

Med 360°- (Multi-vendor Healthcare Platform)

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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This Project titled “**Med 360°- (Multi-vendor Healthcare Platform)**”, submitted by Muntasir Tamzid, ID No: 192-15-1068 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 15 July, 2024.

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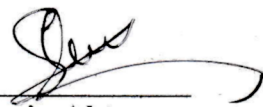


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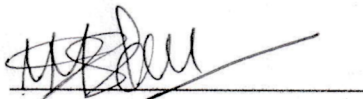
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ABSTRACT

Up to current digital platform “**Med 360°**” was developed for the pharmaceutical industry. It contains many kinds of products from various suppliers, hence the choice is suitable. This platform is made possible with MongoDB, Node.js, Tailwind CSS, and React.js. A smooth buying experience is the main goal of Med 360°. Using JSON Web Tokens ensures the extra goal of protecting the interaction process. Patients may track their orders, manage their purchases, and browse through different pharmaceutical categories since the dashboard is structured in a very familiar method of interaction. Administratively speaking, the platform improves control over the system, its vendors, and the range of orders and commodities available. Med 360° comprises of many key components, including Home, Pharmacy, About Us, and Contact Us. These components were specially designed to foster consumer contact and offer a quick way to get medication. In this work, the features, organizational management, and technical cooperation of Med 360° are examined. It underlines the need of this substitute in facilitating and securing online drug trafficking and availability.

TABLE OF CONTENTS

CONTENTS	PAGE
APPROVAL	i
Declaration	ii
Acknowledgements	iii
Abstract	iv
TABLE OF CONTENTS	v – ix
LIST OF FIGURES	x - xi

CHAPTER

CHAPTER 1: Introduction	1 - 5
1.1 Introduction	1
1.2 Motivation	1
1.3 Objectives	2
1.4 Research questions	3
1.5 Expected Outcome	3
1.6 Proposed System	4

CHAPTER 2: BACKGROUND	6 - 12
2.1 Introduction	6
2.2 Software Development Life Cycle	6
2.3 Scope of the problem	8
2.4 Challenges faced during Development	10
 CHAPTER 3: REQUIREMENT SPECIFICATION	 13 - 27
3.1 Introduction	13
3.2 Hardware Requirements	14
3.3 Software Requirements	14
3.4 Requirement collection and analysis	14
3.5 Use-Case diagram and Description	15
3.5.1 Users Use-Case diagram	16
3.5.2 Shop/Seller Use-Case diagram	17
3.5.3 Admin Use-Case diagram	18
3.6 Activity Diagram	19
3.6.1 Users Activity Diagram	20
3.6.2 Shop/Seller Activity Diagram	21
3.6.3 Admin Activity Diagram	22
3.7 UML Diagram	23
3.7.1 User UML Diagram	24
3.7.2 Seller UML Diagram	25
3.7.3 Admin UML Diagram	26

3.8 Design Requirement	27
CHAPTER 4: Design Specification	28 - 50
4.1 Front-end design	28
4.1.1 Block diagram of frontend	29
4.1.2 User Sign in and Sign up Page	30
4.1.3 Home page	30
4.1.4 All Product Page	31
4.1.5 Product Details View Page	32
4.1.6 All Offers Page	32
4.1.7 All Offers Details View Page	33
4.1.8 Messaging and Communication Interface	33
4.1.9 Checkout Process and Payment Interface	34
4.1.10 Review and Refund System	36
4.1.11 Profile and password	37
4.2 Back-end design	38
4.2.1 Shop Dashboard	40
4.2.2 Create Product	40
4.2.3 Create Offers	41
4.2.4 all Order	41
4.2.5 Create Discount Code	42
4.2.6 Refunds	42
4.2.7 withdraw money	43

4.2.8 shop Profile and password	43
4.2.9 Admin Dashboard	44
4.2.10 All Order	45
4.2.11 All Product	45
4.2.12 All Offers	46
4.2.13 All Shop Page	46
4.2.14 All Users Page	47
4.2.15 withdraw request	47
4.3 Implementation requirement	48
4.3.1 Front-End Development with React.js	48
4.3.2 Back-End Development with Node.js and Express	48
4.3.3 Payment Gateway Integration with Stripe	49
4.3.4 Order Processing Logic	49
4.3.5 Admin Dashboard Implementation	50
CHAPTER 5: Implementation and testing	51 – 56
5.1 Implementation Requirements for Med 360°	51
5.2 Testing Implementation	52
5.2.1 Front-End Testing	52
5.2.2 Back-End Testing	53
5.2.3 User Authentication Testing	53
5.2.4 Payment Gateway Testing	53
5.2.5 Order Processing Testing	54
5.2.6 Admin Dashboard Testing	54

5.3 Test Results and Reports	54
CHAPTER 6: Impact on Society and Environment	57 – 61
6.1 Impact on society	57
6.2 Impact on Environment	57
6.3 Ethical Aspects	58
6.4 Sustainability Plan	60
CHAPTER 7: Conclusion and Future Scope	62 - 65
7.1 Conclusion	62
7.2 Future Scope	63
REFERENCES	66 - 67

LIST OF FIGURES

FIGURES	PAGE NO
Figure 2.2.1: Phase of SDLC	07
Figure 3.5.1.1 : User Use-Case diagram	16
Figure 3.5.2.1 : Shop/Seller Use-Case diagram	17
Figure 3.5.3.1 : Admin Use-Case diagram	18
Figure 3.6.1.1 Users Activity Diagram	20
Figure 3.6.2.1 Shop/Seller Activity Diagram	21
Figure 3.6.3.1 Admin Activity Diagram	22
Figure 3.7.1.1 User UML Diagram	24
Figure 3.7.2.1 Seller UML Diagram	25
Figure 3.7.3.1 Admin UML Diagram	26
Figure 4.1.1.1: Block diagram of frontend	29
Figure 4.1.2.1: User Sign in and Sign up Page	30
Figure 4.1.3.1: Home Page	30
Figure 4.1.3.1: Drop down box/item	31
Figure 4.1.4.1: All Product Page	31
Figure 4.1.5.1: Product Details view Page	32
Figure 4.1.6.1: All Offers Page	32
Figure 4.1.7.1: All Offers Details view Page	33
Figure 4.1.9.1: Users Messaging and Communication Interface	33
Figure 4.1.10.1: Wish list	34
Figure 4.1.10.2: Cart	34
Figure 4.1.10.3: Checkout Page	35
Figure 4.1.10.4: Payment Page	35
Figure 4.1.10.4: Success	36
Figure 4.1.11.1: Review and ratings	36
Figure 4.1.11.2: Refund Product	37
Figure 4.1.12.1: Profile	37
Figure 4.1.12.1: Password Changing page	38
Figure 4.2.1.1: Shop Dashboard	40
Figure 4.2.2.1: Create Product	40
Figure 4.2.3.1: Create Offers	41
Figure 4.2.4.1: all Order	41
Figure 4.2.5.1: Create Discount Code	42
Figure 4.2.6.1: Refunds	42

Figure 4.2.7.1: withdraw money	43
Figure 4.2.8.1: shop Profile	43
Figure 4.2.8.2: shop Profile update	44
Figure 4.2.9.1: Admin Dashboard	44
Figure 4.2.10.1: All Order	45
Figure 4.2.11.1: All Product	45
Figure 4.2.12.1: All Offers	46
Figure 4.2.13.1: All Shop Page	46
Figure 4.2.14.1: All Users Page	47
Figure 4.2.15.1: withdraw request	47

CHAPTER 1

Introduction

1.1 Introduction

The 360° Med is a unique digital platform that is the pharmaceutical business needs by providing a variety of products from different vendors. This application is constructed by the means of MongoDB, Node JS, Tailwind CSS, and React JS. The platform makes the transaction process, the aesthetic design and the interface easy to use. The main goal of our project is to provide secure user interfaces and we are reaching it with the help of JSON Web Tokens (JWT). The user interface reduces the complexity of the purchasing process, giving the user the opportunity to see the progress of orders and access a vast number of pharmaceutical products. The administration interface facilitates the army of control over the suppliers and thus the process of order and product listings is simplified. 360 Med is made up of these components i. e. Home, Pharmacy, Blogs, About Us, and Contact Us. The functionalities in the focused film are meant to boost the level of the users' participation and to make the process of acquiring the drugs faster. This research is a great achievement of Med 360°, which is a new means of delivering medicine, through the internet. It is a comprehensive analysis of its design, functions and technology, showing its ability to alter the distribution of medicines through a safe and secure web platform.

1.2 Motivation

Because I wanted everyone to be able to get the medical care they needed, I thought of the idea for Med 360°. In Bangladesh, the lack of many drugs and health supplies, coupled with blocked roads, prevents many people from accessing essential medical care. I firmly believe that addressing this issue of inadequate access to quality health care is imperative. People today need a safe, easy-to-use tool that connects them to a lot of trustworthy sellers. Once the MERN stack is in place, both buyers and traders can easily access Med360°. People in the area assist local businesses, which enables them to reach more people and grow. Additionally, it helps you buy healthy things. E-commerce platforms have revolutionized the purchasing process by allowing customers

to access multiple vendors from a single site, significantly enhancing convenience and choice. According to a report by Statista (2024), the global e-commerce market is expected to grow by 22% annually, emphasizing the importance of reliable and scalable e-commerce solutions.

In addition, programs like Humanize have changed the health care system, which is what drives me to reach my goal. By changing my approach to fit the needs of Bangladesh, I'm sure I can repeat and even improve these wins.

To keep going, I need to make a real change in people's lives. Helping people get simple medical supplies is a big reason why I want to make my town better, more united, and more successful.

1.3 Objectives

Med 360°'s goals are clear and focused: to develop a full healthcare platform that takes into consideration the interests of the users. Important goals are:

- **Better Accessibility:** Ensure that the people from Bangladesh can easily access a large number of drugs and health goods from the reputable sellers.
- **Seamless User Experience:** Create the platform's layout that is simple and easy to understand so that the users can easily find and buy the goods they need with no difficulties.
- **Strong Communication:** Create a system of messages that will allow the customers and the sellers to communicate with each other directly. Thus, this will create confidence and enhance customer service in the process.
- **Efficient Shopping Tools:** To enhance the shopping experience, one should introduce the significant e-commerce features such as a "add to cart" button, a "wish list" for preserving the goods you want to buy, and a quicker checkout process.
- **Support for Multiple Vendors:** Design a method for different sellers to add to the site via a framework that will accommodate multiple shops. This will hence assist people in purchasing from the pharmacy stores by offering them more choices.

- **Secure Transactions:** The main aim of this new policy is to safeguard the users' personal and financial data by making sure that all transactions are safe and trustworthy.
- **Performace and Scalability:** Use the MERN stack to build a framework that can be expanded as the number of users and activities increases without slowing down.

1.4 Research questions

When the planning of Med 360° was under way, a number of difficult issues were being faced. These are the project's main questions which are the main ones to be answered. These questions help you focus on what you want from the platform and how it works: These questions help you focus on what you want from the platform and how it works:

1. How can Med 360° simplify its user experience so that it is easily accessible and utilizable by all, including those who are not too good with computers?
2. Which particular problems do the Bangladeshi face when they try to purchase health goods online? What is the plan for the resolution of these problems in Med 360°?
3. What ways can be used to improve the contact tools of the platform so that the customers and sellers can communicate with each other more easily?
4. What security measures should Med 360° use to safeguard consumer and transaction data?
5. How can Med 360° assist healthcare businesses in the local to go up and at the same time, it will be simple for the people in Bangladesh to get to the medical care?

1.5 Expected Outcome

The target is to greatly enhance the buying healthcare experience in many ways through the Med 360° project. First, users will have more fun and be more satisfied because the site will be more user-friendly and well-arranged. The new design will catch the attention of users by providing them with more personalized experiences, for example product

recommendations and alerts, especially when they log in to use the more advanced functions.

Users will also be able to classify healthcare products by price range when more modern search features are introduced. This will be of great help to the consumers who are on the tight budget and also make it easier for them to get the healthcare products that they really need. The health condition or the purpose of the goods to be bought by the customers will also be categorized by the platform. Thus, this will enable easier searching and thus, save the time that was previously wasted on looking through choices that are not relevant.

Providing people with the whole and accurate information about the goods and sellers will be a very significant outcome. This will boost the credibility of the site, so the buyers will be confident that the items they purchase are genuine and of good quality. In fact, these modifications are aimed at helping people to get healthcare goods and supporting local businesses to grow, which will benefit the community's health and economy.

1.6 Proposed System

The mentioned Med 360° system is a high-tech, multi-vendor healthcare platform that will make it very much easier and more accessible for the people in Bangladesh to buy medicines and other healthcare products. Our system has been created in a way that ensures users will get a pleasant ride whatever device they are using, regardless of the device or skill level they have. This design is a must to make sure that all users, irrespective of their level of technological savviness, can easily and quickly find their way around the site.

Med 360° is a platform with the security as its main feature. We are going to plan a reliable registration and login system that includes the latest security features such as two-factor authentication and data storage through protected means. The method in question not only keeps the users' personal and financial data safe, but also builds trust, which makes people to use the platform more often and with more confidence.

With 360° Med, users will be able to use the advanced search to discover goods that fit their needs and preferences, for example, they will be able to filter the goods by price, area, or specific health needs. Such a market will make the shopping as a whole, more

convenient. This targeted search helps to decrease the time people spend looking and also simplifies the process of finding the exact thing they are looking for.

In addition to the management dashboard on the platform for vendors that enables them to monitor their goods, process orders and communicate directly with clients, this dashboard will be a very complex one. This method helps vendors to run their businesses effectively and also to build relationships with customers, both of which are crucial for long-term success in a competitive market.

Med 360° aims to alter the purchasing behavior of people in Bangladesh when it comes to healthcare goods by concentrating on these main characteristics. They want to simplify, make the process of getting the supplies more secure and reliable for people, while at the same time, helping the local vendors and improving the entire healthcare situation.

CHAPTER 2

BACKGROUND

2.1 Introduction

Med 360° is a new healthcare platform comprising multiple vendors, making it easier to get medical supplies in Bangladesh. This platform is solving the problems that happen in rural and underserved areas, owing to a lack of medicines and medical material. There are huge differences in health because of these gaps, hence the importance of finding an answer working for everyone.

Med 360° deploys current technology to create an online marketplace where customers all over Bangladesh can easily purchase and discover a plethora of health products. Medical product vendors can connect on the website, making it easier and more affordable for all to access what they need. Fairness in healthcare and the ease of access, mainly for people in disparate areas, is thus enhanced.

The platform was constructed using the strong, secure, and scalable MERN stack—MongoDB, Express.js, React, and Node.js—because the technology serves well in creating an online store that is trusted and efficient. Med 360° intends to revolutionize the delivery of medical supplies to recipients in Bangladesh to ensure that all people, regardless of geographical location and socioeconomic status, have access to required supplies with speed and safety.

2.2 Software Development Life Cycle

A software life cycle model (also termed process model) is a pictorial and diagrammatic representation of the software life cycle. A life cycle model represents all the methods required to make a software product transit through its life cycle stages. It also captures the structure in which these methods are to be undertaken.

