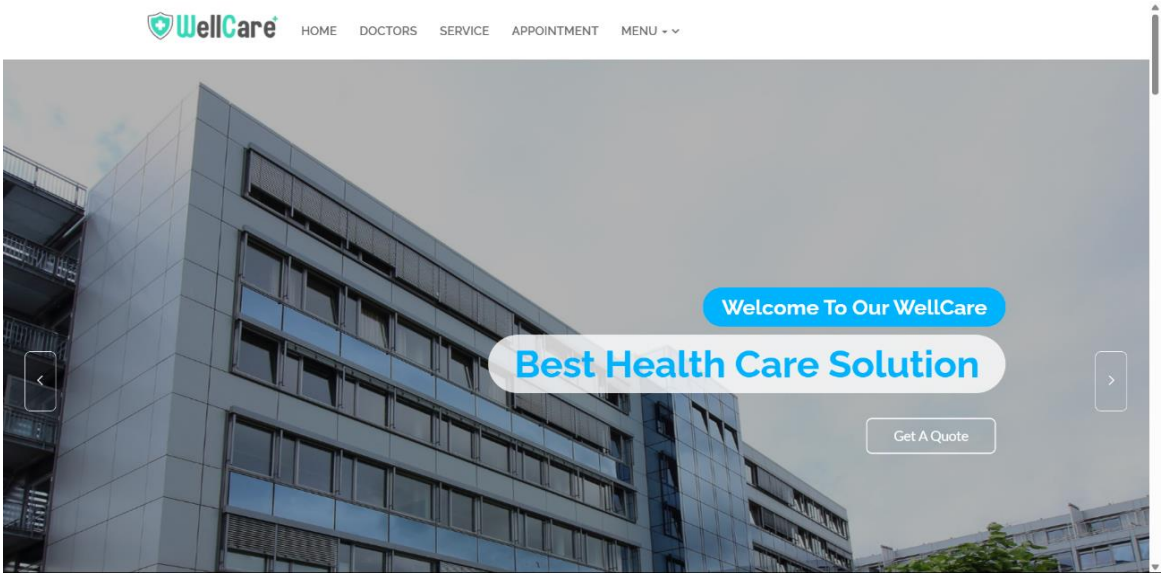
Sr. No	Column Name	Datatype	Default
1	id	Int	None
2	fname	String	None
3	lname	String	None
4	gender	String	None
5	dob	Date	None
6	email	String	None
7	pass	String	None

Screen Layouts:

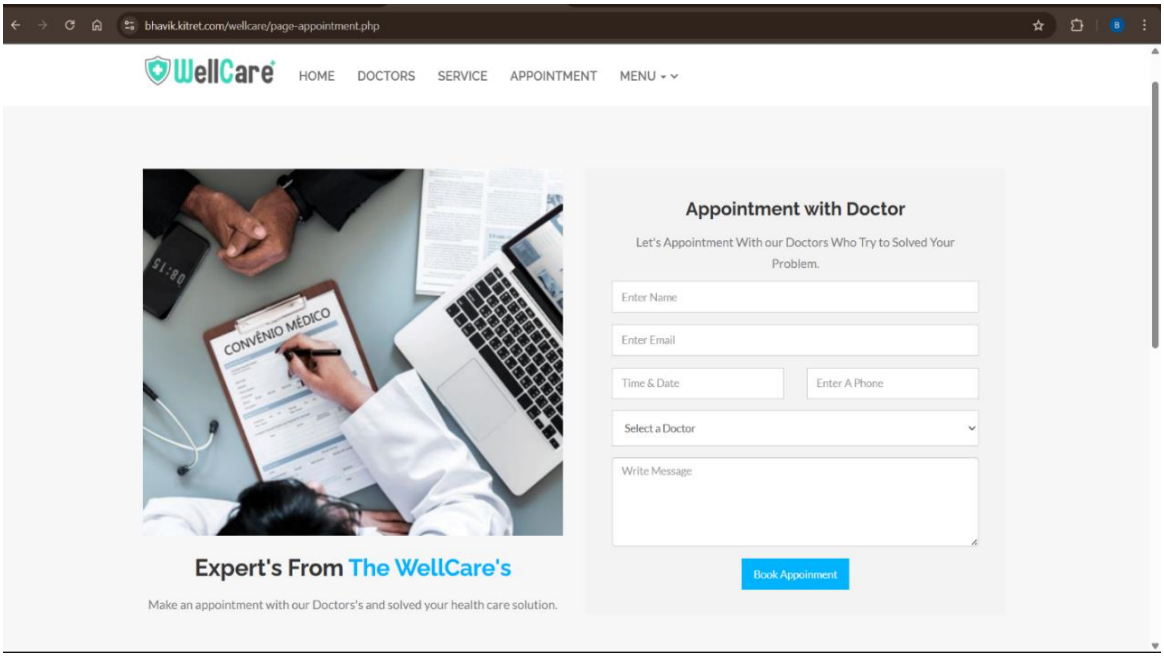
- User
  - Home Page
  - Appointment Page
  - Login Page
  - Register Page
- Admin
  - Login Page
  - Home Page
  - Doctors Page
  - Medical Records Page
  - Add Appointment Page
  - Users Page
  - Medicines Page
- Doctor
  - Login Page
  - Home Page
  - Appointments Page
  - Medical Records Page
  - Approved Appointment Page
  - Medicines Page

➢ User

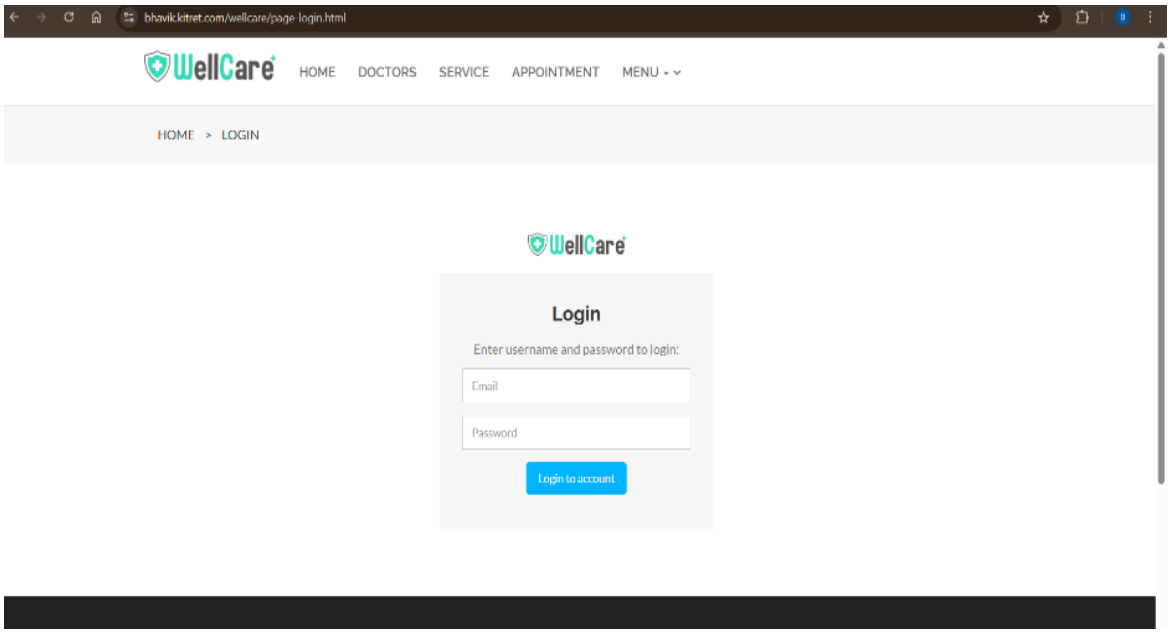
- Home Page :



