

**Tribhuvan University**

**Faculty of Humanities and Social Science**

**MEDICINE INVENTORY MANAGEMENT SYSTEM**

**A PROJECT REPORT**

**Submitted to**

**Department of Computer Application**

**Pashupati Multiple Campus**

***“In partial fulfillment of the requirements for the Bachelors in Computer Application”***

**Submitted by**

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November, 2023

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**Supervisor’s Recommendation**

I hereby recommend that this project prepared under my supervision by **SAMRAJYA PRATAP RANA** and **MUNA LAMA** entitled “**MEDICINE INVENTORY MANAGEMENT SYSTEM”** in partial fulfillment of the requirements for the degree of Bachelor of Computer Application is recommended for the final evaluation.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**LETTER OF APPROVAL**

This is to certify that this project prepared by **SAMRAJYA PRATAP RANA** and **MUNA LAMA** entitled “**MEDICINE INVENTORY MANAGEMENT SYSTEM”** in partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been evaluated. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

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| --- | --- |
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# **ABSTRACT**

Our project “Medicine Inventory Management System” is a web-based application specifically designed to assist pharmacy in organizing and monitoring their inventory. The system is typically equipped with essential features such as inventory tracking, order management, and reporting and analytics. With advanced reporting and analytics tools, make data-driven decisions to optimize their inventory management strategies. Medicine inventory management system is a web application made with the help of CSS, JAVASCRIPT, HTML, as at frontend and Node js as its backend. In this system manage their inventory according with their need and desire. It is the most convenient system as people don’t have time to manage inventories in the traditional way.

***Keywords: Web Application, Inventory tracking***

# **ACKNOWLEDGEMENT**

Apart from our efforts, the success of any project depends largely on the encouragement and guidelines of many others. We take this opportunity to express our gratitude to the people who have been instrumental in the successful completion of this project. We would like to show our greatest appreciation to **Mr. Bijay Mishra, Mr. Deepak Thakur**. We can't thank them enough for his tremendous support and help. We feel motivated and encouraged every time we attend his meeting. Without their encouragement and guidance, this project would not have materialized. The guidance and support received from all the members who contributed and who are contributing to this project were vital for the success of the project. We are grateful for their constant support and help

**TABLE OF CONTENTS**

[**ABSTRACT** i](#_Toc147690712)

[**ACKNOWLEDGEMENT** i](#_Toc147690713)

[**List of Abbreviations** i](#_Toc147690714)

[**Table of Figures** i](#_Toc147690715)

[**List of Tables** i](#_Toc147690716)x

[**CHAPTER 1: INTRODUCTION** 1](#_Toc147690717)

[1.1 Introduction 1](#_Toc147690718)

[1.2 Problem Statement 2](#_Toc147690719)

[1.3 Objectives 1](#_Toc147690720)

[1.4 Scope and Limitations 3](#_Toc147690721)

[1.4.1 Scope of System 1](#_Toc147690722)

[1.4.2 Limitations of System 1](#_Toc147690723)

[1.5 Report Organization 1](#_Toc147690724)

[**CHAPTER 2: BACKGROUND STUDY AND LITERATURE REVIEW** 1](#_Toc147690725)

[2.1. Background Study 1](#_Toc147690726)

[2.2. Literature Review 6](#_Toc147690727)

[**CHAPTER 3: SYSTEM ANALYSIS AND DESIGN** 1](#_Toc147690728)

[3.1 System Analysis 1](#_Toc147690729)

[3.1.1 Requirement Analysis 1](#_Toc147690730)

[3.1.2 Feasibility Analysis 1](#_Toc147690731)

[3.1.3 Schedule Feasibility 1](#_Toc147690732)

[3.1.4 Data Modelling 1](#_Toc147690733)

[3.1.5 Process Modelling 1](#_Toc147690734)

[3.2 System Design 1](#_Toc147690735)

[3.2.1 Architectural Design 1](#_Toc147690736)

[3.2.2 Database Schema Design 1](#_Toc147690737)

[3.2.3 Interface Design (UI Interface) 1](#_Toc147690738)

[3.2.4 Physical DFD 1](#_Toc147690739)

[**CHAPTER 4: IMPLEMENTING AND TESTING** 22](#_Toc147690740)

[4.1 Implementation 22](#_Toc147690741)

[4.1.1 Tools Used (CASE tools, Programming languages, Database platforms) 22](#_Toc147690742)

[4.1.2 Implementation Details of Modules 1](#_Toc147690743)

[4.2 Testing 1](#_Toc147690744)

[4.2.1 Test Cases for Unit Testing 1](#_Toc147690745)

[4.2.2 Test Cases for System Testing 1](#_Toc147690746)

[**CHAPTER 5: CONCLUSION AND FUTURE RECOMMENDATIONS** 1](#_Toc147690747)

[5.1 Lesson Learnt 1](#_Toc147690748)

[5.2 Conclusion 1](#_Toc147690749)

[5.3 Future Recommendations 29](#_Toc147690750)

[**References** 1](#_Toc147690751)

[**Appendices 31**](#_Toc147690752)

# **List of Abbreviations**

**CSS** Cascading Style Sheets

**DFD** Data Flow Diagram

**ER** Entity Relationship

**HTML** Hypertext Markup Language

**SQL** Structured Query Language

**UC** Use Case

**UI** User Interface

**XAAMP** X-operating system, Apache, MySQL, PHP, Pearl

# **Table of Figures**

Figure 3.1: Use Case Diagram… 7

Figure 3.2: Gantt Chart… 9

Figure 3.3: ER Diagram… 10

Figure 3.4: Context Diagram… 11

Figure 3.5: Level 1 DFD… 12

Figure 3.6: Architectural Model… 13

Figure 3.7: Database Schema Model… 14

Figure 3.8: Front Page UI… 15

Figure 3.9: Login Page UI… 16

Figure 3.10: Sign up Page UI… 17

Figure 3.11: Inventories UI… 18

Figure 3.12: Admin Dashboard UI… 19

Figure 3.12: User Dashboard UI… 20

Figure 3.13: Physical DFD… 21

# 

**List of Tables**

Table 4.1: Test Case 001-Login…………………………………………… 24

Table 4.2: Test Case 002-Sign Up……………………………………….… 25

Table 4.3: Test Case 003-Inventories……………………………………… 26

Table 4.3: Test Case 004-Admin Sing in…………………………………...27

Table 4.4: Test Case Test Case for system………………………………….28

# **CHAPTER 1: INTRODUCTION**

## **Introduction**

A medicine inventory management system is a crucial web-based application tailored to meet the unique needs of pharmacy, offering a comprehensive solution for the organization and monitoring of their inventory. This specialized system is equipped with a range of essential features designed to streamline the management of a pharmacy operations. At its core, inventory tracking serves as the backbone of the system, empowering users to efficiently oversee their medicine items, maintain real-time visibility into stock levels, and implement notifications to alert them when inventory levels dip below a predefined threshold. This feature plays a pivotal role in ensuring that pharmacy can effectively manage their medicine stock, enabling them to make informed decisions about restocking, reordering, and optimizing their inventory levels. Beyond inventory tracking, a medicine inventory management system encompasses various other critical functionalities. Order management, for instance, facilitates the efficient processing and tracking of customer orders, ensuring that items are available for prompt delivery. Additionally, the system often includes robust reporting and analytics tools, which provide valuable insights into sales trends, inventory turnover rates, and other key metrics.

By combining these features, a medicine inventory management system empowers pharmacy to operate more efficiently and effectively, reducing the risk of overstocking or running out of popular items. Ultimately, it helps medicine pharmacy stay competitive, satisfy customer demands, and boost profitability by ensuring that their inventory is managed with precision and intelligence. By utilizing real-time data, businesses can make informed decisions about purchasing and replenishment, which can help to prevent overstocking or understocking of items. Overall, a medicine inventory management system provides an integrated and efficient solution for pharmacy to manage their inventory and orders, streamline their business operations, and enhance their profitability. With advanced reporting and analytics tools, businesses can quickly make data-driven decisions to optimize their inventory management strategies.

A small medicine pharmacy uses a Medicine Management system to track their inventory levels. Each day, the staff uses the system to update the inventory levels. This information is then used to generate reports that show the items that are in stock, and the items that need to be reordered.