In other words, a life cycle model maps the various activities performed on a software product from its inception to retirement. Different life cycle models may plan the necessary development activities to phases in different ways. Thus, no element which life cycle model is followed, the essential activities are contained in all life cycle models though the action may be carried out in

distinct orders in different life cycle models. During any life cycle stage, more than one activity may also be carried out.

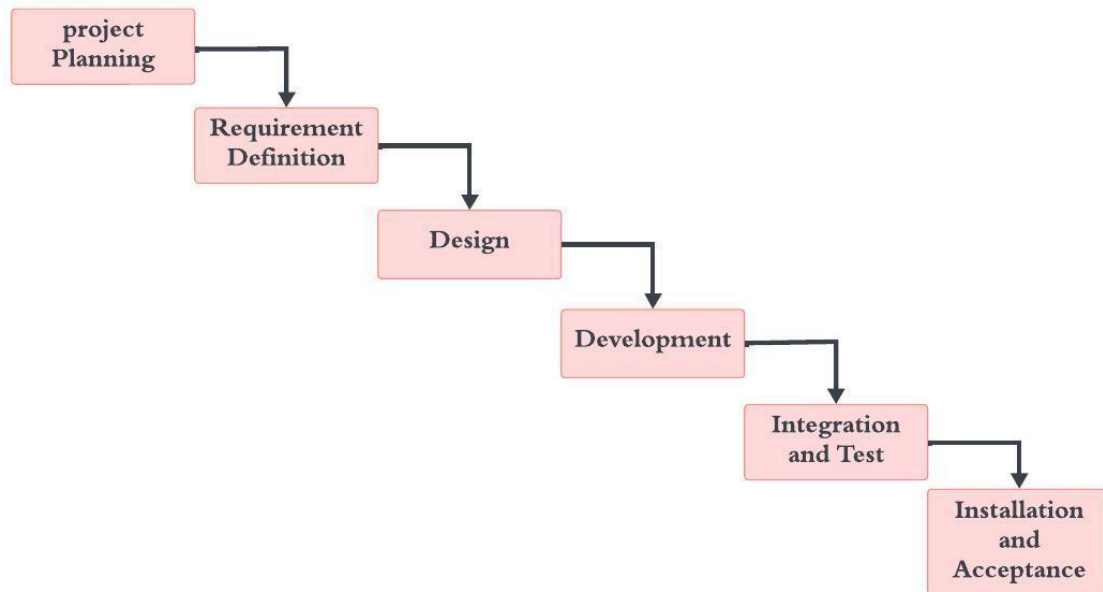


Figure 2.2.1: Phase of SDLC

1. **Project Planning:** This initial phase of the project is all about defining the project's objectives and boundaries. The important steps include setting the schedule, determining tools and budget, and defining the project objectives. A feasibility study is conducted on the idea to determine its technical and financial viability. The result is a full project plan, including a deliverable list, a deadline, and a key activity list.
2. **Requirement Definition:** This stage involves gathering specific business and system needs to ensure that Med 360° meets the users' desires. The activities that have to be conducted include interviewing key stakeholders, observing existing business processes, and documenting functional and non-functional requirements. The result is a detail-heavy document known as a needs specification used as the source of truth for the next step: design.
3. **Design:** During the planning process, the construction and specific designs of Med 360° are made. It involves creating plans for the user interfaces (UI) and user experiences (UX) and data models and database systems. Design documents are

used as blueprints by the development team to ensure that all the components fit together with the general system architecture and meet the standards.

4. **Development:** In the development phase, the coding of software and implementation of business logic take place; also, many components of a system are integrated. Unit tests take place for the first time during this phase to ensure every component works properly. The result is a well-functioning, integrated software system ready for thorough testing.
5. **Integration and Testing:** It is in this stage that complete integration of the system is done, and comprehensive testing is performed to ensure that Med 360° satisfies every standard and is free of bugs. Among the methods used in testing are integration testing, system testing, and user acceptance testing. Found bugs and problems will be documented, rectified, and tried once again to make sure they are operational and effective.
6. **Installation and Acceptance:** When the testing of the same is complete, Med 360° is installed into the live system. Configuring the production system, generating deployment packages, and training users forms part of this step. The last step is getting the users to agree on the software meeting their desires and objectives. A deliverable at the end will be a fully installed and operational system with user guides and training materials to make it easier for people to begin using the system.

2.3 Scope of the Problem

These are some of the deep-seated challenges in the Bangladesh healthcare system, constraining people's access to medical supplies and services, and downgrading the quality of those supplies and services. These problems highlight the need and gravity that Med 360° wishes to address with its all-in-one digital tool.

1. Inadequate Access to Health Products: Rural and most neglected areas in Bangladesh do not get drugs and health products in time. People in such areas have challenges accessing the medicines and materials they need for successful treatment and to observe preventive care, and thus there are great health inequalities.

2. Broken Distribution Channel: Presently, the way of receiving healthcare for people in Bangladesh is nearly broken and not efficient. This causes delay in supply, broken links, and issues regarding the capability of keeping in-stock levels in various locations. These deficiencies make reaching healthcare products difficult, especially for rural places.

3. Unaffordable costs and high prices: Healthcare products often overprice what the common citizen of Bangladesh could afford. Price fluctuations and non-competitive prices escalate the problem whereby a lack of purchasing power of low-income families makes it hard to buy medicines and medical goods.

4. Lack of Trust and Transparency: Customers may have difficulty knowing whether their purchased health items are authentic and of good quality. This lack of trust and transparency may lead to the purchase of fake or low-quality products, which may be detrimental to health.

5. Lack of support and information provision to customers: The failure to give proper support and provide the right information to customers on health goods is a major challenge. Many people cannot get specific information about the use of medications, their side effects, and other options, thus making it very hard to make informed decisions concerning their health.

6. Slowness to embrace new technologies: The health care system of Bangladesh has been slow in implementing new technologies that would make things run smoothly and increase accessibility to people. Slow adaptation of new technologies increases the difficulty in providing and handling healthcare efficiently.

7. Security of Payment and Transactions: Among the many problems that impede the application of e-commerce is the problem of ensuring financial operations are secure and smooth. Many people do not like buying online due to their concern for the safety of their payments and the protection of private information.

Addressing the Scope of the Problem:

Med 360°, in addition to the said problems, constructs a robust, multi-vendor healthcare platform using modern technology to make the market accessible, efficient, and trustworthy. That is what the platform will do:

- **Improve Access:** Set up a central online marketplace where people from all over the globe can fastly purchase different health goods.
- **Streamline Distribution:** Make the supply lines more efficient and always keep sufficient goods in stock by managing your vendors and transportation well.
- **Decrease prices:** Offer different discounts and work for fair pricing in order to let low-income families have the possibility to purchase health care goods.
- **Trust Building:** The product is genuine and of good quality through the rigorous methods of proof and transparent information.
- **Support:** Give the customer so much service and information on the products to make smart choices.
- **Adopt Technology:** Adopt new technology to make things smoother and to enhance the experience of the users.
- **Security should be ensured:** Utilize secure payment gateways and strong measures of data protection in order to make certain that internet deals will be secure and reliable.

2.4 Challenges faced during Development

Additionally, a whole lot of serious problems had to be solved in order to make the Med 360° multi-vendor healthcare platform reliable, effective, and user-friendly.

1 . Incorporation of Multiple Sellers: The greatest challenge is to combine various sellers into a single platform. The challenge consists in the controlling of the quality standards for all the sellers and the management of the different inventory systems and the alignment of all the product listings. The process of bringing together different companies to match their data and processes can be extremely time consuming and annoying.

2 . Ensuring data security and privacy: The user's data must be safeguarded and the deal secured is of the highest importance. The new security measures such as data encryption, safe payment platforms and the obeying of data protection law, though challenging, are very important for the creation of user trust. The platform is always under the control and requires regular updates to make it safe against the virtual dangers.

3. Scalability: This system must be able to withstand all types of load that are imposed on it by the increasing number of users, deals, and data without its performance being reduced. A big, serious issue that is going to be confronted is the design of a scalable architecture which will be able to support many users and at the same time let them do several things simultaneously. This implies the tuning of computer technology, enhancing database management, and optimizing the load balancing.

4. User Experience and Interface Design: The platform should be easy to use and accessible to the users, as a result, the interface should be clear and simplified. A part of the task is to ensure that people who are literate digitally, but have different levels of literacy, can login to the site successfully. In addition, the testing with real users will make the whole experience even better.

5. Managing product catalogues of difference: The big amount of healthcare products has a direct relation to the proper maintenance of the product catalogue. It pertains to the maintenance of the latest details, the management of stock, and the guarantee that product advertisements are in line with the legal requirements. The main problem is that these activities have a very low automation level while still being accurate.

6. Compliance with regulations: Healthcare products have to abide by the proposed rules. The models should be verified and revised by the regulatory bodies periodically to ensure that all the products on the site comply with the national and foreign rules. Besides, the verification of recalls, the inspection of licenses, and the validation of the correctness of the labels and paperwork are also included in the duties.

7. Logistics and Supply Chain Management: The problem of the management of logistics and supply chain activities and the assurance that the goods are delivered on time is a difficult task for most people. Hence, this covers the cooperation with several vendors, the supervision of the storing, and the searching of the most effective ways for the deliveries. The excellent public transportation systems are the solution to the problems like the shortage of supplies, delivery delays, and return management.

8. Payment Processing: It is necessary to have a payment processing system that is reliable and safe and the system should be able to handle different payment methods and at the same time, it should be easy to transfer the money. It is for sure a bit difficult to handle the merging of payment gateways, failed transactions, returns, and chargebacks. The primary fear is about the security of the payment method and its ease of use.

9. Customer Service: Customer service is the most important thing for the customers to be happy. A system that is used for inquiries, complaints and technology problems is an feature of this. The task also covers staff training, the setup of the robots and the creation of the entire knowledge base.

10. Constant Updates and Improvements: The technology and the consumer demand are in a constant state of change. The platform wants to pursue the same projects of enhancement and maintenance so that it can be in line with the newest features, modifications and security updates. The feedback from the users is the most difficult to get, the meaning of the feature requests is not easy to understand, and making sure that the changes are not creating many disruptions is the main problem.

CHAPTER 3

Requirement Specification

3.1 Introduction

The document that is the main requirement for Med 360°, this is a full description of the features, functions, and performance standards that are needed to build and launch this healthcare platform for multiple vendors. This paper is of great significance to the people on the project team, which include the developers, suppliers, users, and regulatory bodies, that they will all have the same idea of what are the goals and outcomes of the project. The sentence puts across what the project is about, its functional and non-functional requirements, and how the system should work in different scenarios.

The Med 360° would be able to solve some of the major problems of the healthcare system of Bangladesh through the creation of a well-structured, safe, and easy-to-use online shop for the purchase of healthcare products. The platform will be a hub of commerce where lots of sellers will be able to sell all kinds of goods, from the ordinary to the specialized. The system is designed to meet the requirements and wishes of a large number of users, thus, health - care deals are easily found, cheap, and trustworthy.

The primary goals of the standard are the ease of procedure for the disabled, the ease of procurement, the increase in security, the building of trust and the assistance to the suppliers. The layout of this comprises: The paper begins with the introduction; the overall system design; functional and non-functional requirements; the use cases; the data requirements; the interface specifications; the system design; the constraints and assumptions and finally the data requirements.

This initiative should be directed at the project managers, developers, quality testing teams, vendors, and regulatory bodies, etc. This would not only gather everyone to the same point but also erase the confusion and at the same time, gives a basis for the successful implementation of Med 360°. This will guarantee the project is on the right path and will be completed as soon as possible and without any complications by making the requirements clear.

3.2 Hardware Requirements

Processor	Multi-core CPU (Intel Xeon or AMD EPYC)
Motherboard	Any
RAM	Minimum storage of ram is 8GB
Internet Card	Whatever kind of internet card
Graphics Card	No need
Hard Disk	Minimum 10GB

TABLE 3.2.1: HARDWARE REQUIREMENTS TABLE

3.3 Software Requirements

Visual Studio Code	Minimum 1.0.0
NodeJS	15.0.1
Operating System	Windows/Mac
Browser	Google Chrome

TABLE 3.3.1: SOFTWARE REQUIREMENTS TABLE

3.4 Requirement collection and analysis

A healthcare platform like Med 360° that involves a number of vendors is not possible to be developed successfully without the requirement collecting and analysis stage. In this stage, all stakeholders including end users, healthcare providers, suppliers, project sponsors, and regulatory bodies have their requirements, expectations and they are then gathered, verified and documented. Many ways such as interviews, workshops, surveys, focus groups, observations, and document analysis are employed to gather quantitative data and in-depth knowledge of customer preferences.

Functional, non-functional, and business requirements are the three categories of requirements. Through the introduction of review sessions and the use of prototypes, the validation process becomes a sure thing that the requirements are complete and meet the expectations of the stakeholders. All the needs are sorted according to priority using techniques such as MoSCoW (Must-have, Should-have, Could-have, Won't-have). Among the many documents created there are the use case diagrams, user stories, and requirement definition papers that guarantee that the project is understood and there is no confusion between the members.

By the way, Med 360°, a Bangladesh-based solutions, focusing on requirements collection and analysis, tries to provide the platform that fulfills the user's demand and makes Bangladesh to have a reliable and effective healthcare solution

3.5 Use-Case diagram and Description

The main type of system or software requirement for an undeveloped new software application is a UML use case diagram. Use cases describe what is anticipated to happen, not how to make it happen precisely. Once defined, use cases can be represented both visually (i.e., in a use case diagram). A fundamental idea of use case modeling is that it facilitates system design from the viewpoint of the end user. It is a useful method for defining all externally apparent system behavior and hence communicating system behavior in words that the user can understand.