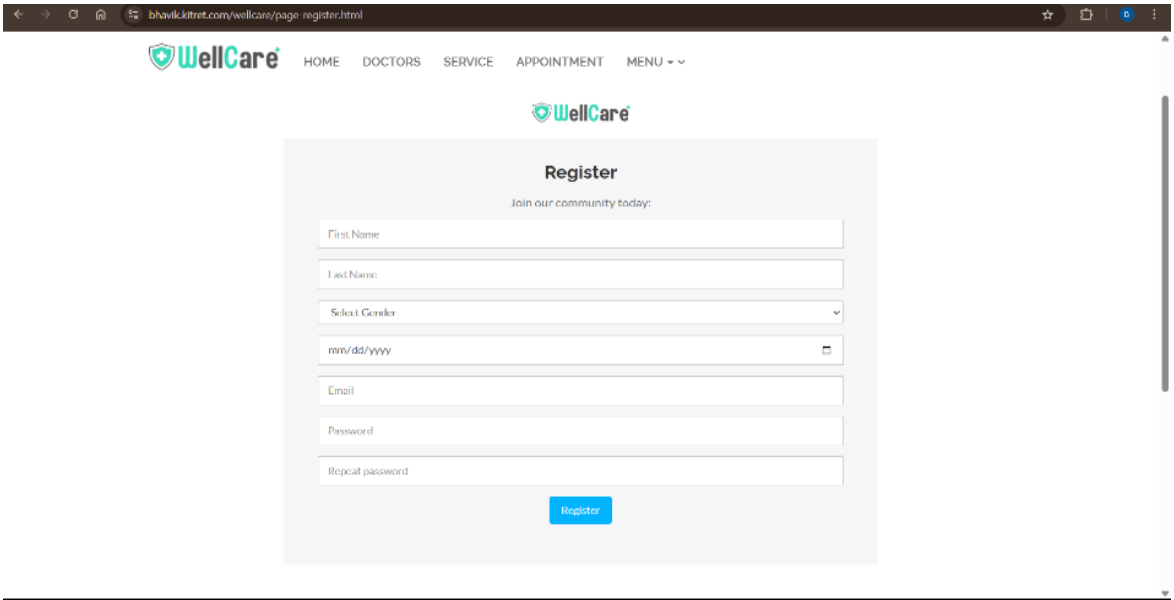
- Appointment Page :



- Login Page :

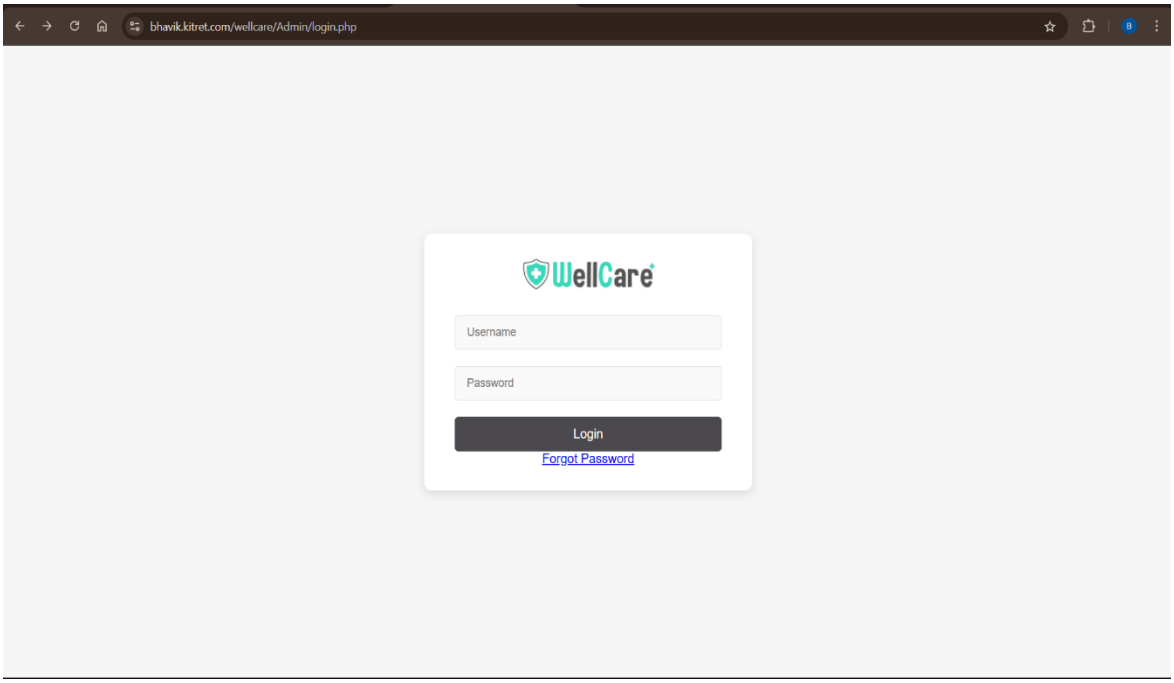


- Register Page :

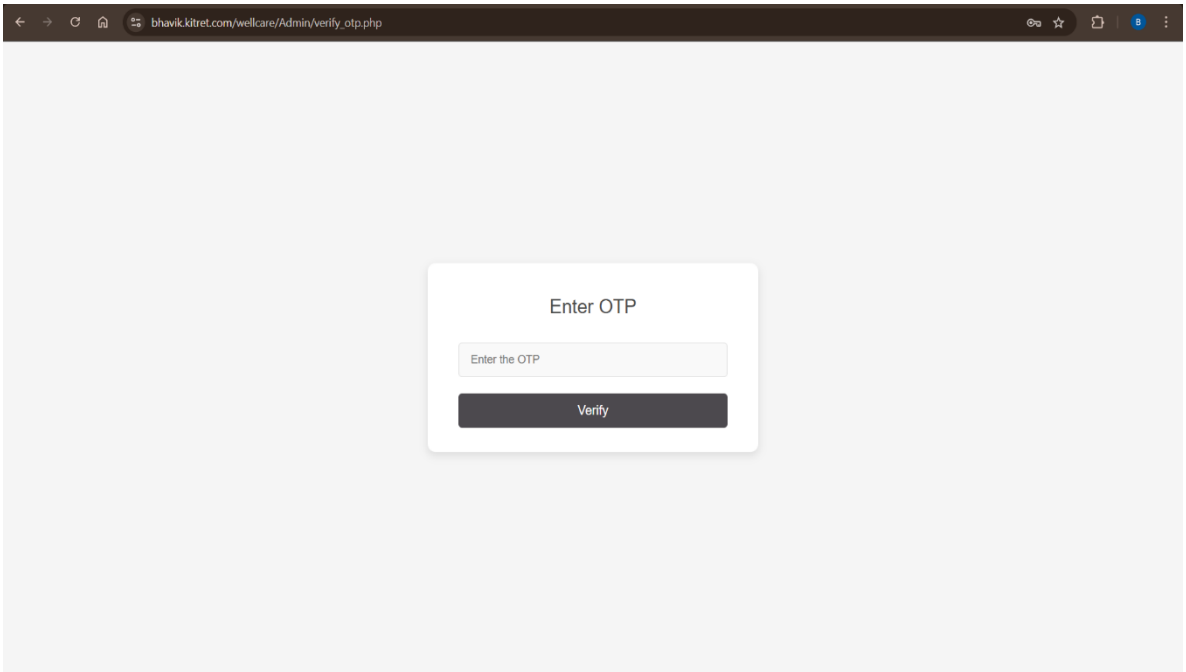


➢ Admin

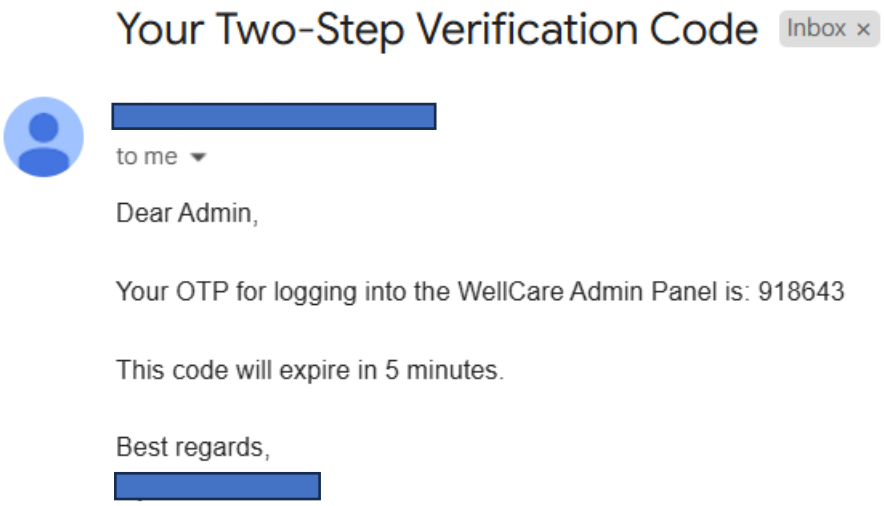
- Login Page :