## **1.2 Problem Statement**

After analyzing many existing Medicine inventory management system, we have now the obvious vision of the project to be developed. Before we start to build the application, we may have many challenges. We define our problem statement as: Inventory management can often be plagued by various challenges that can hinder operational efficiency. One common issue is the inefficiency and time-consuming nature of the processes involved. This can lead to delays and resource wastage. Additionally, poor tracking of stocks can result in difficulties in maintaining appropriate stock levels, potentially leading to overstocking or understocking. Another critical aspect is the inadequacy of stocks reporting and analytics, which can make it challenging to make informed decisions. Real-time data is often lacking, making it hard to respond promptly to changing market conditions. Furthermore, manual data entry errors can compound these problems, leading to inaccuracies in inventory records. Addressing these challenges is crucial for effective inventory management and business success.

## **Objectives**

With its comprehensive array of features, a medicine inventory management system empowers businesses to maintain meticulous and up-to-date records of their stock levels, enabling them to exercise greater control over their inventory. This level of precision in inventory management is essential for medicine pharmacy as it allows them to track every item in their stock, from various sizes and styles to seasonal collections. Moreover, the system enables pharmacy to monitor trends and patterns in their inventory data, which can be invaluable for making data-driven decisions. The primary objectives of such a system are multi-faceted. First and foremost, it seeks to optimize stock levels, ensuring that pharmacy maintain the right balance between having enough inventory to meet customer

demand while avoiding the unnecessary costs associated with overstocking. With its array of features, it empowers businesses to maintain precise records of their stock levels, monitor trends, and make data-driven decisions.

Some of the objectives of the system are:

1. To provide accurate inventory tracking.
2. To provide effective inventory management.
3. Bulk inventory upload.

## **1.4 Scope and Limitations**

### **1.4.1 Scope of System**

### The scope of a Medicine inventory management system encompasses a comprehensive range of functions and features tailored to the specific needs of the organization or business. At its core, the system is designed to efficiently track and manage medicine inventory, including monitoring item quantities, and any changes in stock levels. It must provide robust item identification through various means like inventory stock number while also offering tools for stock replenishment and supplier management. Moreover, the system should support sales and demand forecasting, aiding in informed decisions about inventory levels and purchases. Other crucial aspects within the system's scope include inventory valuation, reporting and analytics for data-driven decisions, seamless integration with other systems, security measures, mobile accessibility, compliance with industry regulations, and scalability to accommodate business growth. By defining these requirements clearly, organizations can implement an effective Medicine inventory management system that aligns with their specific goals and operational processes.

### **1.4.2** **Limitations of System**

Indeed, like any other technology or system, medicine inventory management systems are not without their flaws and limitations. These drawbacks must be acknowledged and addressed for users to make the most of these systems. Firstly, cost can be a significant barrier, particularly for smaller businesses. Implementing and maintaining an inventory management system can be expensive, involving not only the initial setup costs but also ongoing subscription fees, hardware, and employee training. Medicine inventory management systems, like any technology, come with their fair share of flaws and limitations. These encompass cost, learning curves, technical issues, data accuracy, and the inability to account for every external variable. Acknowledging these limitations and working to mitigate their impact is essential for businesses to leverage the benefits of these systems while maintaining agility and adaptability in a dynamic market.

The system's limitations are listed as follows:

● Human Error: Despite automation, human errors can still occur.

● Customization Costs: Customization can be expensive and time-consuming.

● Scalability Issues: May struggle to handle business growth without proper design

## **1.5 Report Organization**

**Chapter 1** includes introduction of the system Medicine inventory management with its problem of statement, objective, and its scope and limitation.

**Chapter 2** includes the background study of Medicine inventory management and some literature review of other Medicine inventory managementsystems.

**Chapter 3** includes the functional and non-functional requirements along with feasibility analysis and architectural design of Medicine inventory management.

**Chapter 4** includes the tools used in this system and the testing that is done.

**Chapter 5** includes about the outcome of this system as well as the future recommendations for Medicine inventory management.

# **CHAPTER 2: BACKGROUND STUDY AND LITERATURE REVIEW**

## **2.1. Background Study**

## When developing a Medicine inventory management system, it is important to consider existing systems and the needs of the target audience. Conducting a thorough analysis of existing systems can provide valuable insights into essential features, functionalities, user experiences, and market trends. This information can be used to develop a more effective and user-friendly system that is tailored to the specific needs of the target audience, while also offering a competitive advantage in the market. To differentiate a new cloth inventory management system, developers can offer unique features and functionalities that are not available in existing systems. This could include features such as integration with popular e-commerce platforms, support for multiple languages and currencies, or advanced reporting and analytics capabilities. User feedback and reviews can be used to identify areas where existing cloth inventory management systems fall short. This information can then be used to improve the user experience and functionality of the new system.

## Popular Medicine inventory management platforms like Fashiongo, ApparelMagic, and TradeGecko can be used to understand market trends and user preferences by studying the features and functionalities that are most popular among users. Additionally, developers can read user reviews and feedback on these platforms to learn more about what users like and dislike about existing systems. We gained valuable insights from these websites which has helped a lot in our projects as we have worked on the problems and limitations that are faced by such websites so that we can optimize the experience on our project. Additionally, we have addressed all the possible gains and insights that we can find on the websites so that we can smoothly function our Medicine Inventory Management System.

## Overall, by carefully considering existing Medicine inventory management systems, the needs of the target audience, and market trends, developers can create a more effective and user-friendly system that offers a competitive advantage. Moreover, the learning curve associated with implementing and using these systems can disrupt operations. Employees may require time to adapt to the new technology, potentially resulting in temporary inefficiencies. Additionally, technical issues and software glitches can occasionally disrupt the system's functionality, causing inconveniences and potential business interruptions.

## **2.2. Literature Review**

MediEase is a leading software company dedicated to providing comprehensive business management solutions tailored specifically for the pharmaceutical and medicine management sector. Specializing in creating intuitive and efficient software tools, the company offers a range of features designed to streamline various aspects of operations within the medicine industry. These functionalities include inventory management, order processing, prescription tracking, expiration date monitoring, and financial management.

PharmaTrack360 emerges as a comprehensive medicine management system tailored for pharmaceutical companies, distributors, and pharmacies. This system focuses on end-to-end visibility, traceability, and efficiency in the pharmaceutical supply chain.

We have made extensive use of websites that offer valuable insights to enhance our understanding and facilitate the successful execution of our project. These online resources have proven instrumental in equipping us with essential knowledge and information necessary for the seamless operation of our project. By tapping into the wealth of information provided by these websites, we have been able to make informed decisions, identify potential challenges, and develop effective strategies to overcome them. In doing so, we are not only ensuring the efficiency of our project but also bolstering our ability to adapt to evolving circumstances and ultimately achieve our project's objectives.

# **CHAPTER 3: SYSTEM ANALYSIS AND DESIGN**

## **3.1 System Analysis**

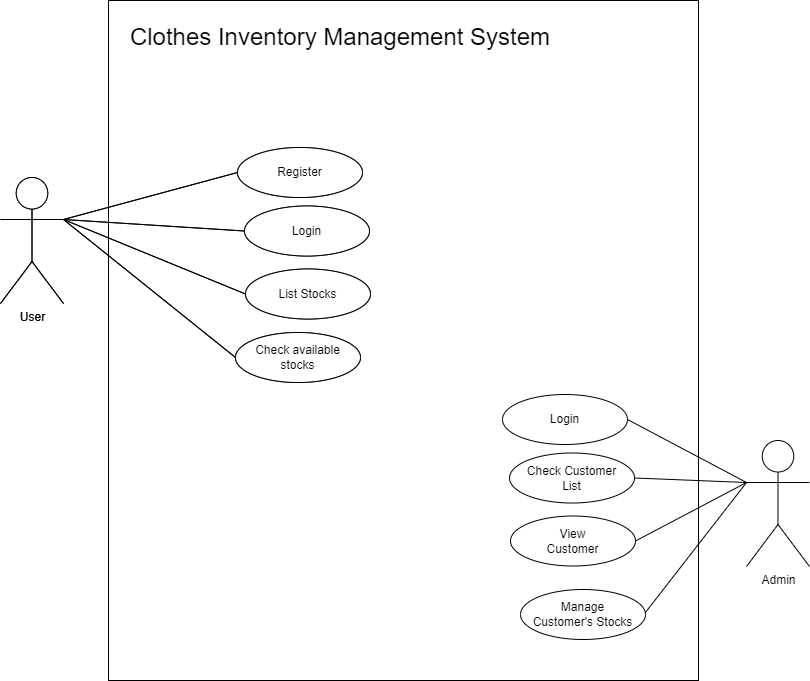
The system analysis of the system is done by conducting requirement analysis, feasibility analysis, data modeling and process modeling as follows:

### **3.1.1 Requirement Analysis**

#### **Functional Requirements**

This subsection contains the functional requirements for the Medicine Inventory Management System. Features are refined into use case diagrams and to best capture the functional requirements of the system.