3.5.1 User Use-Case diagram

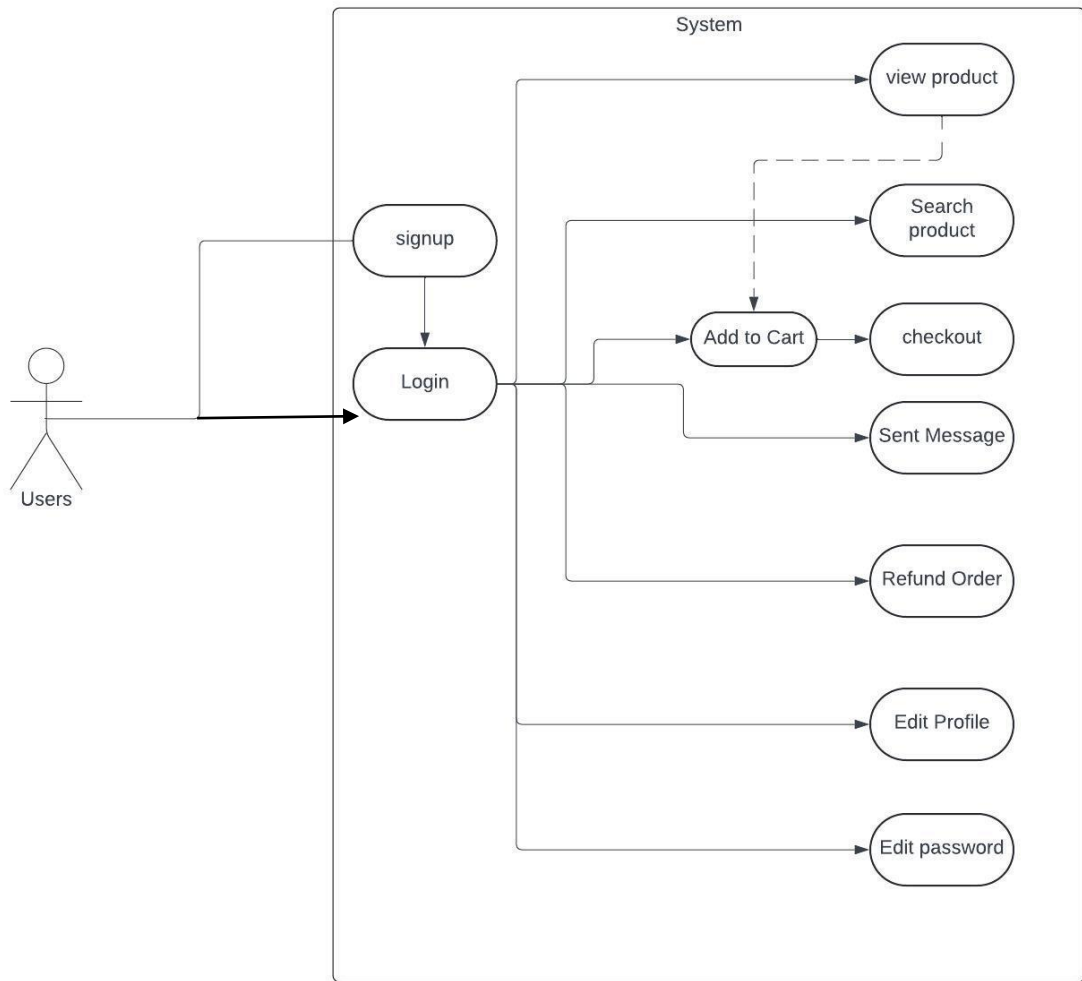


Figure 3.5.1.1 : User Use-Case diagram

3.5.2 Shop/Seller Use-Case diagram

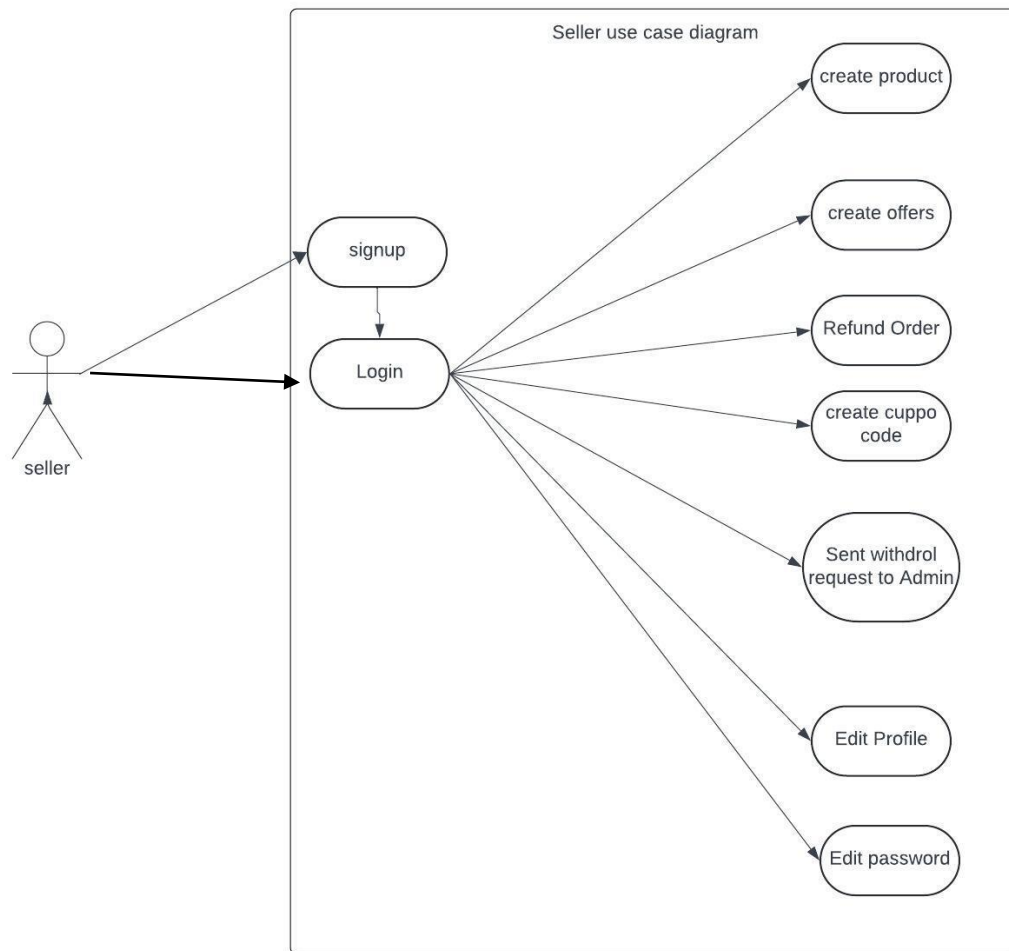


Figure 3.5.2.1 : Shop/Seller Use-Case diagram

3.5.3 Admin Use-Case diagram



Figure 3.5.3.1 : Admin Use-Case diagram

3.6 Activity Diagram

Activity Diagrams are used to illustrate the flow of control in a system and refer to the steps involved in the execution of a use case. We can depict both sequential processing and concurrent processing of activities using an activity diagram. An activity diagram focuses on the condition of flow and the sequence in which it happens. Generally, an event needs the accomplishment of some operations, especially when the operation is aimed to be done by several distinct things that require coordination, or how the events in a single use case relate to one another, especially in use cases where activities may overlap and need coordination. It is effective in modeling how a group of use cases works together to represent corporate processes as well.

- The potential use cases can be determined by studying the company processes.
- Determine the pre- and post-conditions (the context) for the use cases.
- The diagrams of the processes, both inside and between the use cases, are presented.
- Master the complicated steps of the process of object operations.
- Elaborate on what is involved in the complicated tasks that are part of a high-level activity schematic.