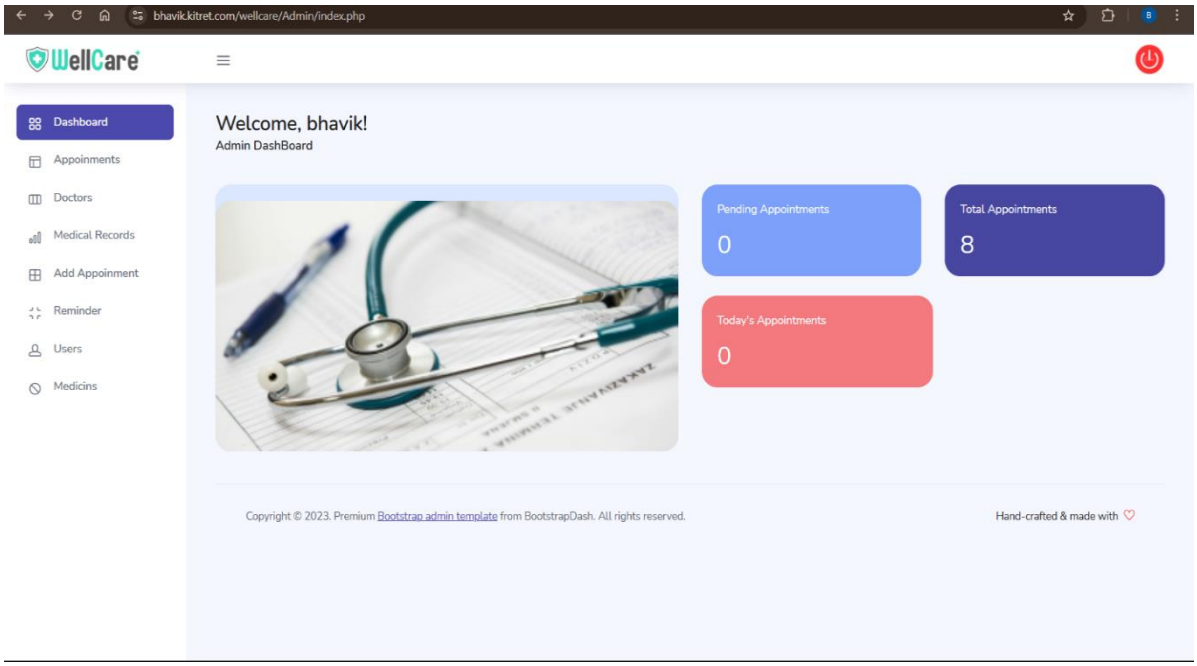
- Verification Page :



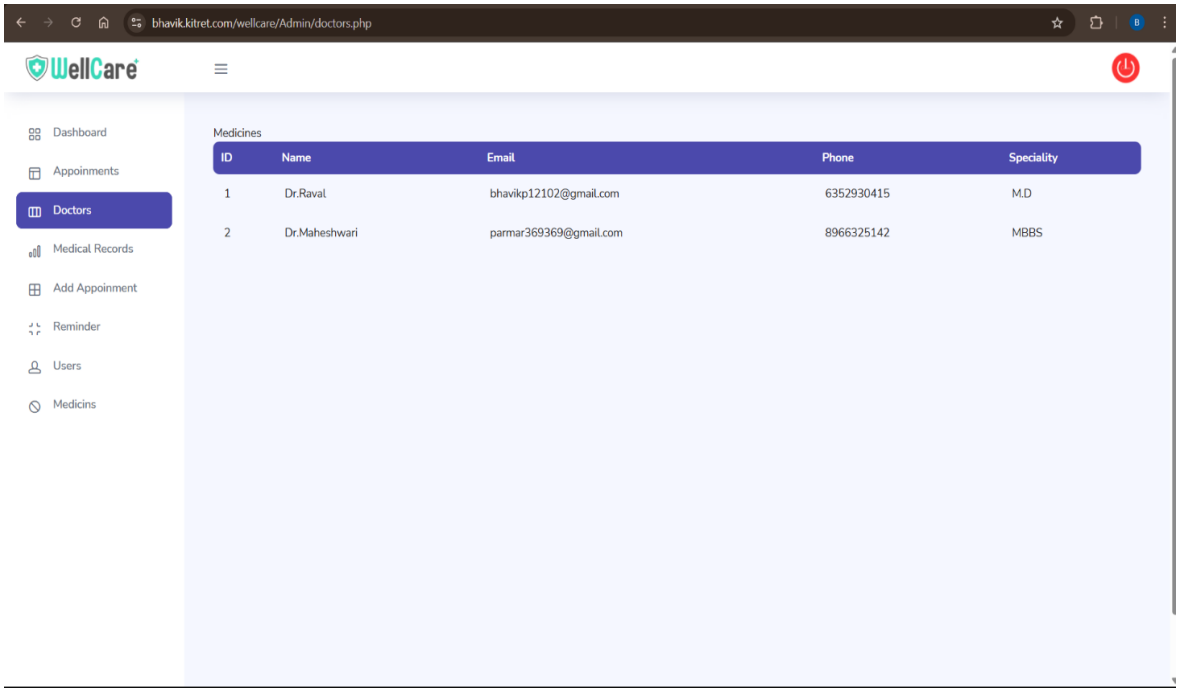
- Verification Mail :



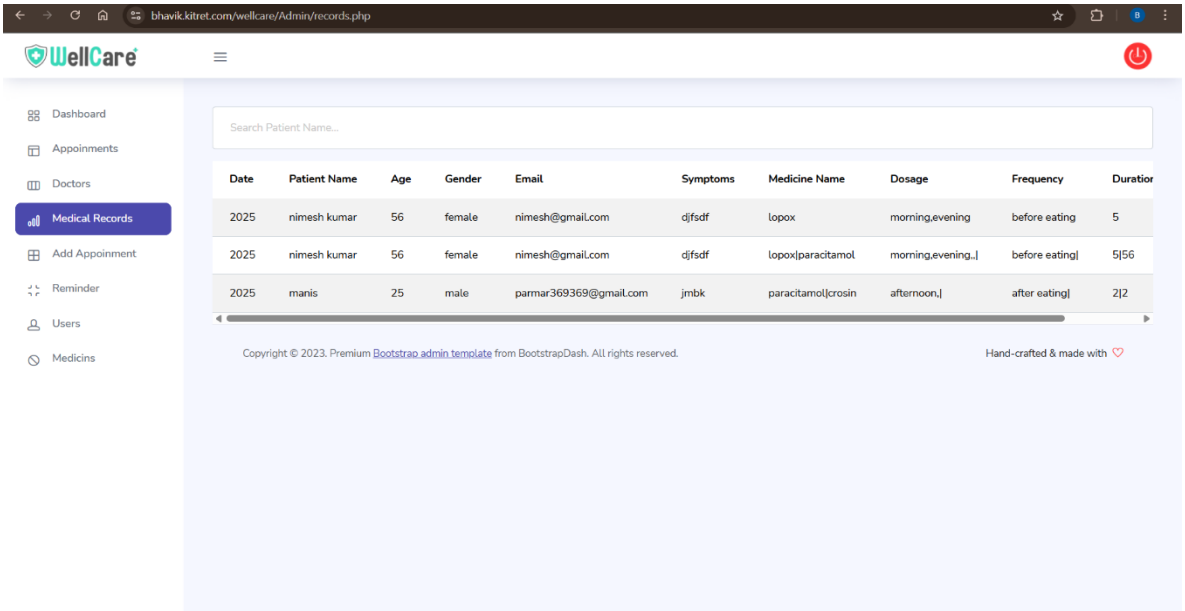
- Home Page :