**Use Case Diagram:**



**Figure 3.1: Use Case Diagram of Medicine Inventory Management System**

1. **Non-Functional Requirements**

**Performance Requirement:** The system should be capable of handling a large volume of data and user requests without significant delays or performance degradation. To give users smooth operation, it should have effective data processing and retrieval mechanisms.

**Usability Requirement:** To ensure simplicity of use for users with varied levels of digital literacy, the Medicine Inventory Management System should have a user-friendly interface, easy navigation, and clear instructions.

**Availability Requirement:** The availability requirement of a Medicine Inventory Management System refers to its ability to be accessible and operational for users whenever they need assistance or support.

**Environmental Requirement:** The system shall require a localhost server, database server and a web browser to run successfully.

**Compatibility Requirement:** The system shall be compatible across all platforms under required environment.

**Security Requirement:** The Medicine Inventory Management System should ensure the security and privacy of user’s data and personal information. To avoid unwanted access or data breaches, it should employ strong encryption techniques, secure user authentication and strong access controls.

### **3.1.2 Feasibility Analysis**

The feasibility analysis of Medicine Inventory Management System is done through measuring the following feasibilities which are explained as follows:

1. **Technical Feasibility:**

The system can be implemented in various technologies which are presently available as well as in all technologies which will be implemented in future.

1. **Operational Feasibility:**

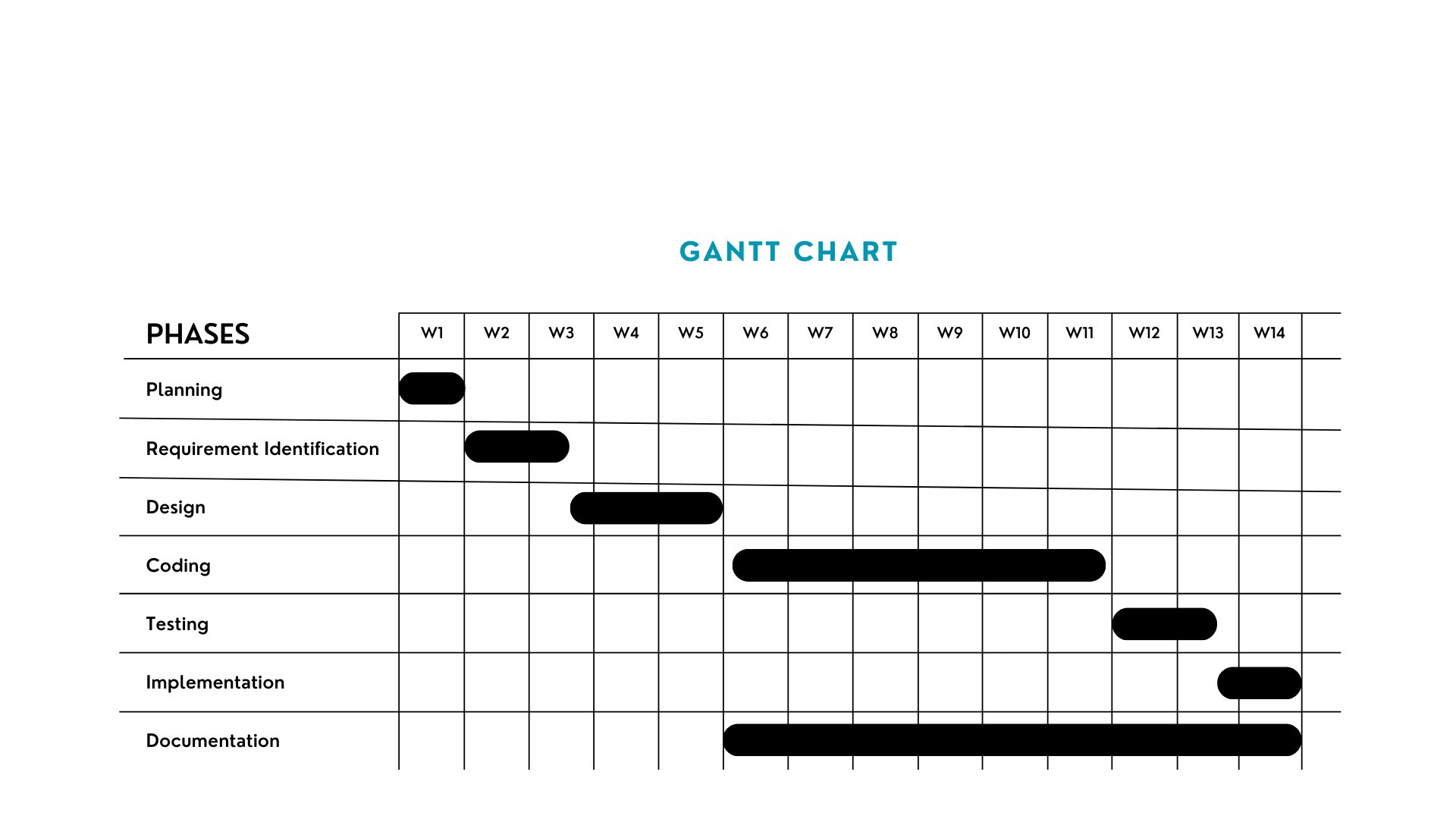
This project is feasible to operate. The current mode of operation provides adequate throughout and response. So, this project is completely operational and can be operated on any platform.

1. **Economic Feasibility:**

It refers to its viability and profitability in relation to the cost associated with its development, implementation and maintenance.

### **3.1.3 Schedule Feasibility**

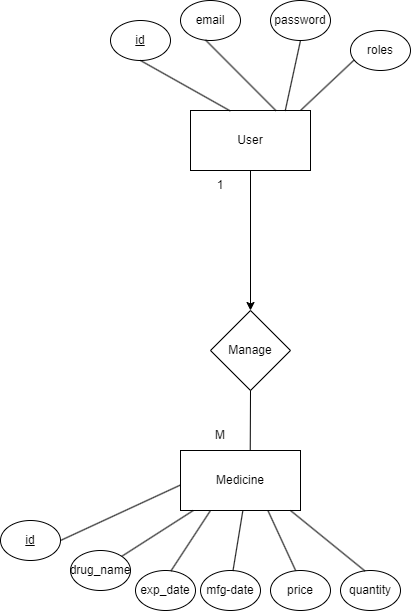
Here is the Gantt chart showing the probability of the project being completed within its scheduled time limits by a planned due date.



**Table 3.2: Gantt Chart of Medicine Inventory Management System**

### **3.1.4 Data Modelling**

For data modeling of Medicine inventory management System, the Entity relationship diagram are as follows:



products

**Figure 3.3: ER- Diagram of Medicine Inventory Management System**

The figure 3.3 is the ER-diagram of Medicine inventory management system. There are three entities in this diagram (user and products). User can have different attributes like email, id and so on where users have their own credentials and there is product with its attribute id, drug\_name and so on. There is one to many relationships with user and product as users can have multiple products.

### **3.1.5 Process Modelling**

For process modeling of Medicine inventory management System, context diagram and DFD up to level 1 are as follows:

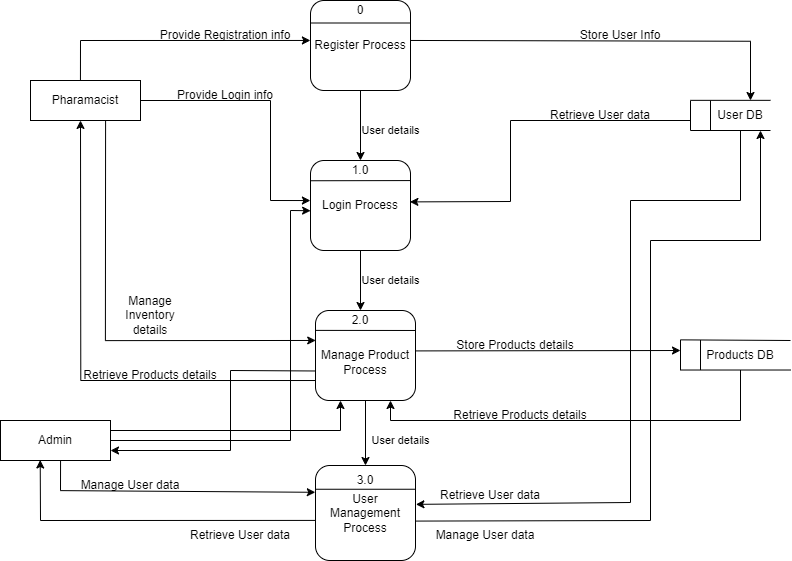
#### **3.1.4.1 Context Level Diagram**

#### 

**Figure 3.4: Context Level Diagram of Medicine Inventory Management System**

The figure 3.4 is also known as context level diagram. It's a basic overview of the whole system or process being designed. The above context level diagram shows the basic overview of "Medicine inventory management system". Here both pharmacist and admin shall register into the system by filling their basic information which is then stored in database. Then both user and admin shall be able to login with their credentials. pharmacist shall be able to provide information with description. Admin shall be able to view information with description. Both pharmacist and admin shall logout of the system as pleased. Similarly, the admin shall be able to login to the system and view all details about all user, product and other information of the system and manage all of them