3.6.1 Users Activity Diagram

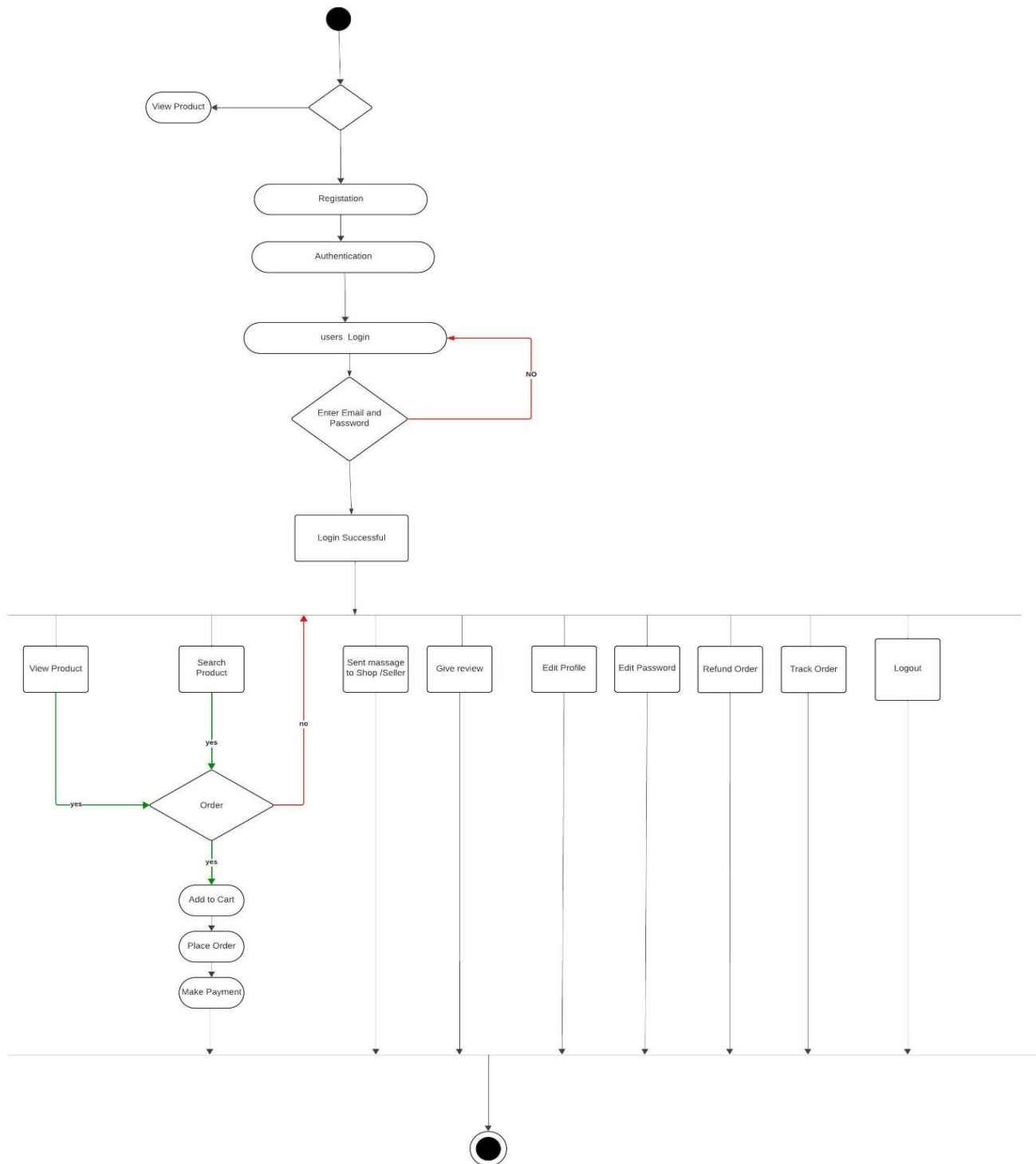


Figure 3.6.1.1 Users Activity Diagram

3.6.2 Shop/Seller Activity Diagram

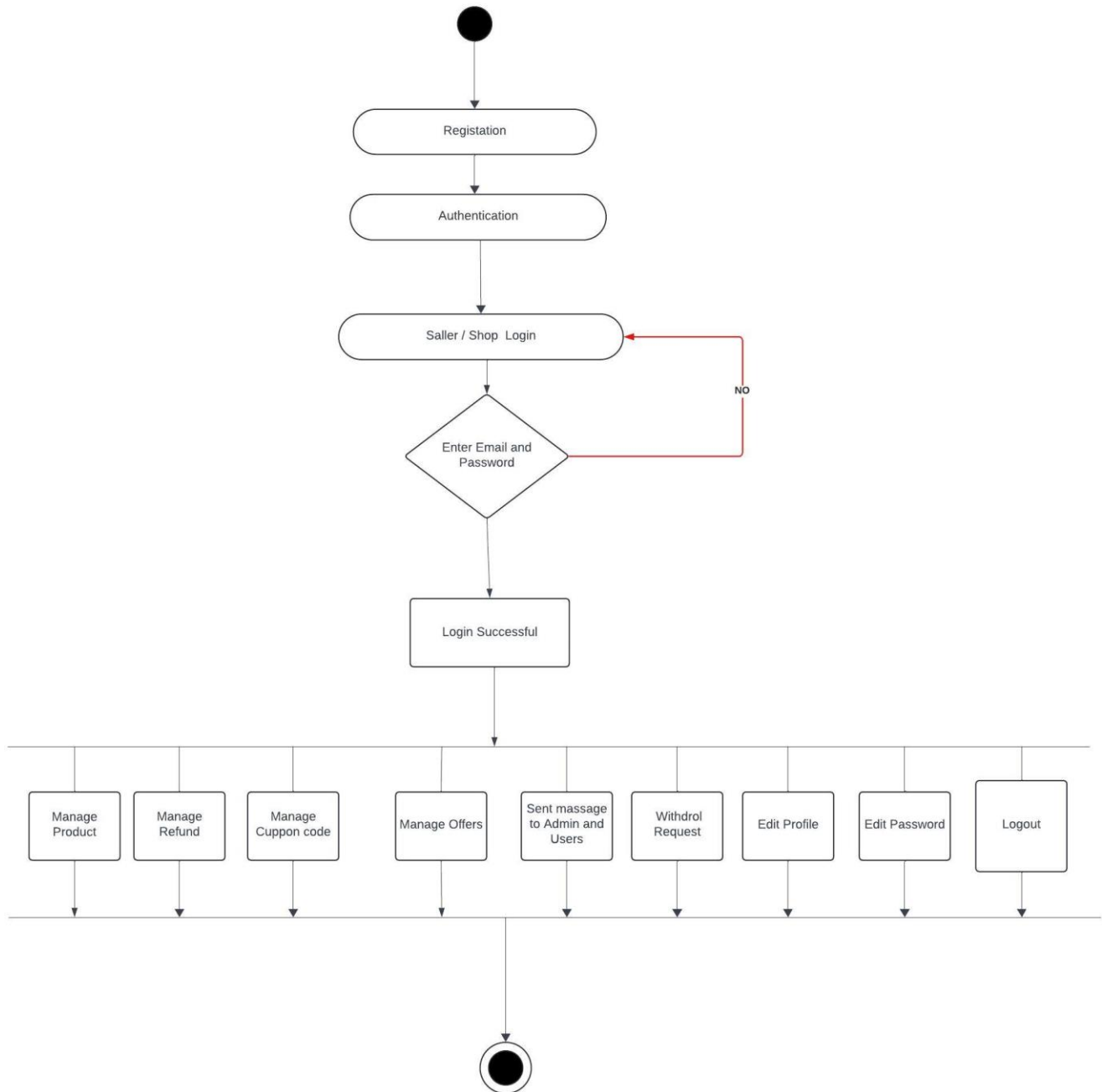


Figure 3.6.2.1 Shop/Seller Activity Diagram

3.6.3 Admin Activity Diagram

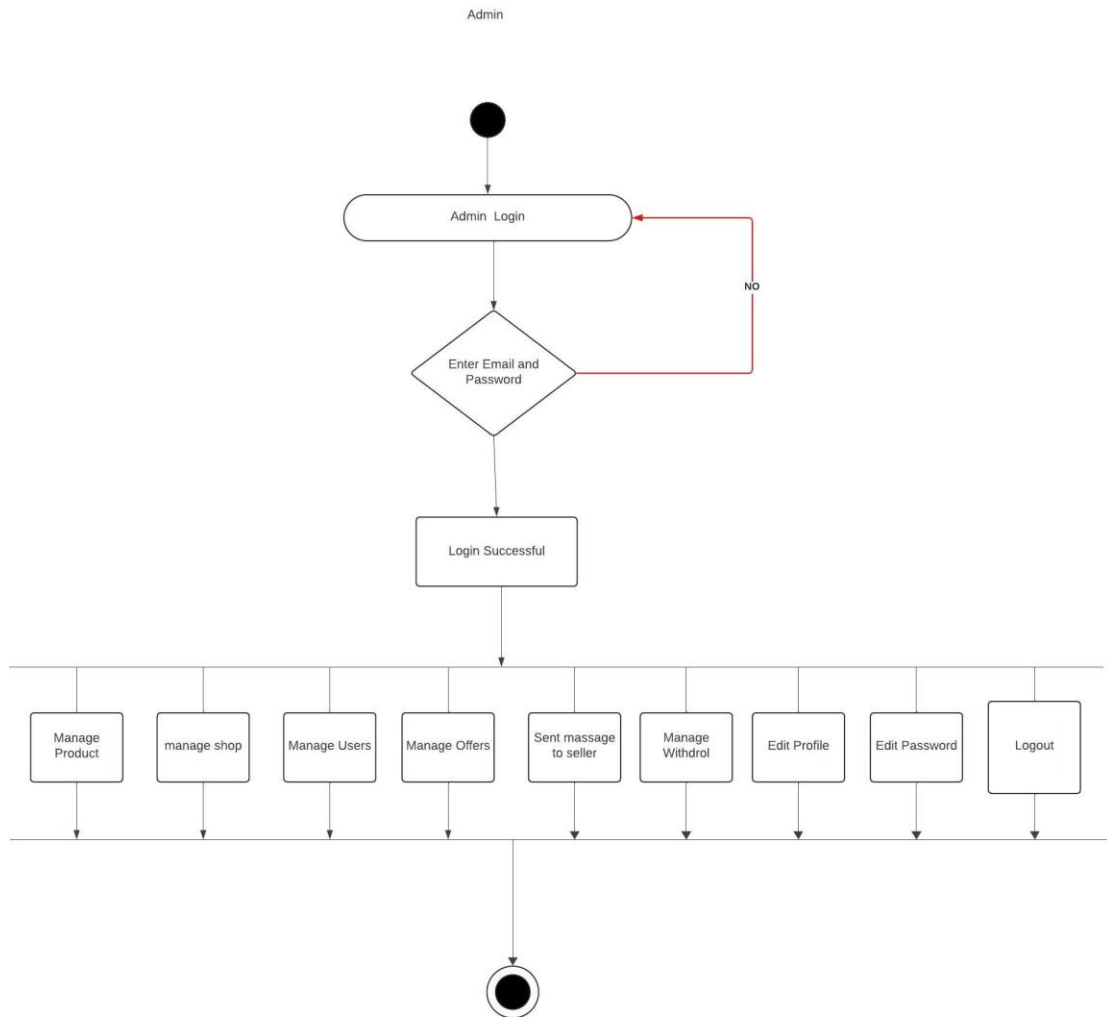


Figure 3.6.3.1 Admin Activity Diagram

3.7 UML Diagram

UML (Unified Modeling Language) diagrams are important tools used in software engineering and systems design to visualize the structure, behavior and architecture of a program. UML: Unified Modeling Language, helps the software team. to understand complex system structures by providing standard way of representing it through diagrams Streamlines and Standardizes System Communication Some example UML diagrams are Use Case Diagrams - I use them to communicate functional requirements, Class Diagrams that illustrate the static structure of classes and relationships between those structures (very good for planning a digital product), Sequence Diagrams which is conceptually close to Activity diagram as well but you can definitely show some different information on each one. Example- State Diagrams= describe the dynamic behavior of individual components (each component models a state machine illustrating how and when an object changes its states) Component& Deployment diagrams = show physical arrangement/deployment system nodes(nodes/components can be realised on production servers, etc. Developers can leverage UML diagrams to model the system and have their System Design well documented that others may albeit us, use more sustainable software solutions. Such flexibility and comprehensiveness of UML broad the span to address its utility on design and implementation stage in software development.

3.7.1 User UML Diagram

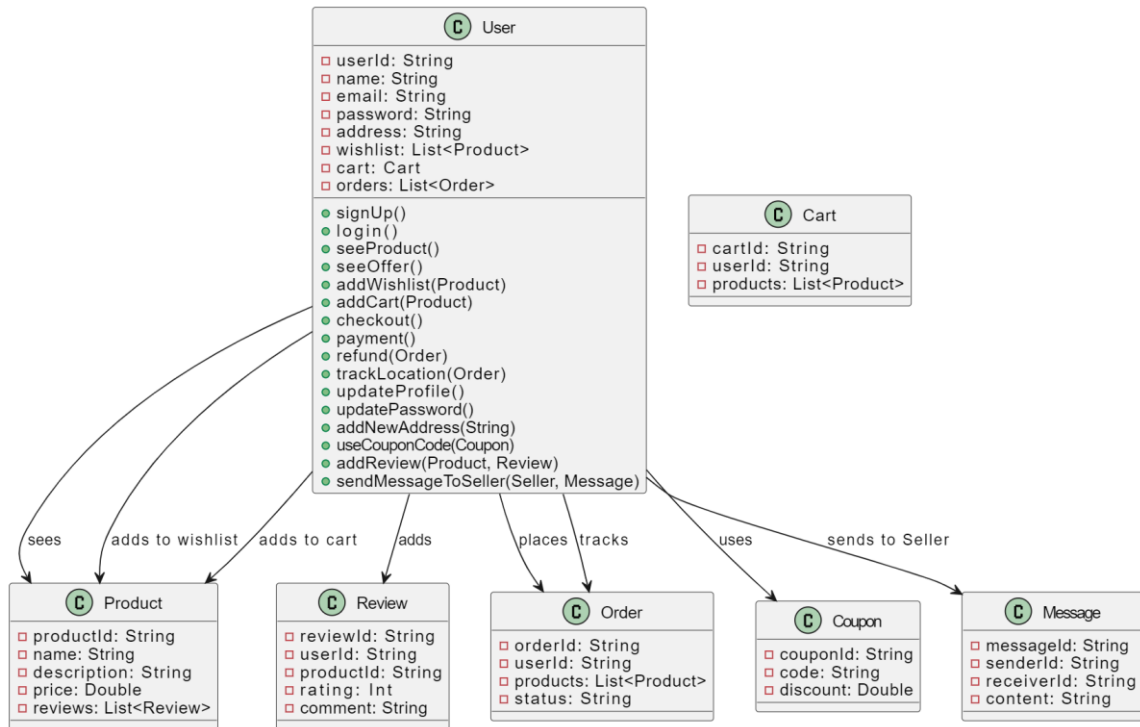


Figure 3.7.1.1 User UML Diagram

3.7.2 Seller UML Diagram

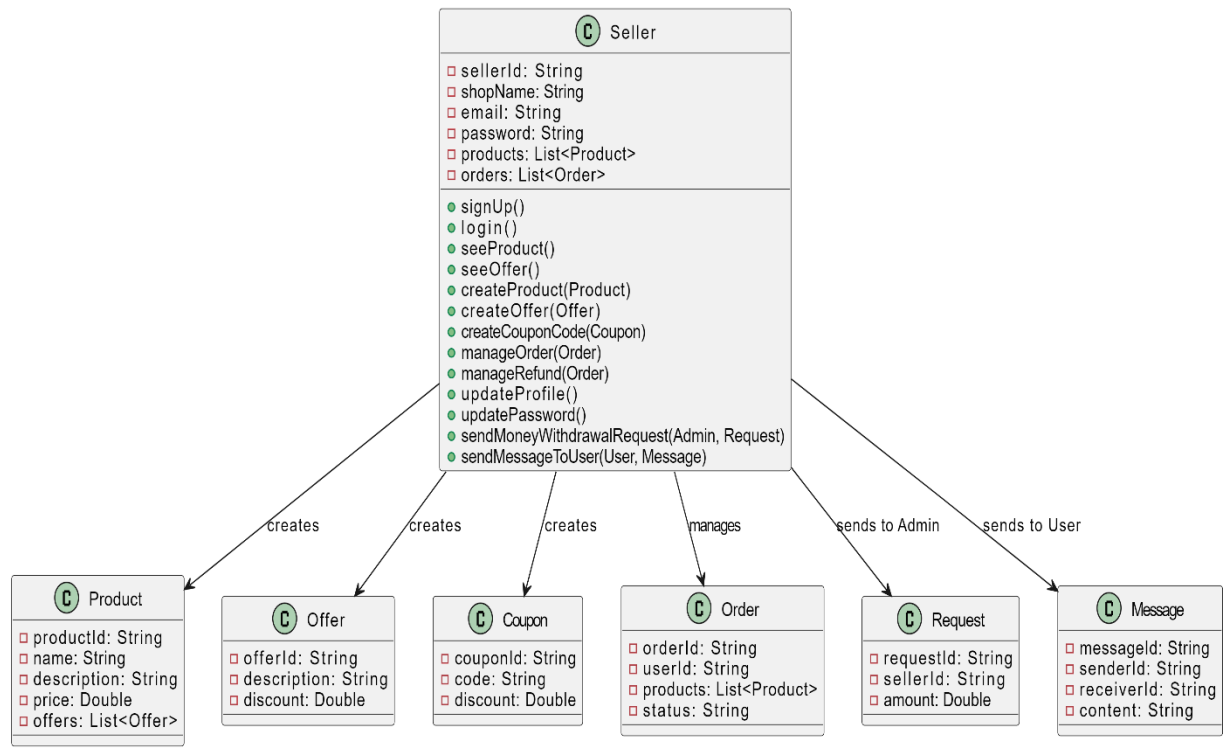


Figure 3.7.2.1 Seller UML Diagram

3.7.2 Admin UML Diagram

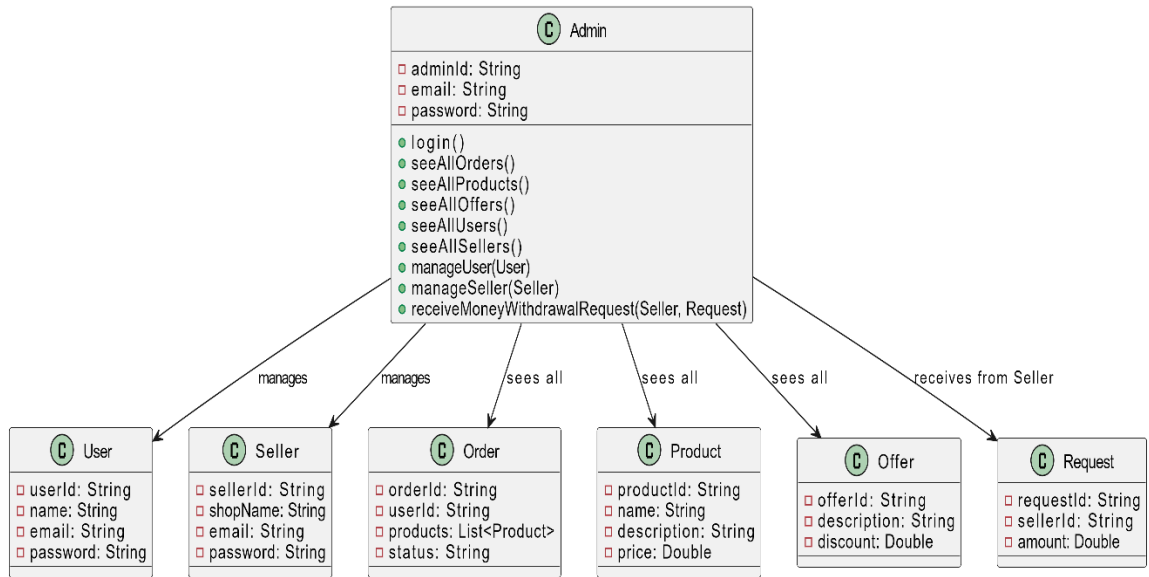


Figure 3.7.3.1 Admin UML Diagram

3.8 Design Requirement

The Med 360° healthcare website should have an excellent user interface (UI) and user experience (UX), being easily navigated and working well on computers, tablets, and phones. Accessibility standards should be followed so that screen readers and computer browsing can be effective.

The fast signup and login process for users, two-factor identification for security, and the connection to social media are all important to have. A user-friendly dashboard must enable the users to view their order records, follow their sales, manage their accounts, and request for a refund. Moreover, it should be very easy for them to change their passwords, add new addresses, and update their personal information.

The product management that involves creating detailed lists with high-quality pictures, descriptions, prices, availability, and customer reviews is very important. It is necessary to have search tools with a lot of screening options that are advanced. Customized product recommendations according to a user's browsing history will make shopping a lot more fun.

The shopping cart and the checkout should be easy to use and safe. Users should have the capability to effortlessly manage their carts, add or delete items and change the amounts. The checkout process should offer more than one method of payment. Therefore, this will guarantee the safety and speed of transactions and the approval of orders by email and on-screen.

The communication features should be complemented by an integrated messaging system so that the users can communicate with the sellers or the customer service. The users must be informed about the changes of their orders, sales, and other important events by email and in-platform alerts.

The administrative tasks will be the unified management of the users and sellers, the monitoring of the products and orders and the content management. The data protection techniques, encryption and the adherence to data privacy rules are important for security and the compliance.

CHAPTER 4

Design Specification

4.1 Front-end design

The front end of Med 360° is meant to make the whole process of communication with customers, suppliers, and administrators easier and more convenient. Since it is built in React, the design is smooth and responsive, so it looks the same on all screens. Reliability of the user, convenience, accessibility, scalability, and stability are some of the most important design considerations.

Website count has been evolving since the first website was published, and it has become the most popular platform for interactive content and applications. In 28 years, the web development has been modernized so much that the development work is faster and more efficient nowadays. Reactive websites and applications are created by using different frameworks and languages. This thesis work compares very basic web development languages and markup languages with a functional language called Elm. The main problems in web development are maintainability, scalability and performance. (Maruti tech-labs, 2018.). This thesis contains information about basic web technologies used today, information about Elm and its features compared to other languages, about an application example developed with Elm and about an analysis of the maintainability case.

The design comprises a big top with a Med 360° logo that links to the home page, a centred search bar for fast product searches, and access to the user menu that has a navigation menu and it has links to the important pages like home, shop, . the categories have been divided into such divisions, and the contact us can be created or joined, or a drop-down menu with account settings, order history, and opt-outs can display the users who are already logged in. On the right corner of the top, a cart icon shows the number of items in the cart.

The footer contains quick links to crucial pages such as the privacy policy and the service policy, also, it has the contact information, social media icons, and email sign-up space, while on the other hand, the home page has a full-width bannered hero area for promoting the products and sales as well as a blog section, a carousel of the most popular items and customer reviews.

The product pages have tons of helpful information the "put to cart" buttons are right there for you to click. The sales team entails the data, inventory, order backlog, and sales reports. Personal data, order information, preferences, and account settings are all easily controlled by user data. Med 360° is the sturdy guarantee that all users are going to have a good and enjoyable time.

4.1.1 Block diagram of frontend



Figure 4.1.1.1: Block diagram of frontend

4.1.2 User Sign in and Sign up Page



Login to Med360°

Email address

Password

☐ Remember me [Forgot your password?](#)

Login

Don't have an account? [Sign Up](#)

[create pharmacy >](#)

[pharmacy login >](#)

Figure 4.1.2.1: User Sign in and Sign up Page

4.1.3 Home page



Search Medicine...