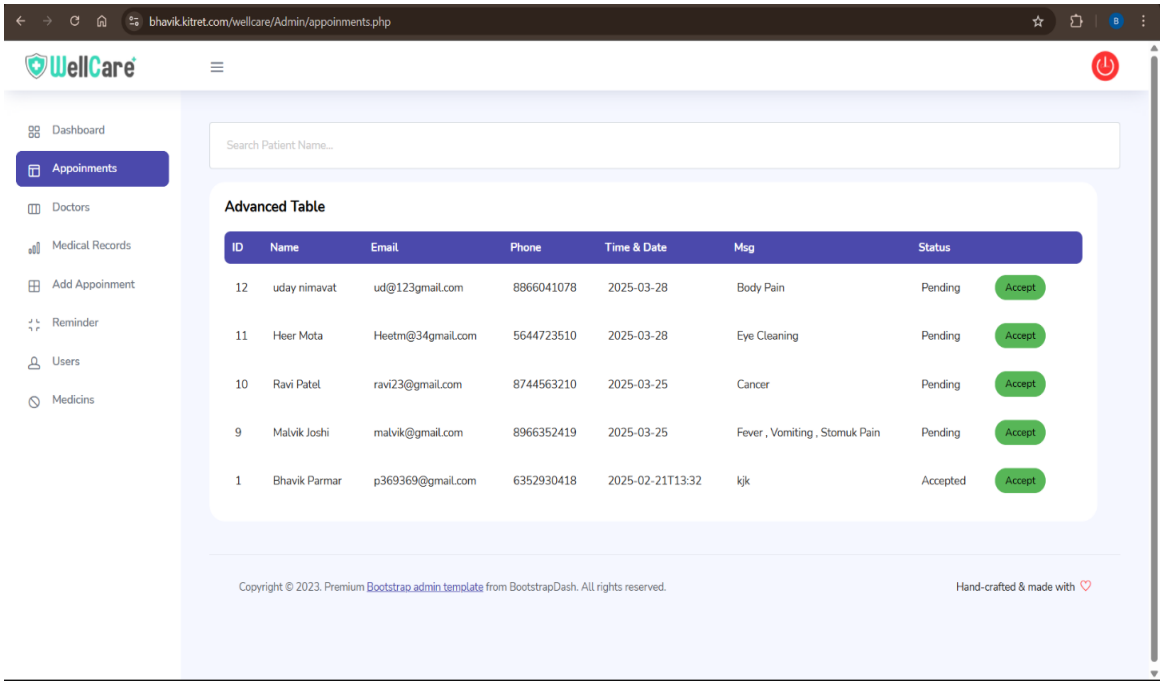
- Doctors Page :



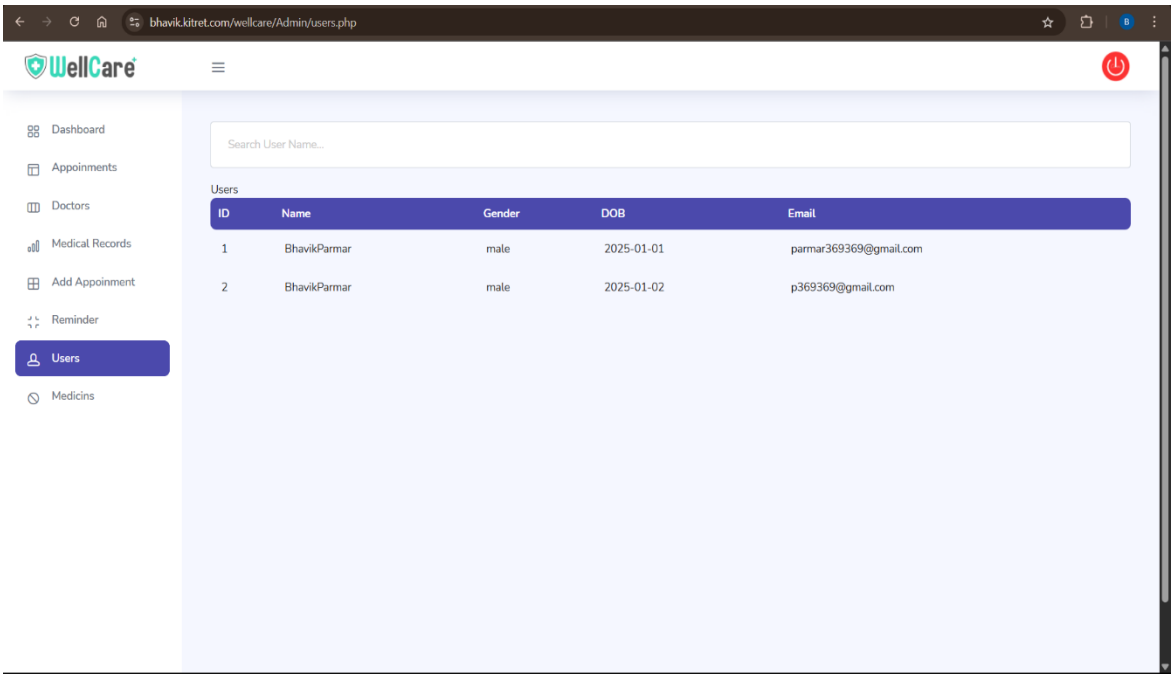
- Medical Records Page :



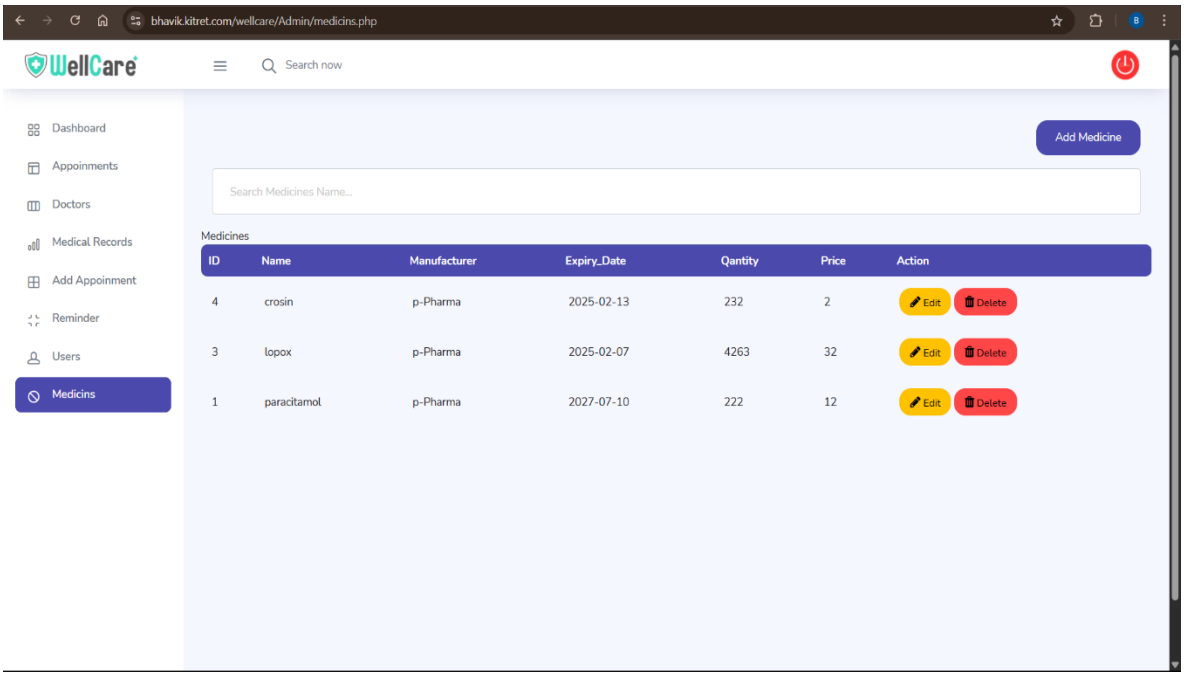
- Add Appointment Page :



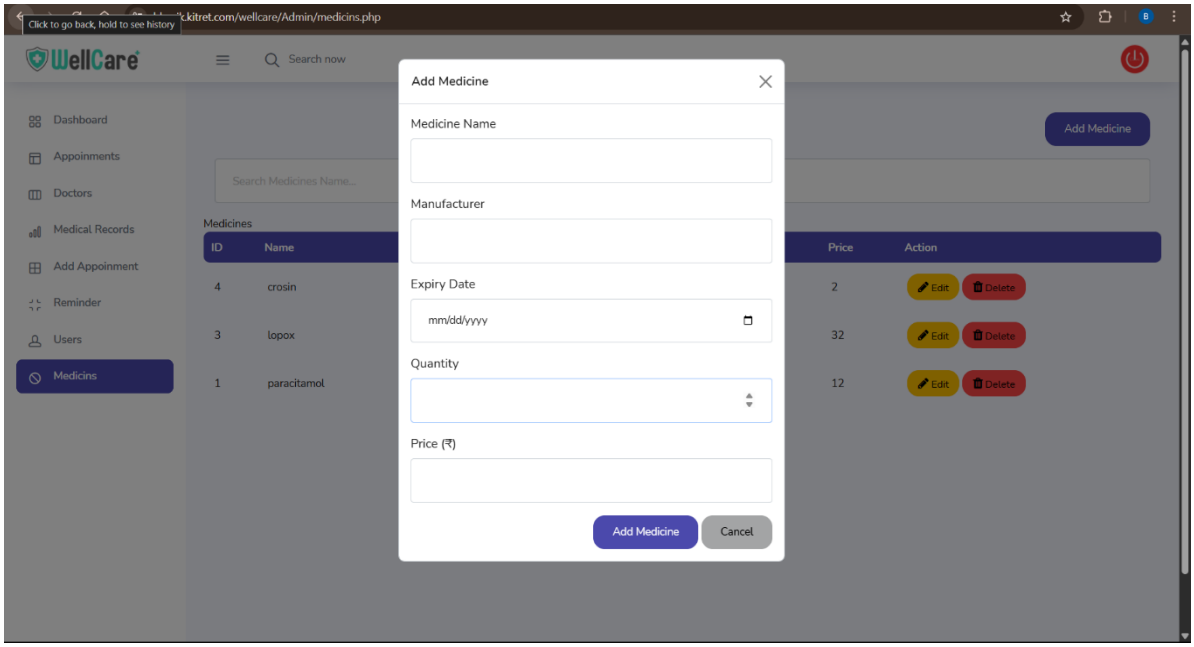
- Users Page :