#### **3.1.4.2 Level 1 DFD:** The level 1 DFD of Medicine inventory Management system are as follows:



**Figure 3.5: Level 1 Diagram of Medicine Inventory Management System**

The figure 3.5 provides a more detailed breakout of pieces of context level diagram. The above DFD provides the detail information of the context level diagram of "Medicine Inventory Management System". The diagram shows that the users shall log into the system and register users into the system through login and register management. User's details are managed through the login and registration process. Then the products are managed through products management process. And there is user management process for admin to manage users.

## **3.2 System Design**

The system design of ‘Medicine Inventory Management System’ that consists of architectural design, database schema design, user interface design and physical DFD are shown as follows:

### **3.2.1 Architectural Design**

The fig 3.6 represents the architectural design of Medicine Inventory Management System  
The Model-View-Controller (MVC) architectural pattern is used in designing software applications, providing a structured and modular approach to development.

**Model:**

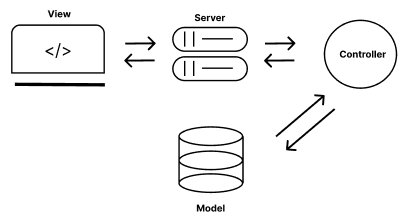
The Model represents the application's data and business logic. It is responsible for managing data, processing business rules, and responding to requests from the View to update itself.

**View:**

The View is responsible for presenting the application's user interface and displaying data to the users. It interacts with the Model to retrieve data and sends user input to the Controller for processing.

**Controller:**

The Controller acts as an intermediary between the Model and the View. It receives user input from the View, processes it, interacts with the Model to update data, and updates the View accordingly.

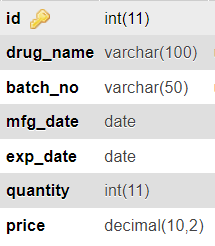
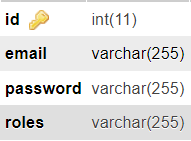


**Figure 3.6: Architectural Design of Medicine Inventory Management System**

### 

### **3.2.2 Database Schema Design**

### The Database Schema Design of Medicine inventory Management system are as follows:



**Figure 3.7: Database Schema of Medicine Inventory Management System**

The figure 3.7 represents the database schema of the Medicine Inventory Management System showing respective attributes and inter-relationship between the relations.

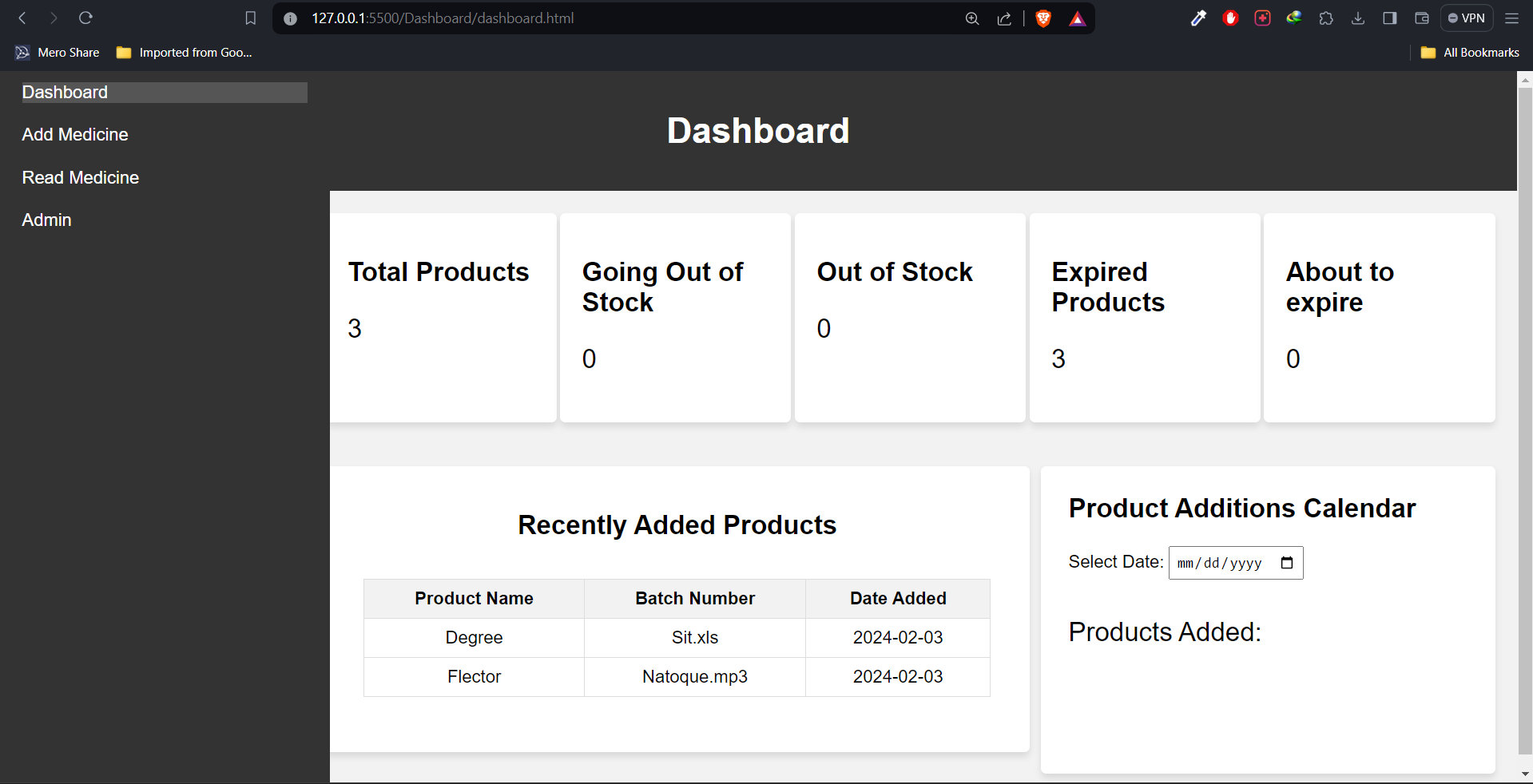
### **3.2.3 Interface Design (UI Interface)**

Interface design, often referred to as user interface (UI) design, is a crucial aspect of software and product development. It focuses on creating visually appealing and user-friendly interfaces that facilitate effective interactions between users and systems. The interface design for all the major pages of “Medicine Inventory Management System” are shown as follows:

**Front Page UI:**

The figure 3.8 is the user interface for home page of Medicine Inventory Management System. It is the first page that opens in the screen when the user and admin visit the website via any browser. From there user and admin shall log in if they have an account by pressing the login button.