Home Medicine Best Medicine Popular Offers

Best Offers

Deffodil medicine shop

PantoniX 20 mg	2 strip	28 piece	176.4
Napa 500 mg	2 strip	20 piece	196.4
Entacyd Plus	2 strip	20 piece	20
Original price			392.8৳
Discount			10%
After discount You pay			353.52৳
You're saving			39.28৳

Figure 4.1.3.1: Home Page



Figure 4.1.3.1: Drop down box/item

4.1.4 All Product Page

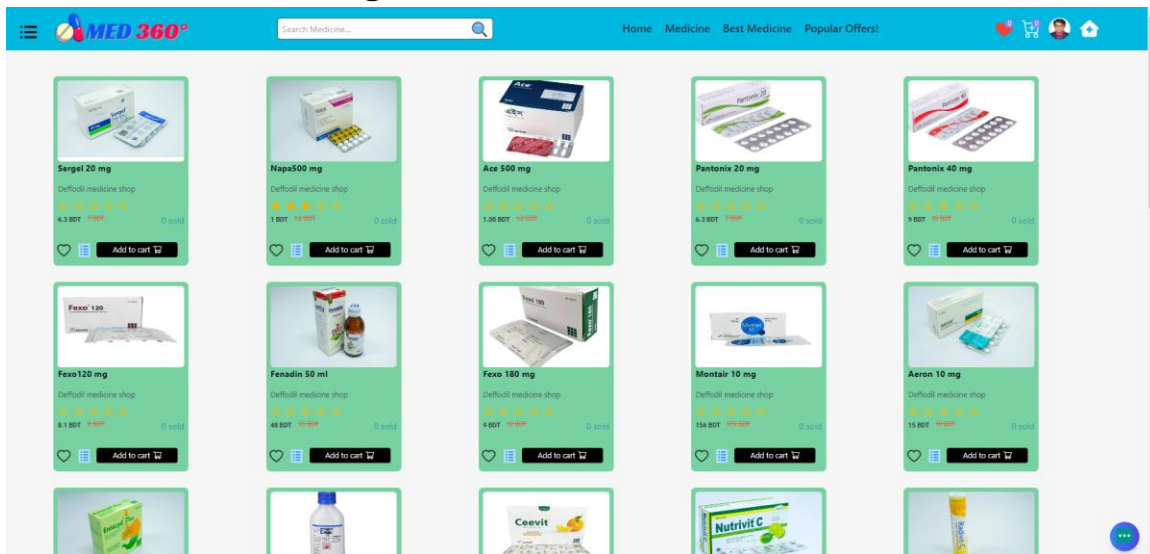


Figure 4.1.4.1: All Product Page

4.1.5 Product Details View Page

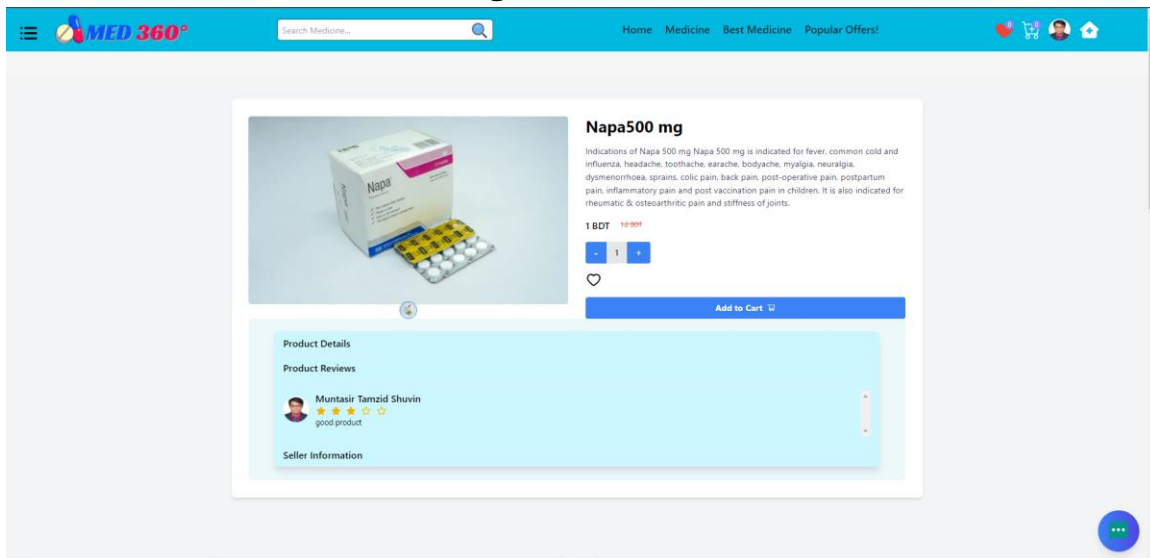


Figure 4.1.5.1: Product Details view Page

4.1.6 All Offers Page

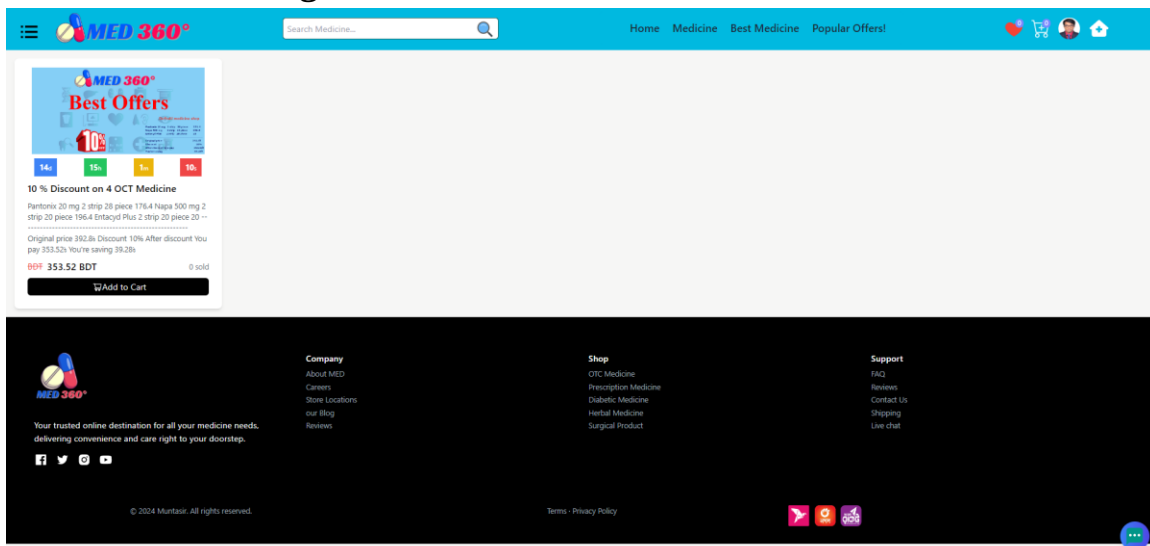


Figure 4.1.6.1: All Offers Page

4.1.7 All Offers Details View Page

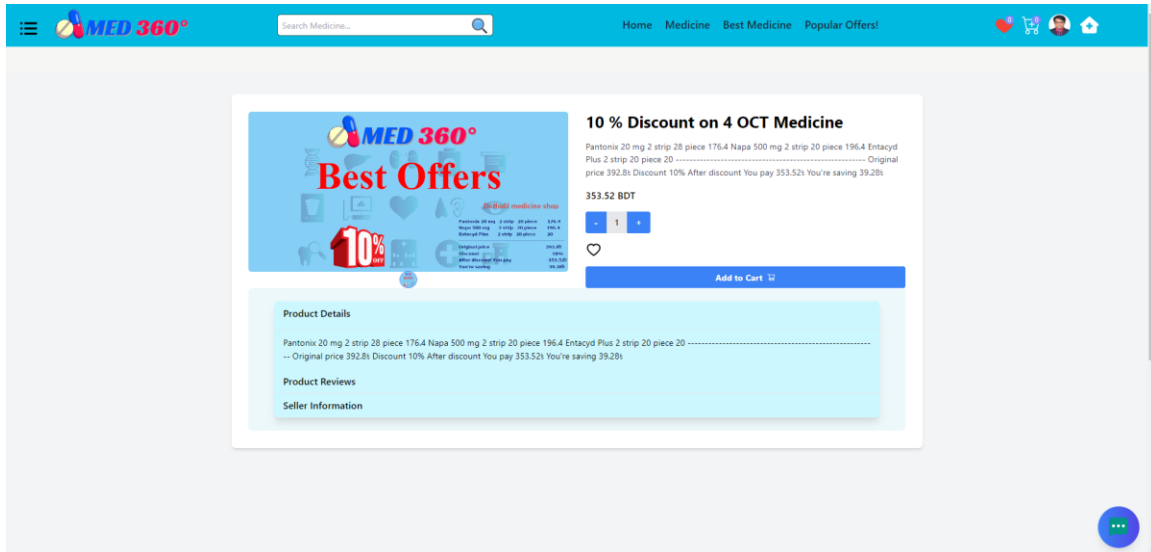


Figure 4.1.7.1: All Offers Details view Page

4.1.9 Messaging and Communication Interface

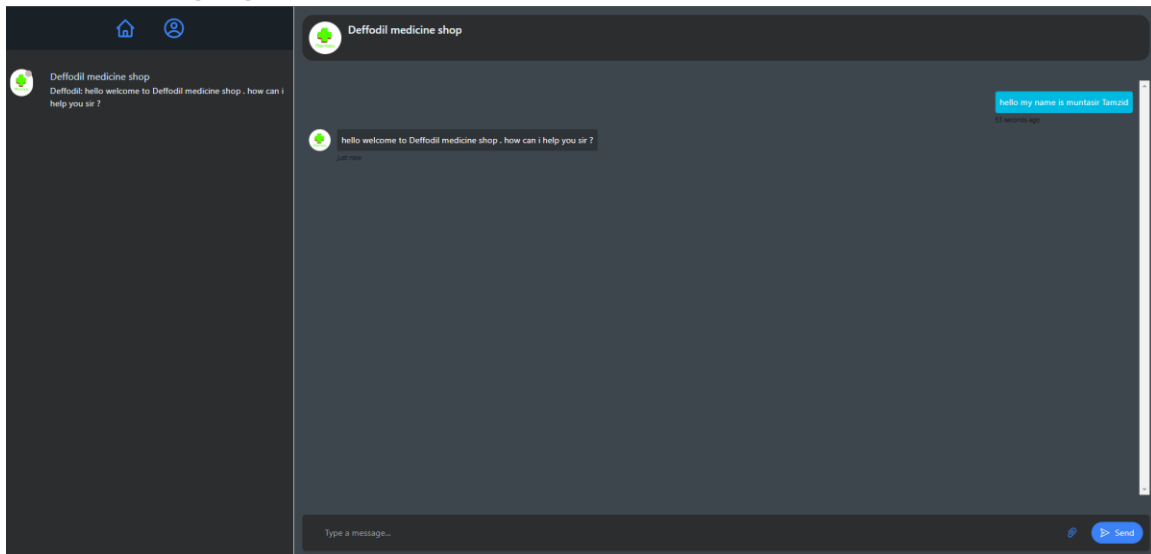


Figure 4.1.9.1: Users Messaging and Communication Interface

4.1.10 Checkout Process and Payment Interface

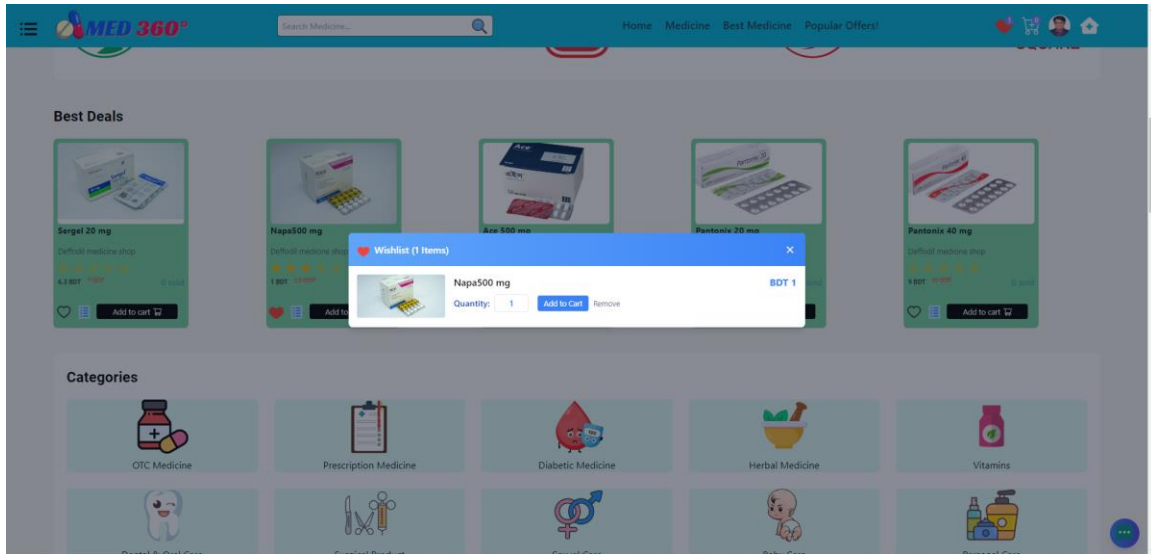


Figure 4.1.10.1: Wish list

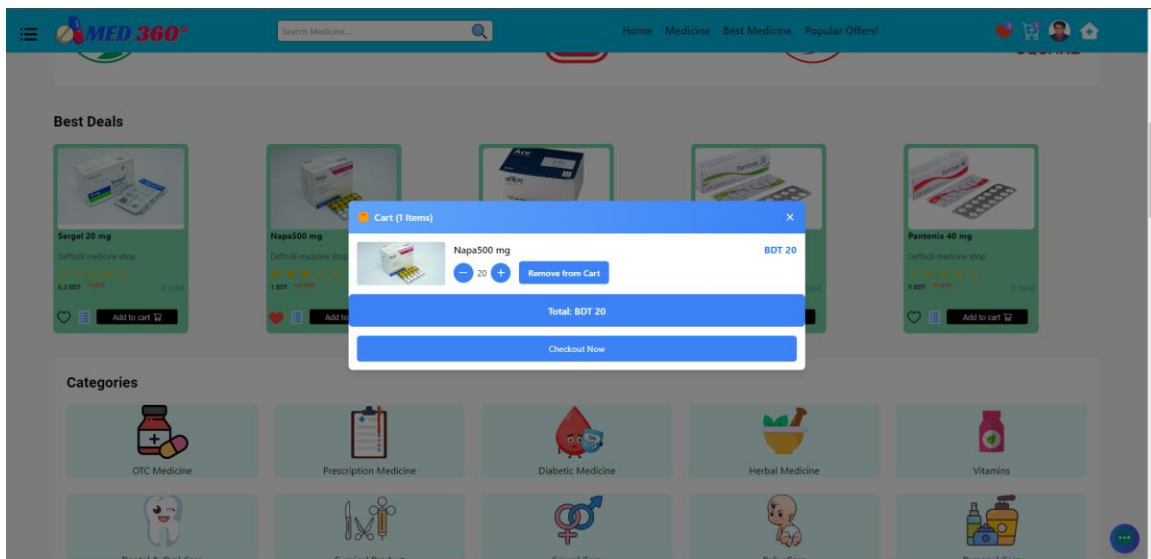


Figure 4.1.10.2: Cart

The screenshot shows the MED 360 Checkout Page. At the top, there is a navigation bar with the MED 360 logo, a search bar, and links to Home, Medicine, Best Medicine, and Popular Offers. Below the navigation bar, there are three status indicators: Shipping Completed (green circle), Payment Pending (red circle), and Success Pending (red circle). The main content area is divided into two sections. The left section is the Shipping Address form, which includes fields for Full Name (Muntazir Tamjid Shuyin), Phone Number (1709444946), Zip Code (1230), Country (Select Country), City (Select City), Address 1 (544/2 S.B.D.L cottage (BRAC Market beside road), sarker bar), and Address 2 (544/2 S.B.D.L cottage (BRAC Market beside road)). There is a 'Saved Address' button and a 'Go to Payment' button. The right section is the Order Summary, which shows Subtotal: 20 BDT, Shipping: 2.00 BDT, and Discount: -. There is a 'Total: 22.00 BDT' button.