- Medicines Page :

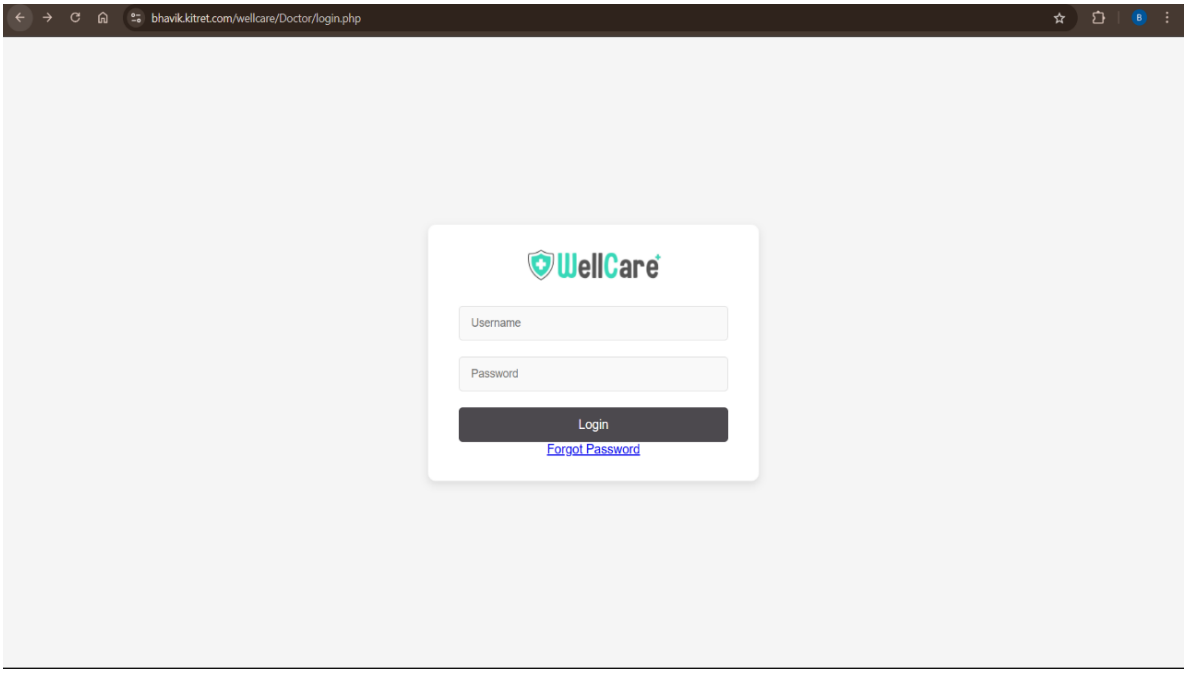


- Add Medicines :

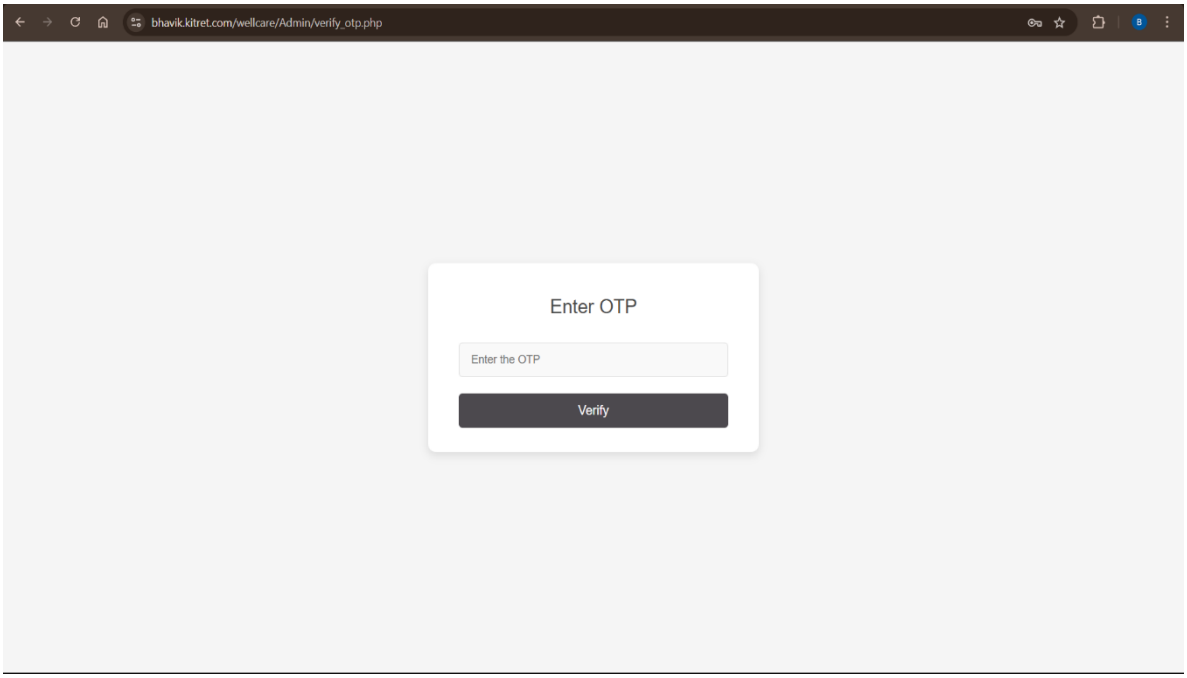


➢ Doctor

- Login Page :



- Verification Page :



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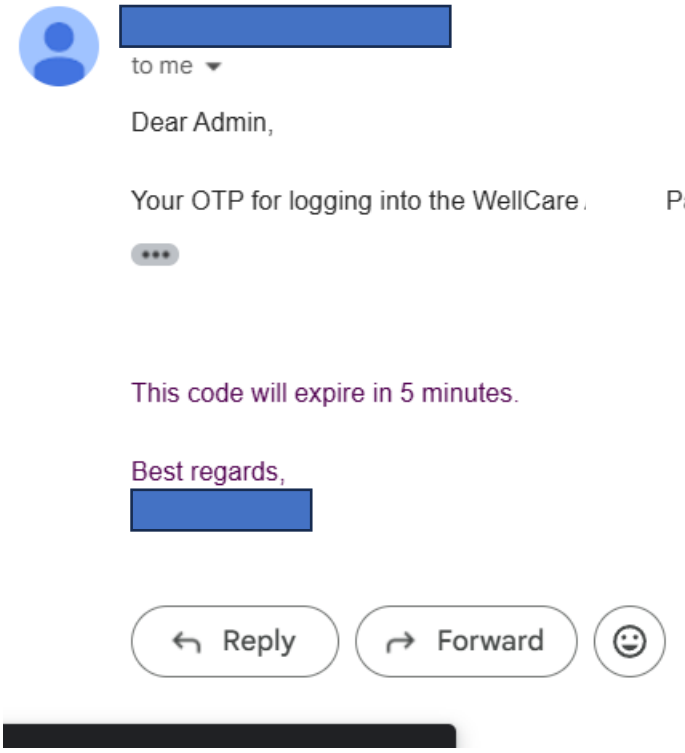