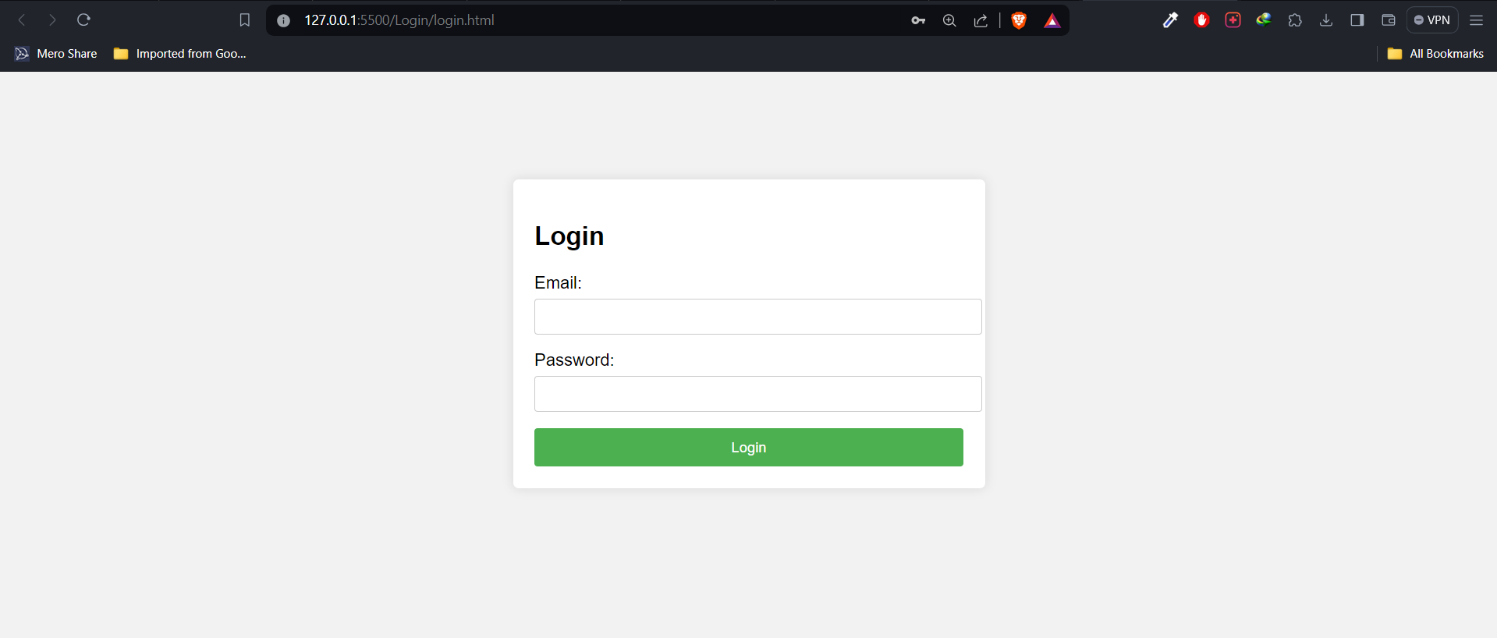
The user interface for home page of ‘Medicine Inventory Management System’ is shown below:



**Figure 3.8: Home Page UI of Medicine Inventory Management System**

**Login Page UI:**

The figure 3.9 is the user interface for login page of Medicine Inventory Management System. By clicking on the login button, user and admin shall log into the system by providing their correct email address and their password if they have an account. If they provide incorrect email or password the system won’t let them log into the system.

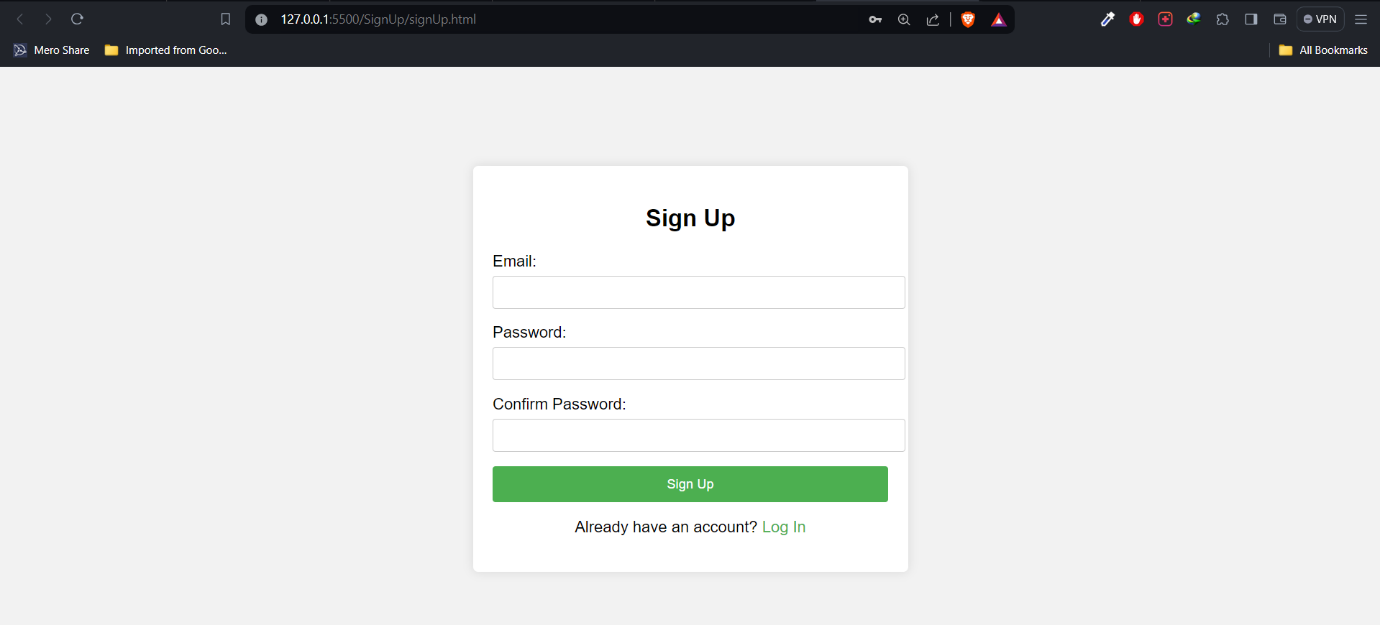
The user interface for sign in page of ‘Medicine Inventory Management System’ is shown below:

**Figure 3.9: Login Page UI of Medicine Inventory Management System**

**Sign-up UI**

The figure 3.10 is the user interface for registration page of Medicine Inventory Management System. By clicking on the register link user and admin gets transferred to the registration page where they have to fill up all the necessary details required like first name, last name, email, password, contact number, address and click the sign-up button. By clicking on the sign-up button, users’ information gets stored into the database of the system. Users have the option to log in if they already have an account. If they provide an incorrect format of email, phone number and password the system won't let them register into the system. After being registered successfully they shall log in to system by providing the correct email and password.

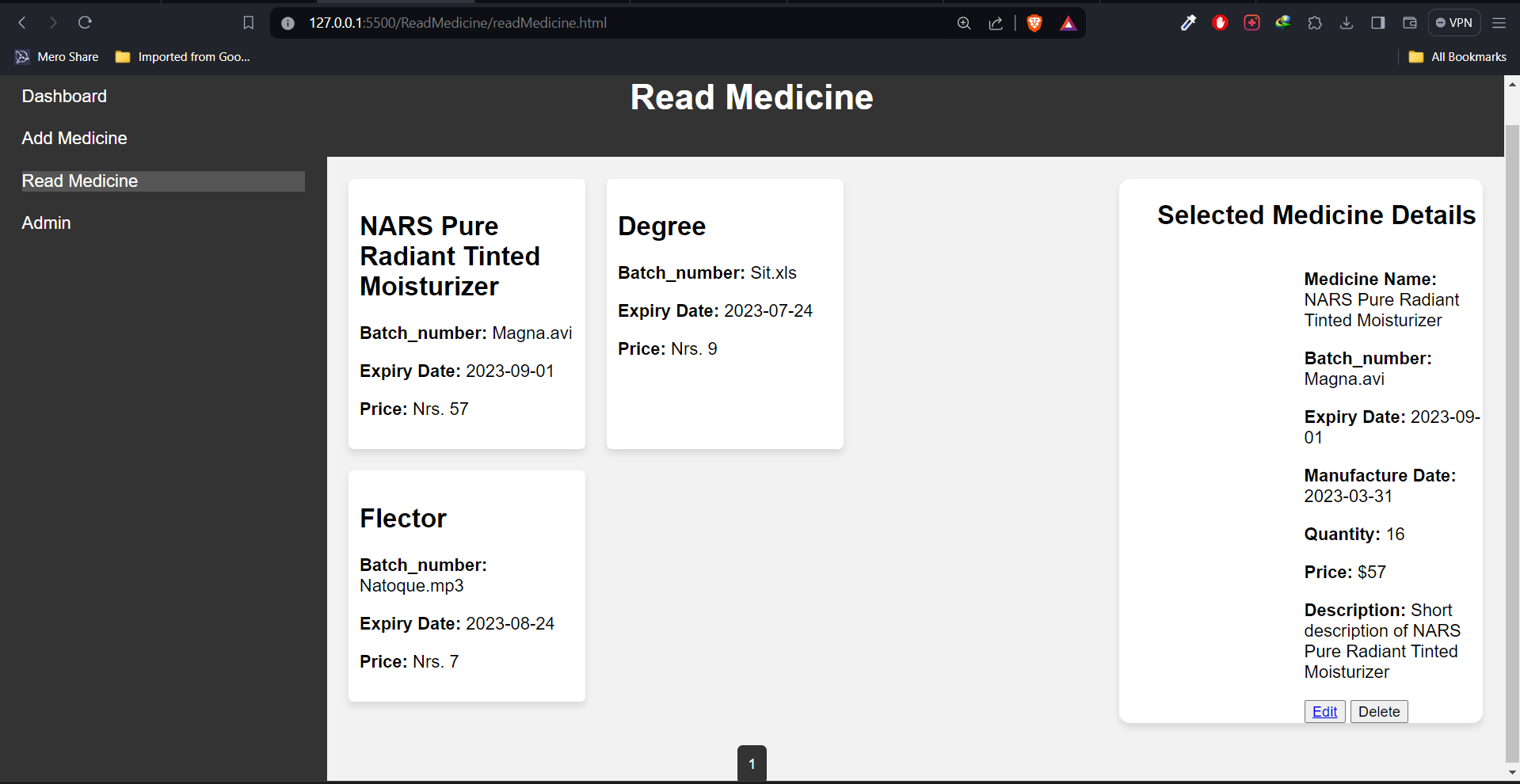
The user interface for sign up page of ‘Medicine Inventory Management System’ is shown below:



**Figure 3.10: Sign-up Page UI of Medicine Inventory Management System.**

**Inventories Page UI**

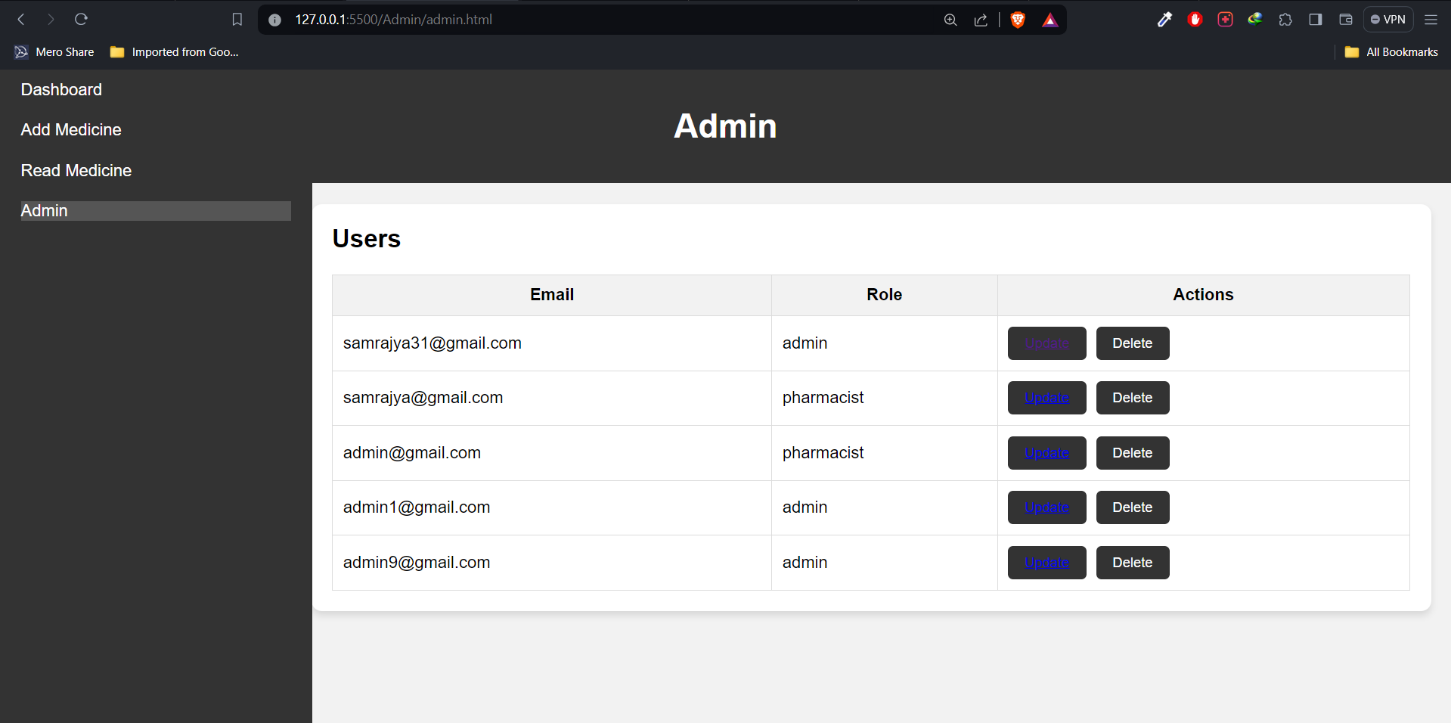
The figure 3.11 is the inventories dashboard of Medicine Inventory Management System. Here user can check their inventory level and by logging into the customer panel and once they can access the system they can add or delete new item or update all the necessary changes.

The user interface for inventories of ‘Medicine Inventory Management System’ is shown below:

**Figure 3.11: Inventories page UI of Medicine Inventory Management System**

**Admin Dashboard Page UI:**

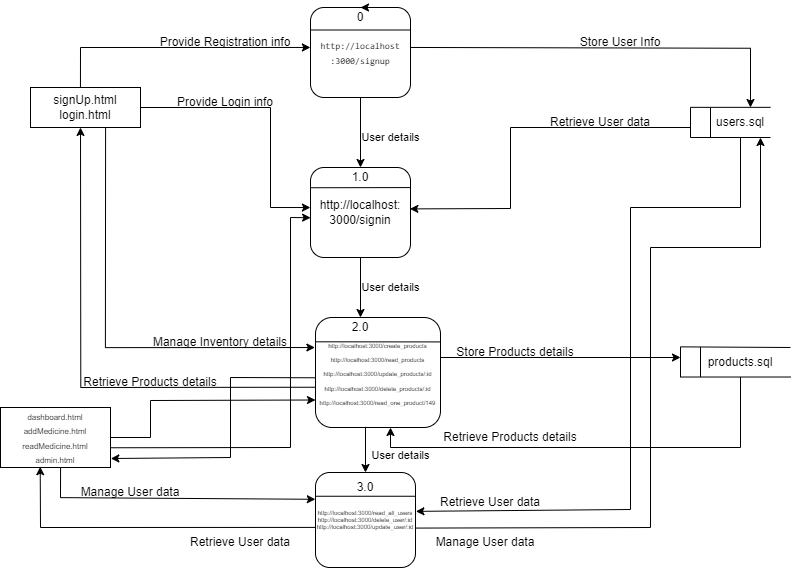
The figure 3.12 is the admin dashboard interface of the system. It is the first page that opens in the screen when the admin logins to the website via any browser. From there admin shall mange the user, product and other necessary information.

****The user interface for admin dashboard page of ‘Medicine Inventory Management System’ is shown below:

**Figure 3.12: Admin Dashboard Page UI of Medicine Inventory Management System**

### **3.2.4 Physical DFD**

The figure 3.14 is the physical DFD of the system. A Physical Data Flow Diagram (DFD) visually illustrates how data moves within a system at a detailed, physical level. A detailed physical data flow diagram can facilitate the development of the code needed to implement a data system.



**Figure 3.14: Physical DFD of Medicine Inventory Management System**

# **CHAPTER 4: IMPLEMENTING AND TESTING**

## **4.1 Implementation**

The tools and techniques used to implement the system and the implementation details of various modules of Medicine Inventory Management System are as follows:

### **4.1.1 Tools Used (CASE tools, Programming languages, Database platforms)**

The tools used for the implementation of Medicine Inventory Management System are listed below:

**Draw.io**

Draw.io is an online diagram editor constructed around google drive. Using draw.io we have been capable of creating UML diagrams, entity relations diagrams, and plenty more. One of the benefits of draw.io is that it stores the information in google drive, consequently, there's no need for an extra third party.

**HTML CSS & JavaScript**

HTML, CSS, and JavaScript were used for the front-end development. HTML was used for the webpage elements. CSS was used to provide its styling to the components. JavaScript was used for client-side validations and adding dynamic components to the website.

**Node js**

Node.js is an open-source, server-side JavaScript runtime environment built on the V8 JavaScript engine. It allows developers to run JavaScript code on the server, enabling the development of scalable and high-performance web applications. Here's a short description of key aspects of Node.js:

**MySQL**

MySQL is presently the most famous database management system software used for dealing with relational databases. It was used along with PHP scripts for developing our database structure. It became extensively utilized to carry out numerous activities like insertion, deletion, and update of the records saved in the database.