Figure 4.1.10.3: Checkout Page

The screenshot shows the MED 360 Payment Page. At the top, there is a navigation bar with the MED 360 logo, a search bar, and links to Home, Medicine, Best Medicine, and Popular Offers. Below the navigation bar, there are three status indicators: Shipping Completed (green circle), Payment Completed (green circle), and Success Pending (red circle). The main content area is divided into two sections. The left section is the Payment method selection, which shows 'Cash on Delivery' as the selected method and a 'Confirm' button. The right section is the Order Summary, which shows Subtotal: 20 BDT, Shipping: 2.00 BDT, and Discount: -. There is a 'Total: 22.00 BDT' button. The footer contains the MED 360 logo, a description of the company, a list of products (OTC Medicine, Prescription Medicine, Diabetic Medicine, Herbal Medicine, Surgical Product), and a list of support links (FAQ, Reviews, Contact Us, Shipping, Live chat). There is also a copyright notice: © 2024 Muntazir. All rights reserved.

Figure 4.1.10.4: Payment Page

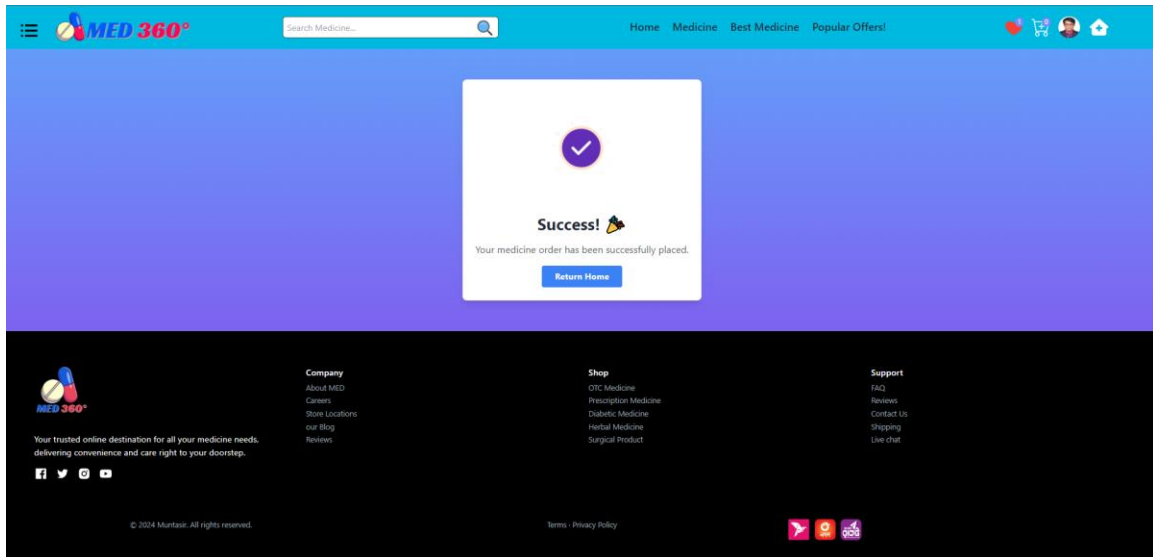


Figure 4.1.10.4: Success

4.1.11 Review and Refund System

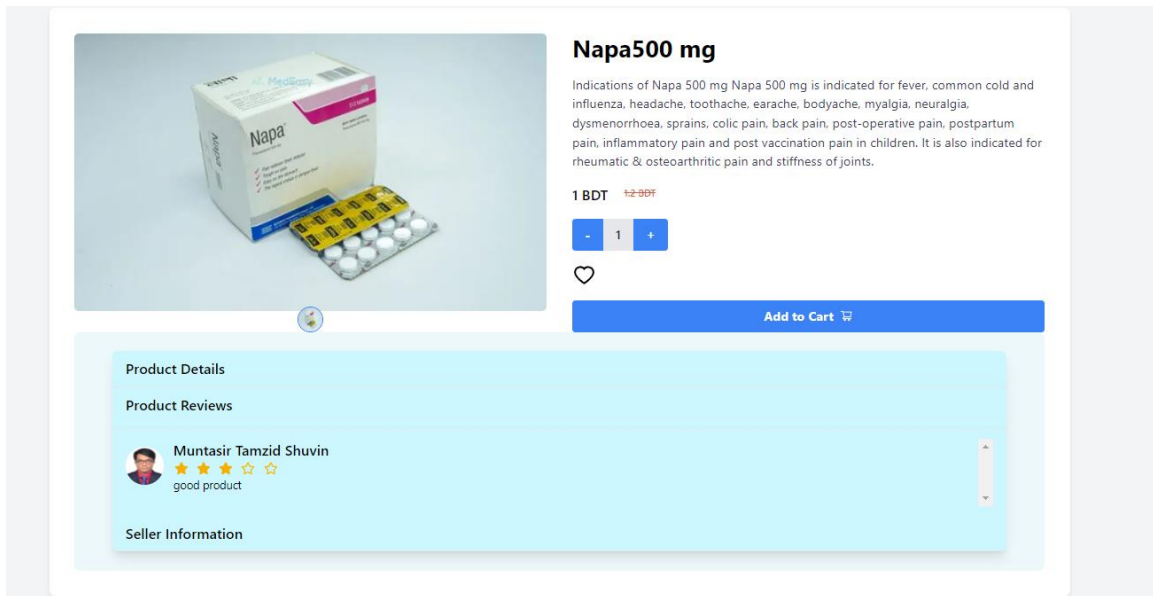


Figure 4.1.11.1: Review and ratings

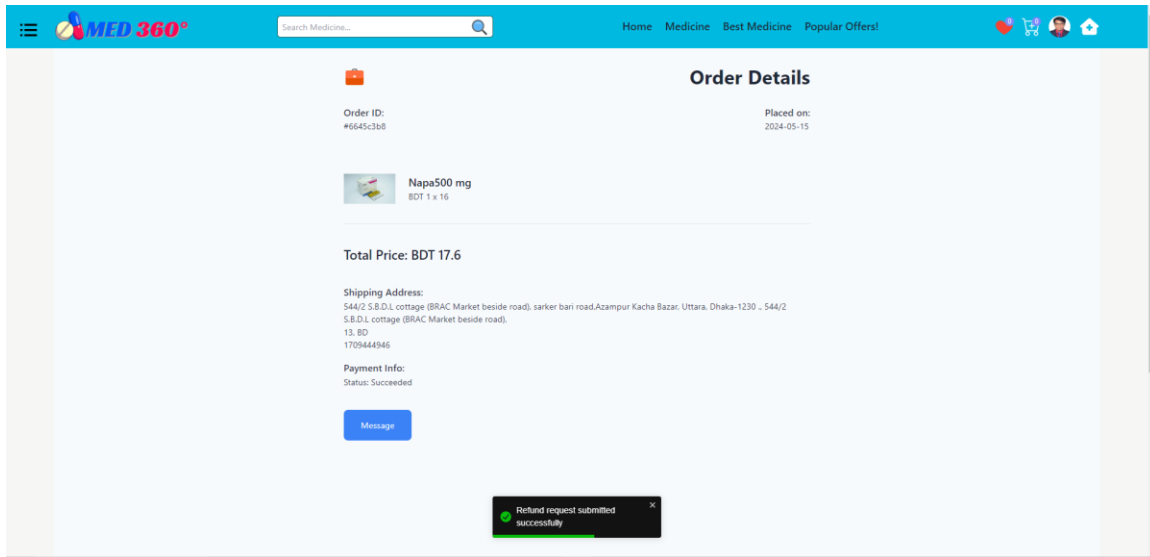


Figure 4.1.11.2: Refund Product

4.1.12 Profile and password

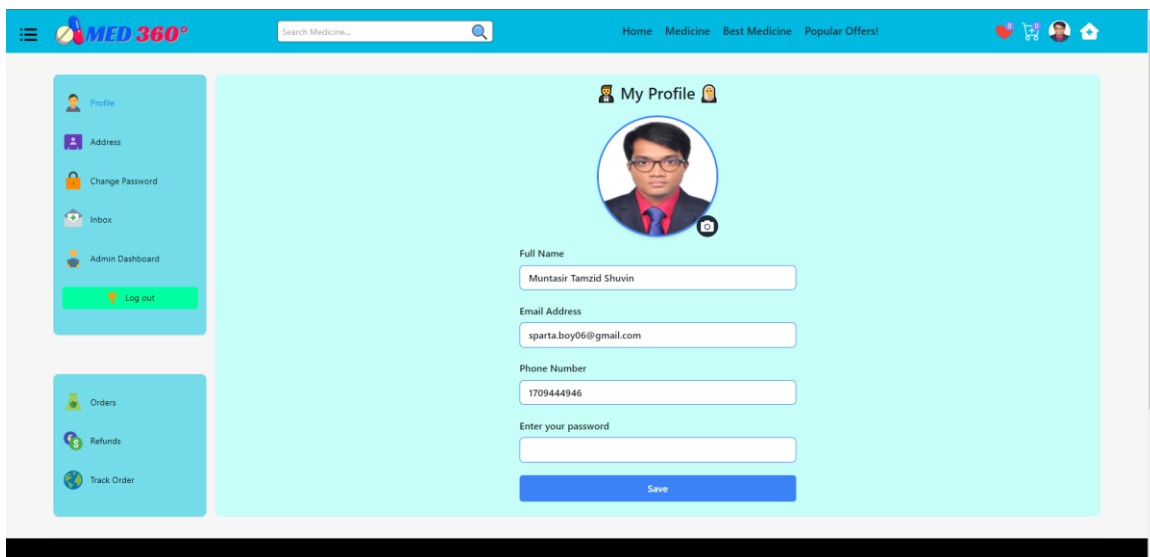


Figure 4.1.12.1: Profile

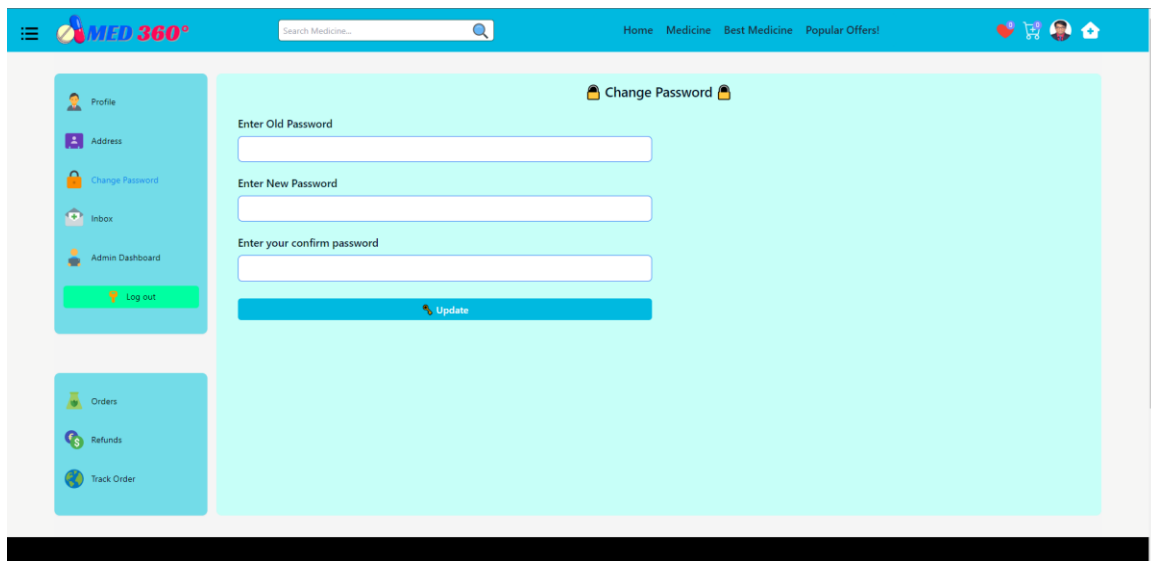


Figure 4.1.12.1: Password Changing page

4.2 Back-end design

The infrastructure of Med 360° was designed in a way that it can support the healthcare ecommerce platform in a secure, efficient, and robust manner.

The background of the Backend is built with Node.js and Express.js ensures that both the performance and the scalability are available. The database, MongoDB, offers the features of scalability and adaptability that enable it to handle the massive data.

Back-end development means working on server-side software, which focuses on everything you can't see on a website. Back-end developers ensure the website performs correctly, focusing on databases, back-end logic, application programming interface (APIs), architecture, and servers. They use code that helps browsers communicate with databases, store, understand, and delete data. Authentication and authorization are facilitated through the use of JWT (JSON Web Tokens) that enables access control. Role-based access is the mechanism that allows administrators, vendors, and consumers to have different levels of access. The API endpoints have RESTful nature which allows the users to have stable and transparent communication with the interface.

CRUD operations are used on products, orders, consumers, and vendors as one of the data management tasks. Through the product administration module, the vendors can easily add, change, and delete the product listings. The order processing is a process of order creation,

order status updates, and shipment tracking. Users are instantly informed about stock alerts and order updates in real-time.

Different payment gateways are used and the payment integration is done in a safe way so that the transactions are carried out in an efficient way. Error management and data validation are done with the utmost caution to ensure the maintenance of data integrity and the creation of meaningful error messages.

Data encryption, safe API communication, and routine security audits are the parts of the security measures. In order to handle heavy traffic, performance optimization means traffic management which includes cache strategies, load balancing and database indexing.

All together, the infrastructure of Med 360° is designed in a perfect way to make sure that the ecommerce platform works smoothly, is safe and effective. It provides the support for all primary features and creates a strong foundation for the future development.

Technology used-

- NodeJS
- Express JS
- MongoDB

Here's what many back-end developers do on a day-to-day basis:

- **Build and maintain websites:** A back-end developer's main responsibility is to use various tools, frameworks, and languages to determine how best to develop intuitive, user-friendly prototypes and turn them into websites. This requires an understanding of cross-platform functionality and compatibility.
- **Write high-quality code:** To produce sustainable web applications, developers must write clean and easily maintainable code.
- **Perform quality assurance (QA) testing:** Create and oversee testing schedules to optimize user interface and experience, ensuring optimal display on various browsers and devices.
- **Assess efficiency and speed:** Once a website is up and running, and during updates and edits, developers need to assess its performance and scalability, adjusting code as necessary.
- **Troubleshoot and debug:** Be able to troubleshoot issues and resolve them, while communicating them to project managers, stakeholders, and QA teams.

- **Train and support:** Maintain workflows with client teams to ensure ongoing support, along with leading training and mentorship for junior developers.