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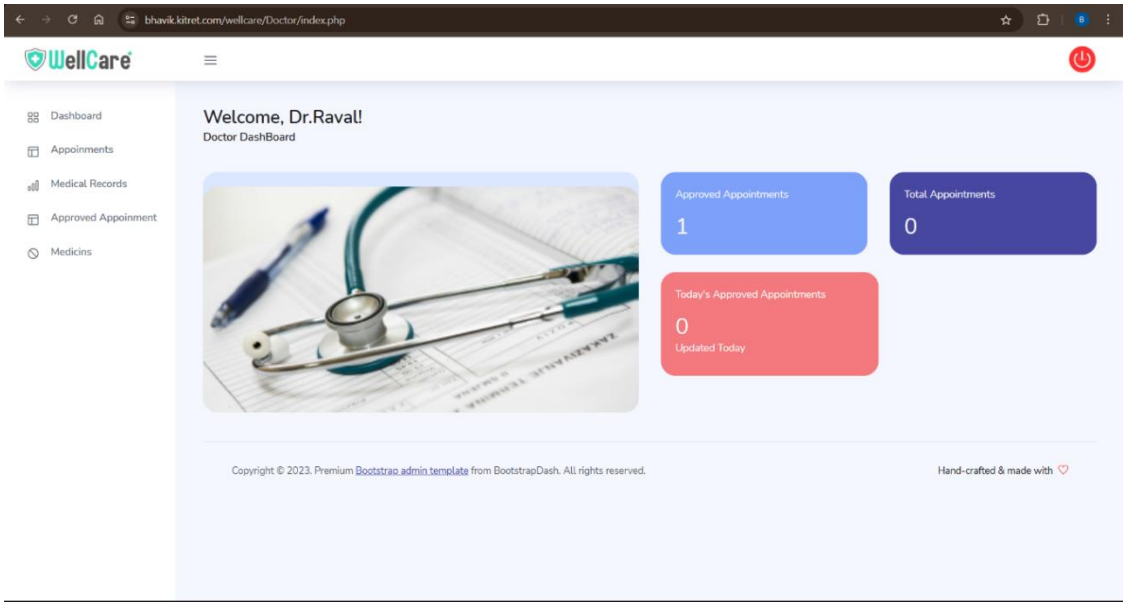

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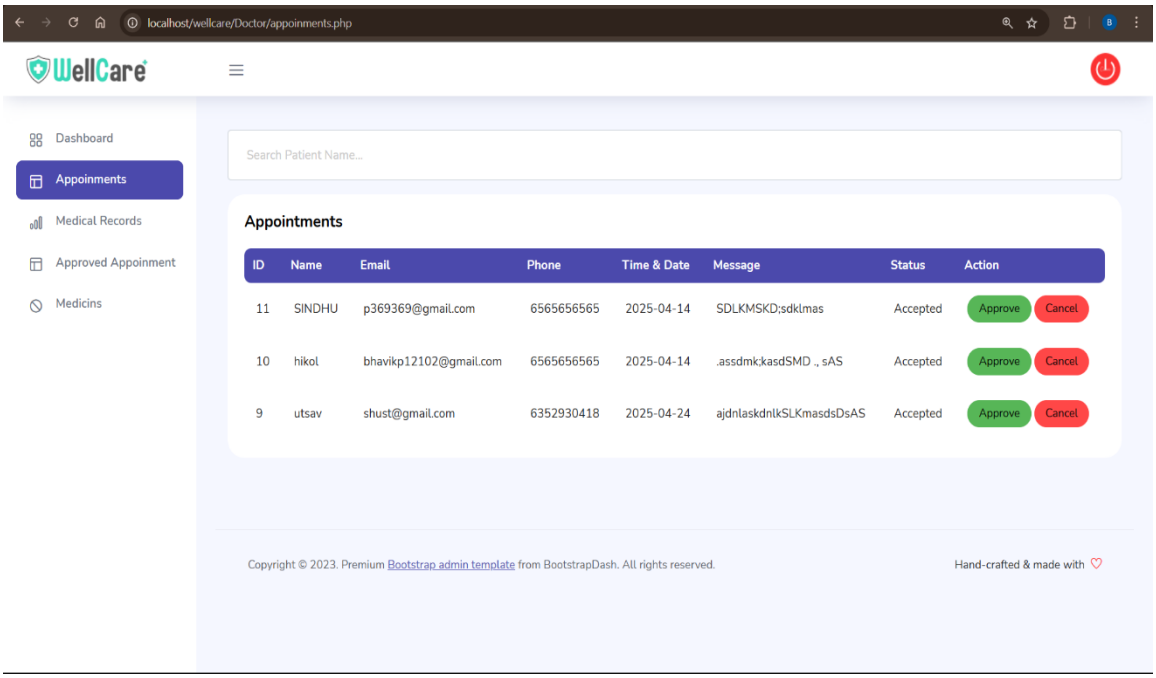
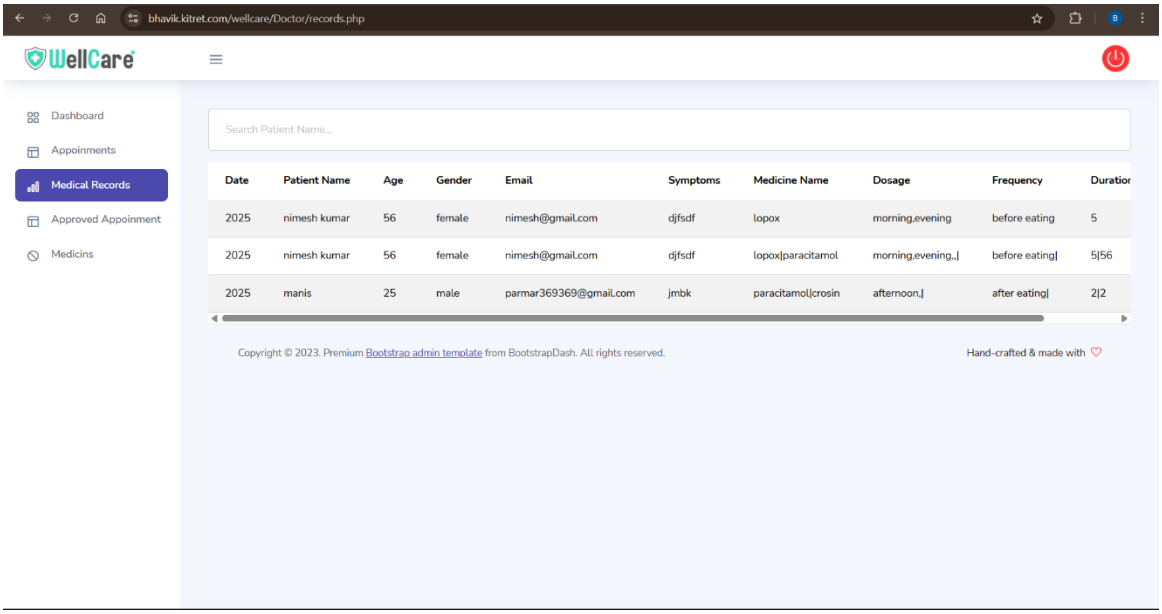


- Medical Records Page :



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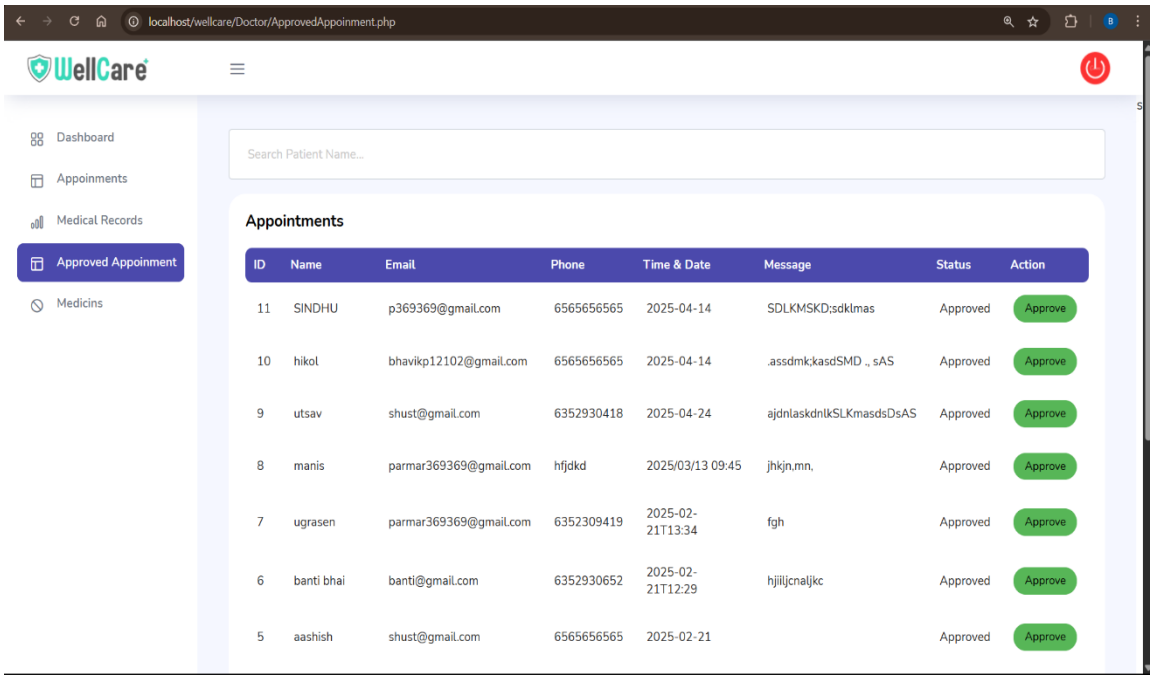