**Visual Studio Code**

Visual Studio Code is a lightweight but powerful source code editor which runs on computer systems and is available for Windows, macOS, and Linux.

**XAMPP**

XAMPP, an open-source web solutions package, it combines several critical components for web development. Its core offerings include the Apache distribution, which serves as a robust web server facilitating the delivery of web content. Accompanying Apache is MySQL, a powerful relational database system utilized for storing and managing data essential for web applications. Additionally with HTML and CSS forming the backbone for structuring and styling web content, PHP's server-side nature necessitates interpretation by a server, distinguishing it from client-side languages like HTML and CSS, which are directly processed by users' browsers. Therefore, we have used the XAMPP server. This software was used to connect to Apache and MySQL.

### **4.1.2 Implementation Details of Modules**

Our project consists of total seven modules and they are:

1. **Register Module:**

This module is used to register the new user and admin into the system. Here user and admin have to fill up all the necessary details about themselves to get registered. After the registration the registered user shall log into the system by providing email and password which is identical to the email and password stored into the database.

1. **Login Module:**

This module has been used for logging into the system. After the registration, the

registered user logs into the system by providing the email and password which is

identical to the email and password stored into the database.

## **4.2 Testing**

Medicine Inventory Management System is confirmed and validated by the testing section. The Medicine Inventory Management System is scrutinized to see if the finished system can operate in accordance with what we have been anticipating and is free of any logical or programming flaws. Additionally, it checks to see if all of the systems and requirements have been met.

### **4.2.1 Test Cases for Unit Testing**

Unit testing is a software program development method in which the smallest testable components of an application, known as units, are individually and independently scrutinized for correct operation. Below are the numerous tables for distinctive test cases:

**Table 4. 1: Test Case 001-Login**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pre-conditions: User has valid email and password | | | | | |
| S. N | Test Case | Test Data | Expected Result | Actual Result | Remarks |
| 1 | Navigate to login page | http://127.0.0.1:5500/Login/login.html | Login Page should open | As expected, i.e., User is navigated to login page | User was able to navigate the login page of Medicine Inventory Management System. |
| 2 | Provide a valid email and password and click login button | Email = admin@gmail.com  Password= Admin@1 | User logs in  successfully | As Expected, i.e., user is logged in | User was able to log in and access the dashboard. |
| Post-conditions: User is validated with the database and successfully login to system. | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pre-conditions: User has either invalid email or invalid password | | | | | |
| 1 | Provide an incorrect email but correct password and click login button | Email = sanyog@gmail  .com  Password = admin | User cannot  log in | As Expected, i.e., user is not logged in | User was unable to login |
| 2 | Provide a correct email but incorrect password and click login button | Email = admin1@gmail.com  Password=sanyog200 | User cannot  log in | As Expected, i.e.  user is not logged in | User was unable to login |
| Post-conditions: User is not validated with the database and is not successfully login to Medicine Inventory Management System. | | | | | |

**Table 4. 2: Test Case 002-Sign Up**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pre-conditions: User has all the valid necessary details | | | | | |
|  | | | | | |
| S. N | Test Case | Test Data | Expected Result | Actual Result | Remarks |
| 1 | Navigate to sing up page | http://127.0.0.1:5500/SignUp/signUp.html | Signup Page should open | As expected, i.e., User is navigated to signup page of system | User was able to navigate the signup page of Medicine Inventory Management System. |
| 2 | Provide all valid info required and click signup button | Email = Samrajya10@gmail  .com  Password= Samrajya2002 | User registered in  successfully | As Expected, i.e., user is registered | User was able to sign up the account |
| Post-conditions: User credentials are validated so user is registered and successfully stored in the database. | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pre-conditions: User have invalid details | | | | | |
| 1 | Provide invalid information’s (email should contain @ and password field should contain one uppercase, one digit, one symbol and 4 cha long) click signup button | Email = srajbhandari0  .com  Password = sanyog2002 | User cannot  signup | As Expected, i.e., user is not signed up | User was unable to signup |
| Post-conditions: User credentials are not validated so user is not registered and data are not stored in the database. | | | | | |

**Table 4. 3: Test Case 003 Inventory**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pre-conditions: User has logged into the system with correct necessary credentials | | | | | |
| S. N | Test Case | Test Data | Expected Result | Actual Result | Remarks |
| 1 | Login into system | http://127.0.0.1:5500/Login  /login.html | Login Page should open | As expected, i.e., User is navigated to add login page of system | User was able to navigate the add login page of Medicine Inventory Management System. |
| 2 | Add new item | MedicineName= any  Batch\_no=12345 Manufacture date=2002-02-01  Expiry date = 2024-04-02  Quantity=200  Price = 2000 | Item added  successfully | As Expected, i.e., item is added | User was able to add item |
| Post-conditions: User was able to login into the system and manage inventory details. | | | | | |

**Table 4.4: Test Case 002-Admin Sign in**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pre-conditions: User has logged into the system with correct necessary credentials | | | | | |
| S. N | Test Case | Test Data | Expected Result | Actual Result | Remarks |
| 1 | Login into system | http://127.0.0.1:5500/Login  /login.html | Add Load Page should open | As expected, i.e., User is navigated to add login page of system | User was able to navigate the login page of Medicine Inventory Management System. |
| 2 | Login with admin credentials | Email: [admin9@gmail.com](mailto:admin9@gmail.com) password: Admin@1 | Admin logged into the system | As Expected, i.e., admin logged into the system | User was able to login and access dashboard |
| Post-conditions: Admin information about Medicine inventory management system was valid and was able to login successfully. | | | | | |

1

### **4.2.2 Test Case for System Testing**

System Testing is a form of software testing that is executed on a complete integrated system to assess the compliance of the system with the corresponding requirements.

**Table 4. 4: Test Case of system**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pre-conditions: User has logged into the system with correct necessary credentials | | | | | |
| S. N | Test Case | Test Data | Expected Result | Actual Result | Remarks |
| 1 | Login into system | http://127.0.0.1:5500/Login  /login.html | Add Load Page should open | As expected, i.e., User is navigated to add login page of system | User was able to navigate the add login page of Medicine Inventory Management System. |
| 2 | Add new item | MedicineName= any  Batch\_no=12345 Manufacture date=2002-02-01  Expiry date = 2024-04-02  Quantity=200  Price = 2000 | Item added  successfully | As Expected, i.e., item is added | User was able to add item |
| Post-conditions: User information about inventory was valid and was able to add it successfully. | | | | | |

# **CHAPTER 5: CONCLUSION AND FUTURE RECOMMENDATIONS**

## **5.1 Lesson Learnt**

This project has helped to learn how to manage inventory levels and implement them across various platforms. It helped to get familiar with both client-side and server-side programming languages. It helped to learn how to host a web application locally on a host computer. It helped to learn how a user can search inventory list. It also helped to know how to implement tracking systems. It also helped to get familiar with Bootstrap and its components. It helped to learn how to do pair programming and finish the project within the schedule. It helped to know how to implement theoretical knowledge gained from various subjects in practical life. This project has helped to gain great skills for project management and software development.

## **5.2 Conclusion**

Our system ‘Medicine inventory management system’ is a web-based application specifically designed to assist medicine pharmacy in organizing and monitoring their inventory and stock details. The system is typically equipped with essential features such as inventory tracking, order management, and reporting and analytics which will help users to manage their stock level inventory seamlessly.

## **5.3 Future Recommendations**

Looking ahead to the future, the ambition to enhance and expand our inventory management system is a testament to our commitment to staying at the forefront of technological advancements and meeting the evolving needs of our users. As businesses and market dynamics continue to change, our objective is to make our system even more efficient and feature-packed to empower our users further. This forward-thinking approach reflects our dedication to providing innovative solutions that not only address the current challenges in inventory management but also anticipate future requirements.

The following section describes the work that will be implemented with future releases of the software.