4.2.1 Shop Dashboard

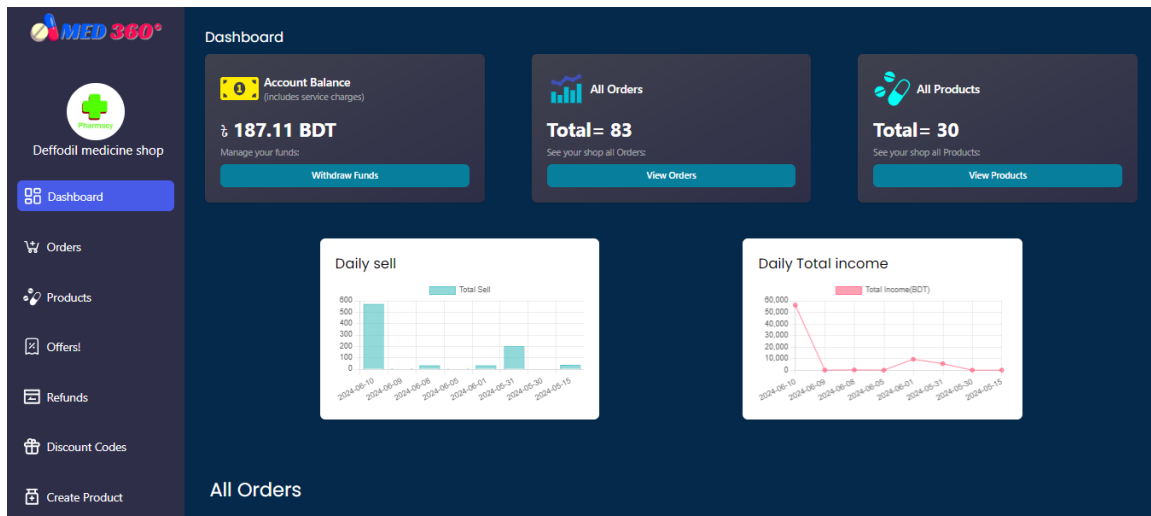


Figure 4.2.1.1: Shop Dashboard

4.2.2 Create Product

The Create Product form for Deffodil medicine shop includes the following fields:

- Name:** A text input field with the placeholder "Enter your product name..."
- Description:** A large text area for entering the product description.
- Category:** A dropdown menu with the placeholder "Choose a category".
- Tags:** A text input field with the placeholder "Enter your product tags..."
- Original Price:** A text input field with the placeholder "Enter your product price..."

Figure 4.2.2.1: Create Product

4.2.3 Create Offers

The 'Create Offer' form is located in the Deffodil medicine shop dashboard. It features a sidebar with navigation links: Dashboard, Orders, Products, Offers!, Refunds, Discount Codes, Create Product, and Create Offers! (highlighted). The main form area contains the following fields:

- Name ***: A text input field with placeholder text 'Enter your event product name...'.
- Description ***: A large text area with placeholder text 'Enter your event product description...'.
- Category ***: A dropdown menu with the option 'Choose a category'.
- Tags**: A text input field with placeholder text 'Enter your event product tags...'.
- Original Price**: A text input field with placeholder text 'Enter your event product price...'.

Figure 4.2.3.1: Create Offers

4.2.4 all Order

The 'Orders' table is located in the Deffodil medicine shop dashboard. It displays a list of orders with the following columns: Order ID, Name, Status, Items Q..., Order D..., Phone ..., Total, paym..., and Edit Orders. The table contains 10 rows of data.

Order ID	Name	Status	Items Q...	Order D...	Phone ...	Total	paym...	Edit Orders
66677c578a6e4dca2...	Muntasir Tamzid Shu...	Processing	7	2024-06-10	1,709,444,946	BDT 267.74	Bikash/Nagad/Upay	Edit
66677ce28a6e4dca2...	Muntasir Tamzid Shu...	Processing	7	2024-06-10	1,709,444,946	BDT 631.51		Edit
66677b232cb23d1a0...	Muntasir Tamzid Shu...	Processing	2	2024-06-10	1,709,444,946	BDT 243.19	Bikash/Nagad/Upay	Edit
66677b6b2cb23d1a0...	Muntasir Tamzid Shu...	Processing	1	2024-06-10	1,709,444,946	BDT 1.87	Bikash/Nagad/Upay	Edit
66677ae3f48b3499...	Muntasir Tamzid Shu...	Processing	1	2024-06-10	1,709,444,946	BDT 1.19	Bikash/Nagad/Upay	Edit
66677ac89126eb33e...	Muntasir Tamzid Shu...	Processing	7	2024-06-10	1,709,444,946	BDT 1848	Bikash/Nagad/Upay	Edit
66677aa8253e2a71d...	Muntasir Tamzid Shu...	Processing	16	2024-06-10	1,709,444,946	BDT 110.88	Bikash/Nagad/Upay	Edit
666777338061d12ad...	Muntasir Tamzid Shu...	Processing	64	2024-06-10	1,709,444,946	BDT 11305.8	Cash On Delivery	Edit
666778998061d12ad...	Muntasir Tamzid Shu...	Processing	20	2024-06-10	1,709,444,946	BDT 2816	Bikash/Nagad/Upay	Edit
666779158061d12ad...	Muntasir Tamzid Shu...	Processing	1	2024-06-10	1,709,444,946	BDT 1.1	Bikash/Nagad/Upay	Edit

Figure 4.2.4.1: all Order

4.2.5 Create Discount Code

The screenshot displays the 'Discount Code' management page. On the left is a sidebar with navigation options: Dashboard, Orders, Products, Offers!, Refunds, Discount Codes (highlighted), and Create Product. The main content area has a title 'Discount Code' and a table with the following data:

Id	Coupon Code	Value	Delete
66454d9c99741c377687351	deffodil20%	20 %	Delete

Below the table, there is a 'Create Discount Code' button and pagination information '1 of 1'.

Figure 4.2.5.1: Create Discount Code

4.2.6 Refunds

The screenshot displays the 'Refunds' management page. On the left is a sidebar with navigation options: Dashboard, Orders, Products, Offers!, Refunds (highlighted), Discount Codes, Create Product, and Create Offers!. The main content area has a title 'Refunds' and a table with the following data:

Order ID	Status	Items Qty	Total	Refunds
6645c3b8c99741c377687765	Processing refund	1	BDT 17.6	Refunds

Below the table, there is pagination information '1 of 1'.

Figure 4.2.6.1: Refunds

4.2.7 withdraw money

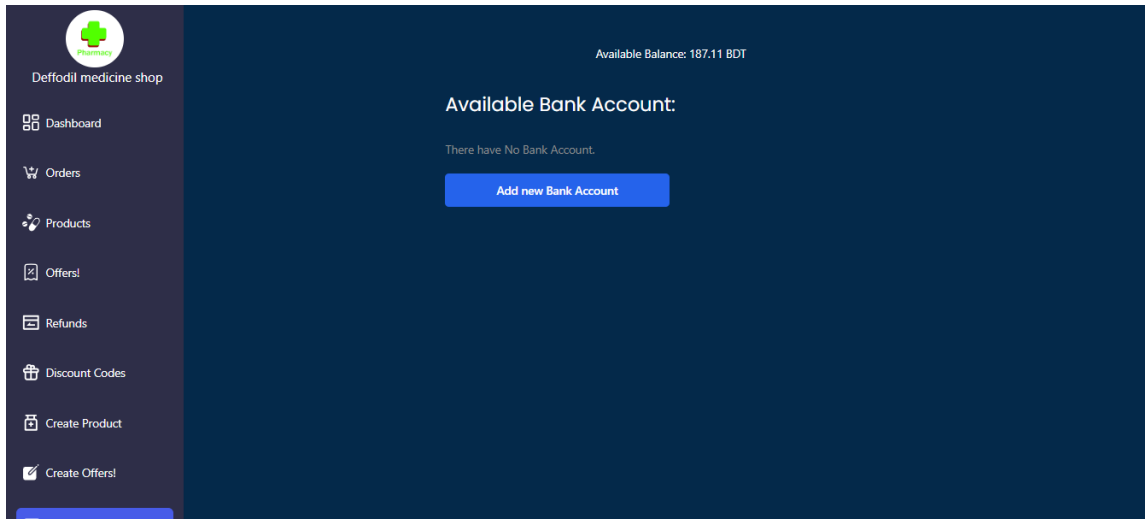


Figure 4.2.7.1: withdraw money

4.2.8 shop Profile

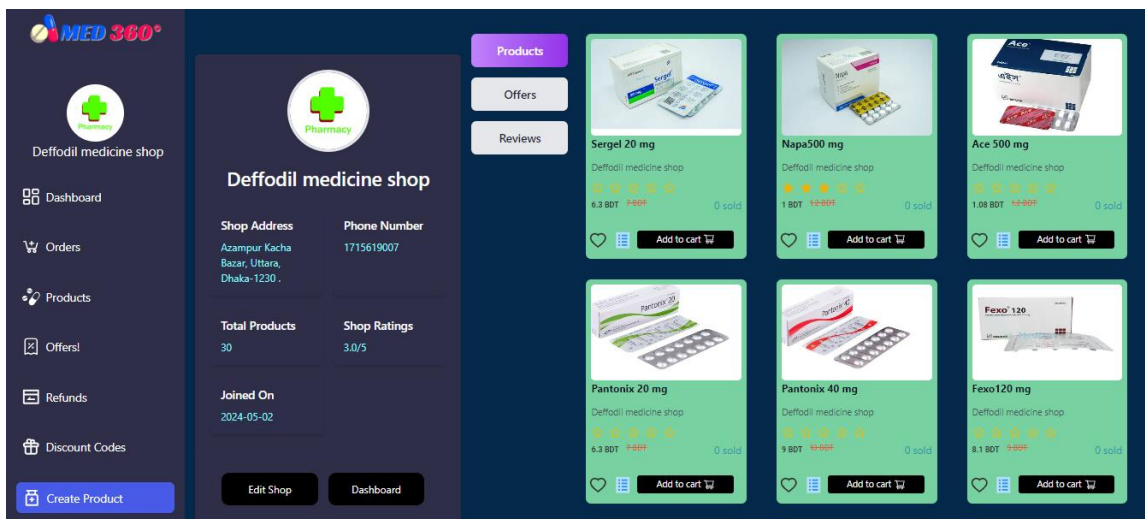


Figure 4.2.8.1: shop Profile

shop Profile update

Shop Name: Daffodil medicine shop

Shop description: Enter your shop description

Shop Address: Azampur Kacha Bazar, Uttara, Dhaka-1230 .

Shop Phone Number: 1715619007

Shop Zip Code: 1230

Figure 4.2.8.2: shop Profile update

4.2.9 Admin Dashboard

Admin Dashboard

Total Earning
Total= 7157.64 BDT
[withdraw request](#)

All Sellers
Total= 1 shop
[View Sellers](#)

All Users
Total= 1 User
[View users](#)

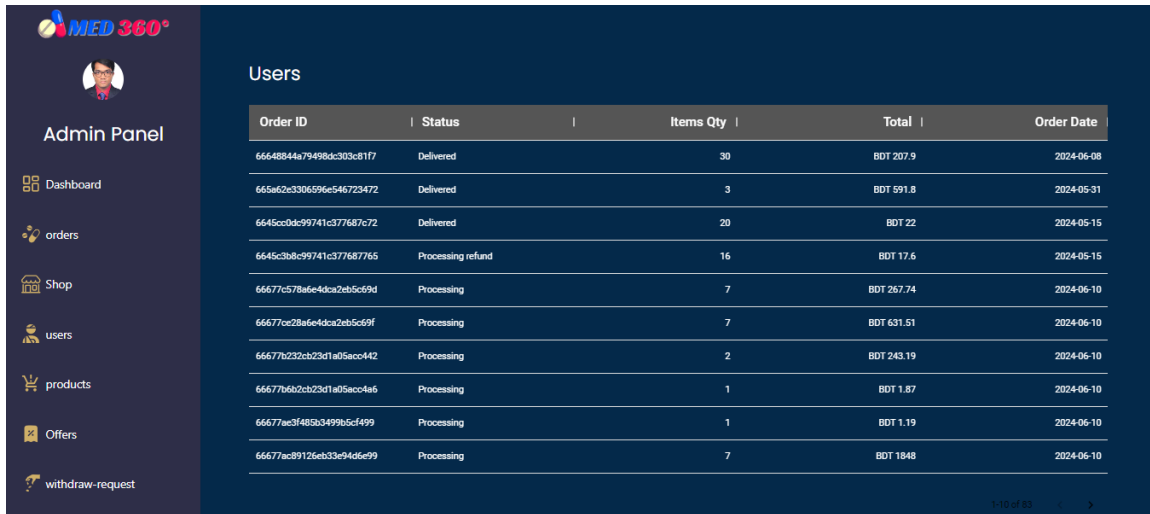
Admin order
Total= 83
[View users](#)

Latest Orders

Order ID	Name	Phone Number	Status	Items Quantity	Total	Order Date	payment
648844a79498dc303c81	Muntasir Tamzid Shuvin	+8801709444946	Delivered	30	BDT 207.9	2024-06-08	Bikash/Nagad/Upay
6a62c3306596e5467234	Muntasir Tamzid Shuvin	+8801709444946	Delivered	3	BDT 591.8	2024-05-31	
45cc0dc99741c377687c	Muntasir Tamzid Shuvin	+8801709444946	Delivered	20	BDT 22	2024-05-15	Cash On Delivery
45c3b8c99741c3776877	Muntasir Tamzid Shuvin	+8801709444946	Processing refund	16	BDT 17.6	2024-05-15	Cash On Delivery
677c578a6e4dc2eb5cd9	Muntasir Tamzid Shuvin	+8801709444946	Processing	7	BDT 267.74	2024-06-10	Bikash/Nagad/Upay
677c2928f6e5ddc2eb5cd9	Muntasir Tamzid Shuvin	+8801709444946	Processing	7	BDT 631.51	2024-06-10	

Figure 4.2.9.1: Admin Dashboard

4.2.10 All Order



Order ID	Status	Items Qty	Total	Order Date
66648844a79498dc303c8177	Delivered	30	BDT 207.9	2024-06-08
665a62e3306596e546723472	Delivered	3	BDT 591.8	2024-05-31
6645cc0dc99741c377687c72	Delivered	20	BDT 22	2024-05-15
6645c3b8c99741c377687765	Processing refund	16	BDT 17.6	2024-05-15
66677c578a6e4dca2eb5c69d	Processing	7	BDT 267.74	2024-06-10
66677cc28a6e4dca2eb5c69f	Processing	7	BDT 631.51	2024-06-10
66677b232cb23d1a05acc442	Processing	2	BDT 243.19	2024-06-10
66677b6b2cb23d1a05acc4a6	Processing	1	BDT 1.87	2024-06-10
66677ac3f485b3499b5c499	Processing	1	BDT 1.19	2024-06-10
66677ac89126eb33e94de99	Processing	7	BDT 1848	2024-06-10

Figure 4.2.10.1: All Order

4.2.11 All Product



Product Id	Name	Price	Stock	Sold out	Preview
66453da4c99741c3776866...	Sergel 20 mg	BDT 6.3	5,000	0	View product
66453e4bc99741c3776862...	Napa500 mg	BDT 1	5,000	0	View product
66453e0dc99741c3776863...	Ace 500 mg	BDT 1.08	5,000	0	View product
66453f39c99741c3776863...	Pantonix 20 mg	BDT 6.3	5,000	0	View product
66454049c99741c377686...	Pantonix 40 mg	BDT 9	10,000	0	View product
664540d9c99741c377686...	Fexo120 mg	BDT 8.1	10,000	0	View product
66454170c99741c377686...	Fenadin 50 ml	BDT 48	100	0	View product
664541dac99741c377686...	Fexo 180 mg	BDT 9	5,000	0	View product
66454287c99741c377686...	Montair 10 mg	BDT 156	199	0	View product
664542fcc99741c3776866...	Aeron 10 mg	BDT 15	4,999	0	View product