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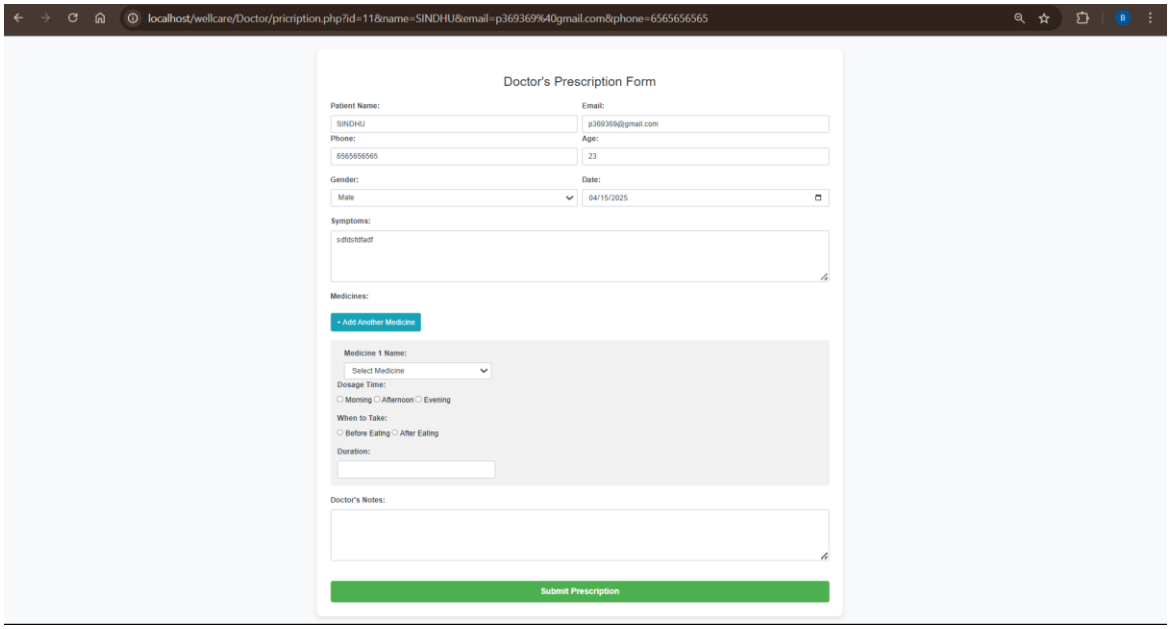
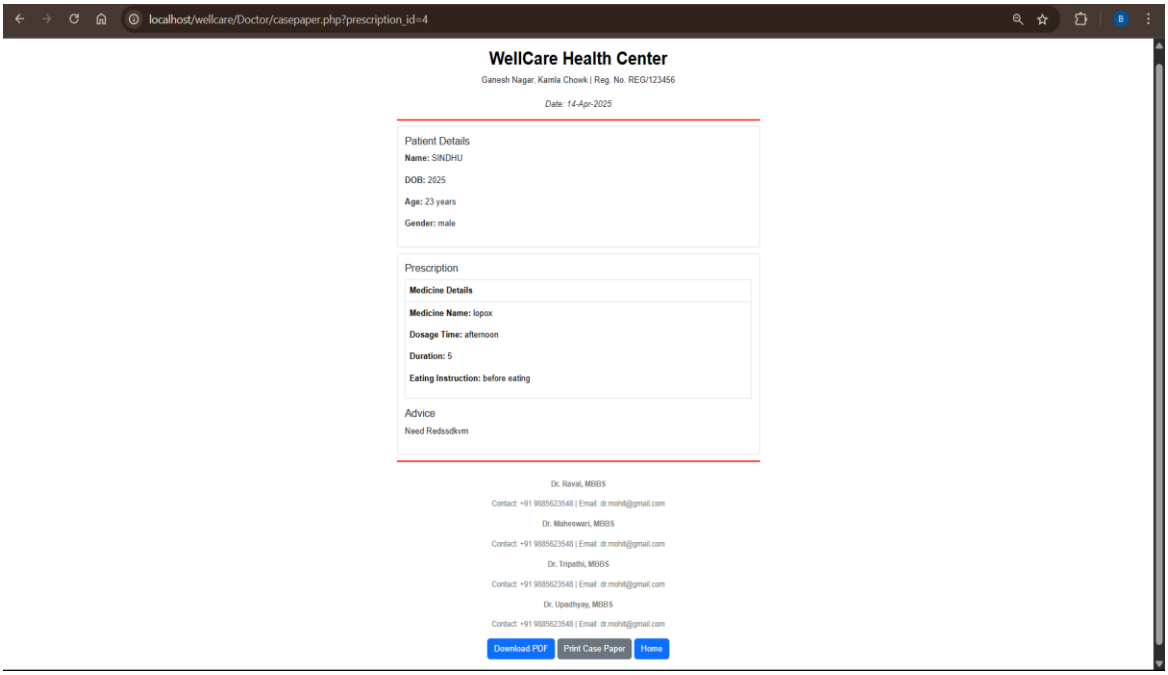


- Case Paper Page :