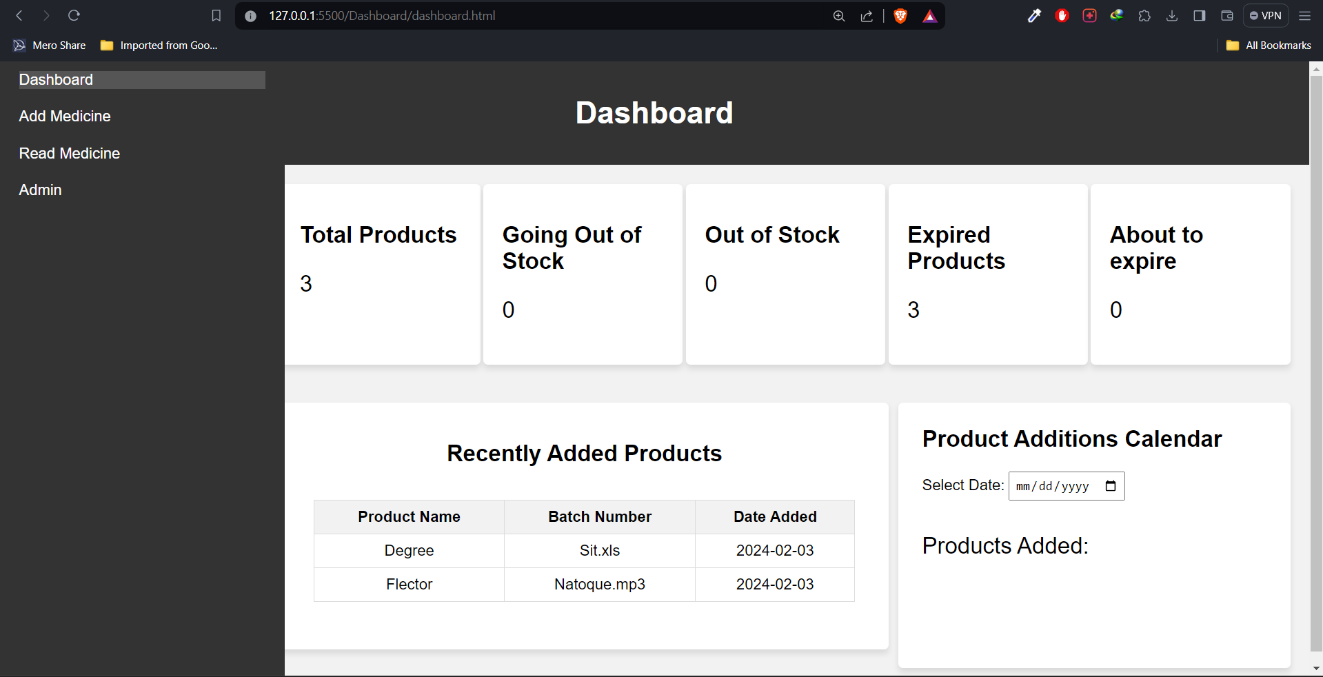
* Integration of a separate user profile for employers.
* GPS tracking of inventory.
* Allow the users to get notifications whenever they receive new stocks.
* Add different payment options such as PayPal, Cash, and Gift Cards etc.

# **REFERENCES**

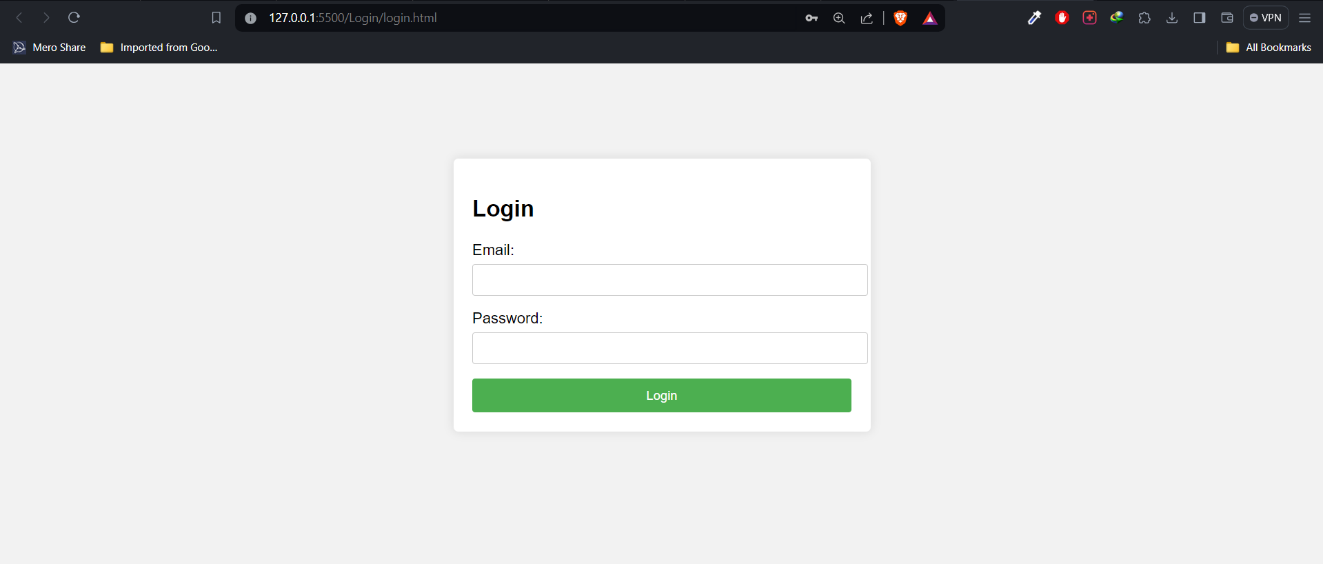
1. I. Sommerville, Software Engineering, 10th ed. London: Pearson Education Limited, 2016.
2. A. Silberschatz, H. Korth and S. Sudarshan, DATABASE SYSTEM CONCEPTS, 6th ed. New York: McGraw-Hill, 2011, pp. 39-55, 259-321.
3. P. Deitel and H. Deitel, Internet& Worldwide Web HOW TO PROGRAM, 4th ed. New Jersey: Pearson Education, Inc., 2008.
4. [online] Available at: <<https://apparelmagic.com/>> [Accessed 19 August 2023].
5. [online] Available at: [<https://www.fashiongo.net/ >](file:///D:\College\Project\%3chttps:\www.fashiongo.net\%20%3e) [Accessed 19 August 2023].

# **Appendices**

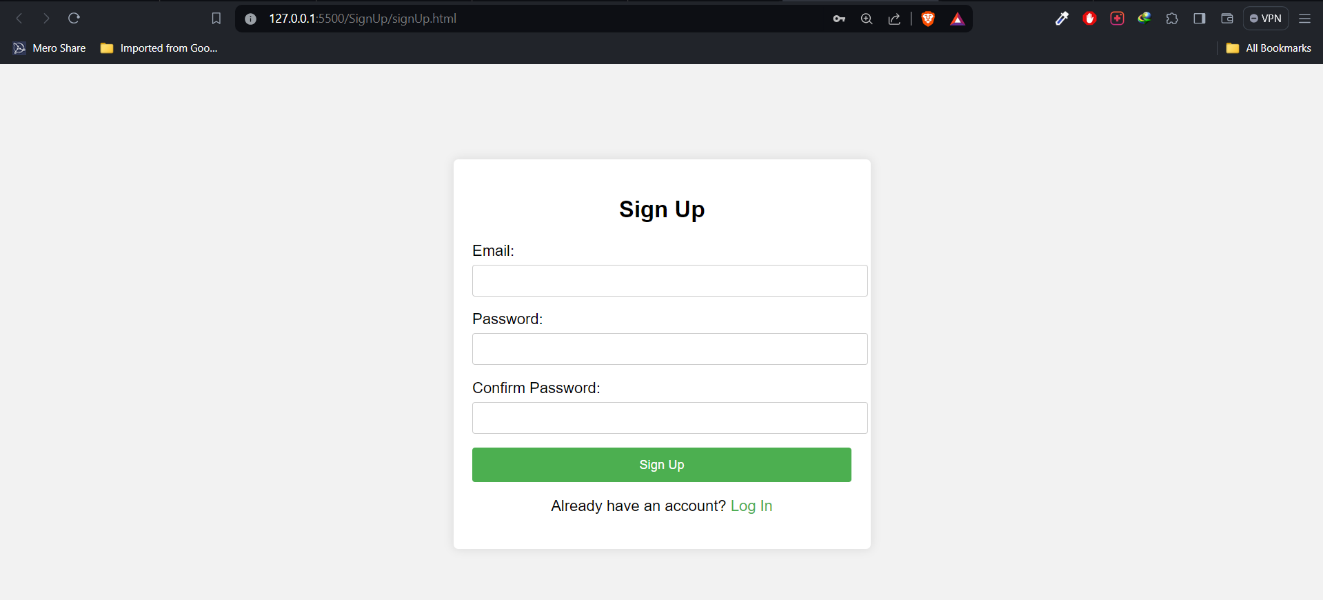
1. Home Page



1. Login Page



1. Registration Page



1. Admin Page