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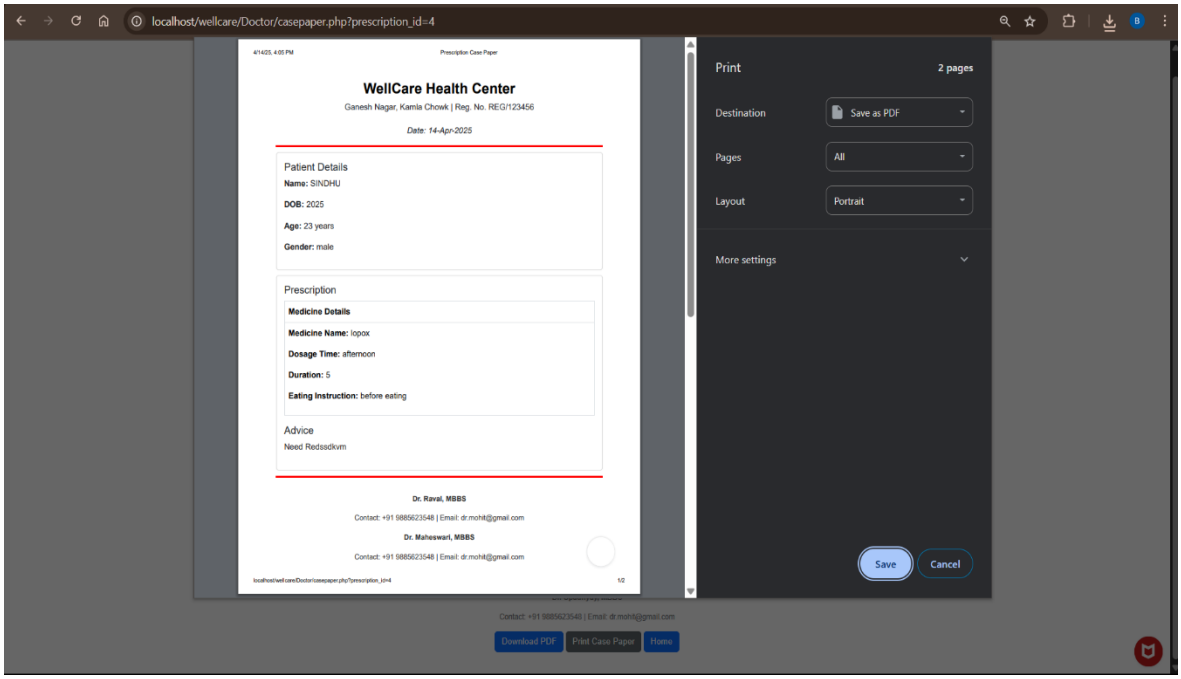
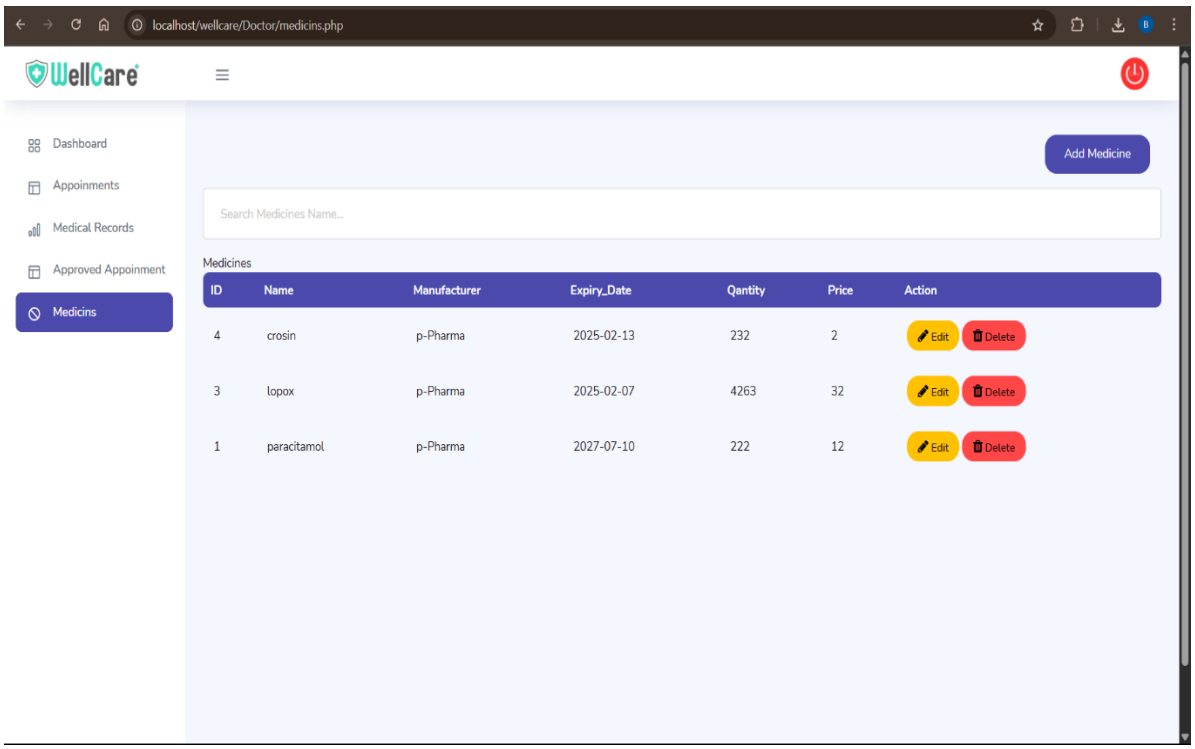


- Medicines Page :



Testing Strategies:

- **Principle-1:All test should be traceable to customer requirements.**

  The objective of software testing is uncover errors. It follows that the most server defects are those that cause the program to fail to meet its requirements.

- **Principle-2: Test should be planned long before the actual testing begins.**

  Planning can begin as soon as the analysis model is complete. Detailed definition of test cases can begin as soon as the model has been solicited. Therefore, all tests can be planned and designed any code has been generated.

- **Principle-3:The pareto principle applies to hardware testing.**

  Stated simply, the Pareto principle implies that 80 percent of all errors uncovered during testing will likely be traceable to 20 percent of all program components. The problem of course, is to isolate these suspect components.

- **Principle-4: Testing should begin "in the small" and progress toward testing "inthelarge".**

  The first test planned and executed generally focuses on individual components.

  As testing progresses, focus shifts in attempt to find errors in integrated clusters of components and ultimately in the entire system.

- **Principle-5: Exhaustive testing is not possible.**

  The number of path permutations of even a moderately sized program is exceptionally large.

➢ Test Cases:

○ User Login Page:

Sr.No	Test Cases	Purpose	Input	Expected Output	Status
1	Test Case-1	/ Password	Blank/Blank	No Action	Please Enter Email and Password
2	Test Case-2	Email / Password	User email/Blank	No Action	Please Enter Password
3	Test Case-3	Email / Password	User email/123456	No Action	Please Enter the Correct Email
4	Test Case-4	Email / Password	Parmar369369@gmail.com/123456	Login to web Application	Valid User

○ Admin Login Page:

Sr.No	Test Cases	Purpose	Input	Expected Output	Status
1	Test Case-1	username / Password	Blank/Blank	No Action	Please Enter username and Password
2	Test Case-2	username / Password	Admin username/Blank	No Action	Please Enter Password
3	Test Case-3	username / Password	Admin username/010102	No Action	Please Enter the Correct username
4	Test Case-4	username / Password	Bhavik/010102	Login to Application	Valid Admin

- Doctor Login Page:

Sr.No	Test Cases	Purpose	Input	Expected Output	Status
1	Test Case-1	Username / Password	Blank/Blank	No Action	Please Enter username and Password
2	Test Case-2	username / Password	Admin username/Blank	No Action	Please Enter Password
3	Test Case-3	username / Password	Admin username/010102	No Action	Please Enter the Correct username
4	Test Case-4	username / Password	Raval /010102	Login to Application	Valid Admin

- **User Signup Page:**

Sr.No	Test Cases	Purpose	Input	Expected Output	Status
1	Test Case-1	FirstName / LastName/Email / Password/Cnf-Password/Gender /B-Date /	All field Blank	No Action	Please Enter All Details
2	Test Case-2	FirstName / LastName/Email / Password/Cnf Password/Gender /B-Date /	Bhavik /Parmar /Blank/Blank/Blank/Blank/ Blank	No Action	Please Enter All Details
3	Test Case-3	FirstName / LastName/Email / Password/Cnf-Password/Gender /B-Date /	Bhavik/Parmar/user email/ Black/Blank/Blank/B lank	No Action	Please Enter Vailid email Id

4	Test Case-4	FirstName / LastName/Email / Password/Cnf-Password/Gender /B-Date /	Bhavik/Parmar /user mail/123/ Blank/Blank/Blank	No Action	Confirm password is Empty
5	Test Case-5	FirstName / LastName/Email / Password/Cnf-Password/Gender /B-Date /	Bhavik/Parmar /user mail/123/ 456/Blank	No Action	Confirm password Doesn't Match
6	Test Case-6	FirstName / LastName/Email / Password/Cnf-Password/Gender /B-Date /	Bhavik/Parmar /user mail/123/ 123/Blank	No action	Please Input the gender
7	Test Case-7	FirstName / LastName/Email / Password/Cnf-Password/Gender /B-Date /	Bhavik/Parmar /user mail/123/ 123/Mail/Blank	No action	Please Input the DOB field
8	Test Case-8	FirstName / LastName/Email / Password/Cnf-Password/Gender /B-Date /	Bhavik/Parmar /user mail /123/123 /mail / 12-05-2006	Sign Up to Web Application	User Registered Successful.

Future Enhancement:

- **AI-Powered Health Assistant :**
  An intelligent chatbot or virtual assistant could be added to help patients with FAQs, appointment booking, medication reminders, symptom checks, and more—improving engagement and reducing the workload on support staff. Users would have the ability to list their own vehicles for rent, providing details such as make, model, availability, and pricing. Admins would also have the capability to add vehicles to the platform's inventory, ensuring a diverse selection of options for user.

- **Patient Portal for Self-Management :**
  Patients would have access to a dedicated portal where they can view medical history, upcoming appointments, prescribed medications, and personalized health recommendations. This feature empowers patients to take an active role in their own healthcare journey.

- **Admin and Doctor Dashboard :**
  Admins and healthcare providers would have a centralized dashboard to manage patient records, treatment plans, billing, and communication. This ensures seamless coordination and a more efficient healthcare delivery process.

- **Secure Biometric and Third-Party Login Options :**
  To streamline access and enhance security, login options such as biometric authentication (face/fingerprint recognition), as well as Apple ID and Google ID, could be integrated. This ensures that users can securely and conveniently access their medical records.

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