Figure 4.2.11.1: All Product

4.2.12 All Offers

Product Id	Name	Price	Stock	Sold out	Preview
66453b8ac99741c377687...	10 % Discount on 4 OCT Medicine	BDT 353.52	30	0	Preview Offer

1 of 1

Figure 4.2.12.1: All Offers

4.2.13 All Shop Page

Seller ID	name	Email	Seller Addr...	joinedAt	Preview Shop	Delete Seller
66366876c99a7219c...	Deffodil medicine shop	muntasir.tamzid06@...	Azampur Kacha Baza...	2024-05-02	View Shop	Delete Shop

1 of 1

Figure 4.2.13.1: All Shop Page

4.2.14 All Users Page

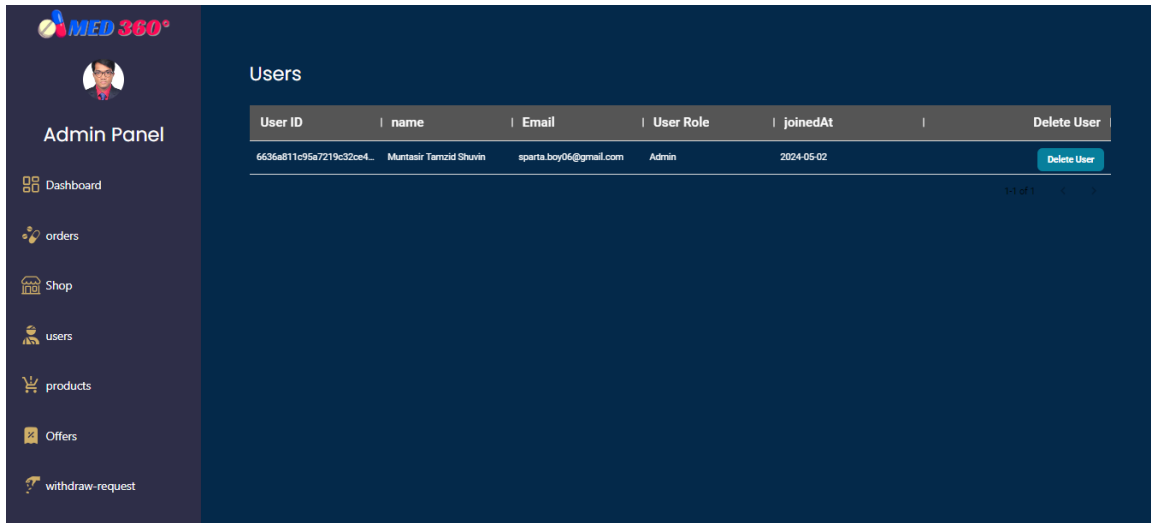


Figure 4.2.14.1: All Users Page

4.2.15 withdraw request

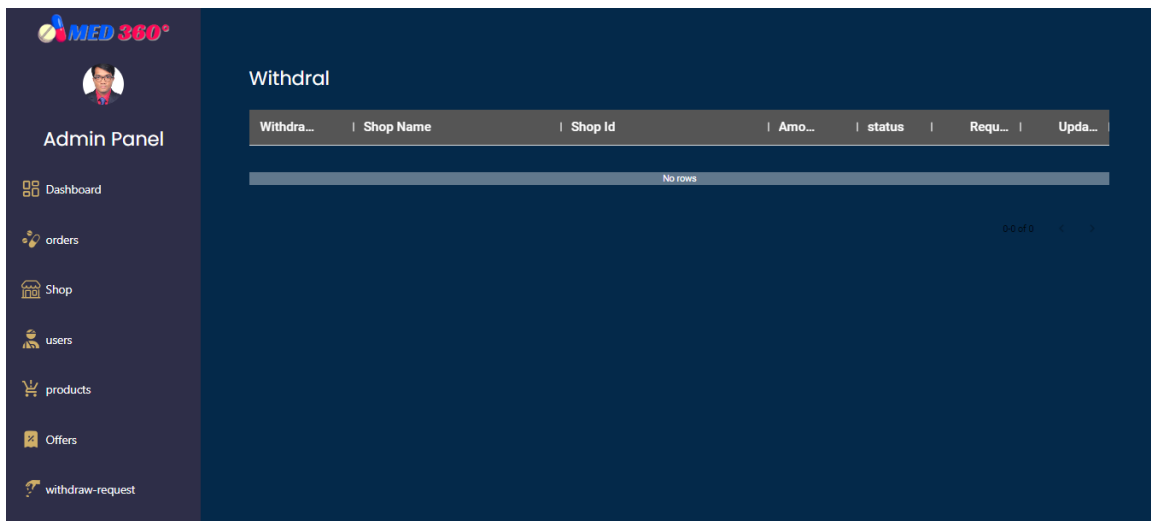


Figure 4.2.15.1: withdraw request

4.3 Implementation Requirement

4.3.1 Front-End Development with React.js

React is the JavaScript project that has dominated the front-end ecosystem recently. Facebook smarties designed and open-sourced React. Developers write and compose React web interface components. React introduces radical concepts and challenges developers to rethink best practices. Web developers were taught for years to create HTML, JavaScript, and CSS separately. React recommends writing HTML and CSS in JavaScript. After testing it, this doesn't seem that ridiculous.

Front-end development of Med 360° will be done using React.js and a component-based design will be adopted. This will enable sections of the user interface consisting of the shopping cart, order details, product lists, and user profiles to be reused. Thus, the design of the construction area will be made more conducive to safety, easier for usage, lower the cost of building, and easier to make changes when needed to. In this regard, State management solution such as Redux or Context API will be employed to deal with the complex state exchange processes that are to happen between these units. It will, in turn, lead to the smooth flow of state changes and their consequences. Middleware for managing the most critical state management scenarios will be used to handle the Taylor Manifesto events and the cases of contention at different times. On the other hand, in order for the style to adapt and for it to be mobile-friendly, CSS media queries, Flexbox, and Grid layouts will be used. Apart from that, Tailwind CSS or styled-components will help define and build styles that are flexible, and as a result, are beneficial for user experience on all devices they use. Mobile-first concepts were applied ensuring the best performance of the application on the smaller screens.

4.3.2 Back-End Development with Node.js and Express

A popular React framework for server-side rendering web apps is NextJS. NextJS has three main advantages: An improved user experience. Extraordinary performance. React developers use NextJS to simplify their work. It also adds several critical features to React projects we must build ourselves. For strong and short server-facet help, the backend programming will use Node.js and Express. It may be essential to construct middleware with a purpose to cope with routing, identity, permission, logging, and mistakes. To make

sure protection and ease of preservation, gear like Passport.Js, Morgan, and Helmet can be used. Setting up stable hyperlinks to MongoDB the usage of Mongoose for records modeling will manage database contact. Complex records relationships can be handled with advanced queries, model validation, and virtual fields. Indexing, aggregation pipelines, and caching strategies the usage of equipment like Redis might be put in location to improve the speed of the database. Data security and uniformity may be covered by way of transactions and validation rules. Best practices may be used to make certain that RESTful API endpoints have clean, uniform, and versioned paths. Express Router will split routes and controllers into smaller portions, and it's going to cope with and validate all errors to make sure that API verbal exchange is secure using HTTPS and token-based protection.

4.3.3 Payment Gateway Integration with Stripe

Stripe may be delivered to handle safe transactions for charge handling, ensuring that PCI DSS requirements are met. Fraudulent transactions may be stopped by using purchaser-side and server-facet checking, and Stripe Elements will make safe price forms that can be custom designed. Stripe webhooks may be installation so that actual-time updates on payment occasions may be sent, for you to reason orders to be processed and send development updates and emails. Webhook addresses will be checked and guarded to stop people from entering into without permission.

4.3.4 Order Processing Logic

The accurate judgment for processing orders will encompass a robust machine for creating orders, taking objects out of inventory, and giving customers and directors actual-time progress reports. Order workflows will cope with the different steps of fulfillment, like processing, sending, and transport. They can even deliver customers a complete account of their orders and facts on how to tune them. Full stock control reasoning will maintain Medicine of what number of every product are in stock, update them as wanted, and ship alerts whilst inventory ranges drop. To keep away from errors, adjustments to the inventory can be atomic and constant, and dealers can have tools to control their stock and notice stock facts.

4.3.5 Admin Dashboard Implementation:

Role-based totally access manipulate (RBAC) will be built into the admin dashboard. This will supply admins, vendors, and different team of workers individuals one of a kind ranges of get admission to and capabilities. Access to non-public statistics and actions could be restrained by roles and permissions. Administrators can be able to give roles and manage permissions thru a person control interface. A huge a part of the admin panel will be records illustration. This could be done with charts, graphs, and dashboards that show analytics and key overall performance signs (KPIs) like income developments, consumer increase, and product performance. Libraries like Chart.js and D3.js may be used to make visualizations which are dynamic, can be modified, and get actual-time updates and filtering alternatives to assist managers make clever picks.

CHAPTER 5

Implementation and Testing

5.1 Implementation Requirements for Med 360°

The frontend development of Med 360° will make use of React.Js, focusing on a trouble-based absolutely structure to create reusable additives for the person interface, collectively with product listings, user profiles, shopping for carts, and order summaries. This approach allows inexperienced development, upkeep, and scalability. Redux or Context API might be completed for country control, ensuring smooth and predictable state changes. Middleware like Redux Thunk or Redux Saga will manage asynchronous movements and aspect outcomes. The format will prioritize responsiveness and mobile-friendliness, the use of CSS media queries, Flexbox, and Grid layouts. Tools like Tailwind CSS or styled-additives may be used to create flexible and adaptive layouts, presenting an pinnacle-great man or woman experience in the course of severa gadgets.

The backend development will make use of Node.Js and Express to provide strong and green server-component assist. Middleware implementation will cope with routing, authentication, authorization, logging, and errors managing using gadget like Passport.Js, Morgan, and Helmet. Secure connections to MongoDB using Mongoose will control complicated records relationships. Indexing, aggregation pipelines, and caching techniques the use of tools like Redis will optimize database universal performance. RESTful API endpoints can be designed following splendid practices, offering smooth, regular, and versioned routes with whole errors coping with and validation to make sure solid API communicate thru HTTPS and token-based totally totally authentication.

Stripe is probably blanketed for solid fee processing, making sure compliance with PCI DSS necessities. Client-side and server-facet validation will shield towards fraudulent transactions, and Stripe Elements will create customizable and solid price bureaucracy. Stripe webhooks will receive actual-time updates on charge activities, triggering order processing, reputation updates, and email notifications.

The order processing commonplace sense will encompass a robust machine for managing order introduction, inventory deduction, and actual-time reputation updates for customers

and administrators. Order workflows will manipulate distinctive degrees of success, along with processing, shipping, and shipping. Comprehensive stock control common sense will track product inventory stages, cope with restocking, and cause signals for low stock. Inventory updates could be atomic and consistent to save you discrepancies.

The admin dashboard will put into effect function-based totally get admission to control (RBAC), permitting exceptional degrees of get right of entry to and capability for directors, companies, and other team of workers individuals. Roles and permissions will restriction get admission to to sensitive records and moves. Data visualization can be a key characteristic of the admin dashboard, making use of charts, graphs, and dashboards to represent analytics and key overall performance signs (KPIs) consisting of income developments and person growth. Libraries like Chart.js or D3.js will create interactive and customizable visualizations.

5.2 Testing Implementation

Testing is crucial to ensure the reliability, security, and performance of Med 360°. The testing process will encompass various types of tests to cover different aspects of the application.

5.2.1 Front-End Testing:

- **Unit Testing:** Utilize Jest and the React Testing Library to write unit exams for each React issue in order to make certain they all work properly.
- **Integration Testing:** The integration tests that are carried out to make the non-reproducible features of your app work properly together shall be run . These tests should cover such issues as user interaction, shape entries, and API calls.
- **End-to-End (E2E) Testing :** Remarkably, automate the real human interactions with the tools like Cypress or Selenium and then check if the whole software workflow works well, on account of logging in, searching for the product, putting an order, and getting it.
- **Flexible Design Testing :** The use of browser developer tools and websites like Browser Stack can be employed to test the adaptability of the app on different display sizes and devices .

5.2.2 Back-End Testing :

- **Unit Testing :** Apply the functionalities of the Mocha , Chai , or Jest frameworks to create unit tests for the methods and modules of the Node . the js backend is also responsible for making sure that all the plans are implemented properly .
- **Integration Testing:** Carry out the integration tests so as to ascertain that all the different services and parts function as expected. Among the tasks that are to be carried out is to make sure that database actions, API endpoints, and middleware functions work .
- **API Testing:** To check the RESTful API endpoints and verify the returned answers to be correct for all types of calls, including edge cases and error conditions, use tools like Postman or Insomnia .
- **Performance Testing:** Make sure the back-end's performance is tested by the tools such as Apache JMeter or Artillery in order to check if it is able to manage the traffic demand and at the same time, the expected load.

5.2.3 User Authentication Testing :

- **Profile Management Testing :** Make sure that the tools for managing user profiles work well so that users can safely change their personal information .

5.2.4 Payment Gateway Testing :

- **Transaction Testing :** Verify that the Stripe connection is functioning correctly and safely through both successful and unsuccessful transactions .
- **Webhook Testing:** The webhooks of Stripe should be capable of receiving and handling the real time updates in an accurate manner so that the right decision is then made.
- **Security Testing:** You can be sure that you are doing everything that PCI DSS rules state and that you are not the culprit of the danger by doing security testing.

5.2.5 Order Processing Testing :

- **Order Workflow Testing :** Verify the order processing system to confirm that the orders are made, processed and kept, inventory is removed properly and reports are sent in real time .
- **Inventory Management Testing :** The way inventory management is justified should be assessed so that the stock levels are updated accurately and the alerts are sent when the stock levels are dropping .
- **User and Admin Testing:** It is very important to check the user and admin tools that are used to manage the orders and supplies and they should be tested to make sure they give the correct and up-to-date information.

5.2.6 Admin Dashboard Testing :

- **Role-Based Access Control Testing :** Role based access control testing should be used too verify that different user roles have the right level of access and permissions .
- **Data Visualization Testing :** The visualization of the test data, which includes the charts , graphs , and dashboards , to make sure they are the ones that are representing the analytics and KPIs is a crucial feature .
- **Usability Testing:** Assign usability tests to check out how the admin dashboard is user-friendly and efficient.

5.3 Test Results and Reports

- **Unit Test Results:** The outcome of unit tests for React components is presented. The report should contain the number of tests that were passed, the number of tests that were failed and any critical issues that were found.
- **Integration Test Results:** Give an overview of integration tests, emphasizing the cases of successful cooperation between the parts and the problems found during the process .
- **End-to-End Test Results:** Show the results of E2E tests and concentrate on user workflows and those failures. The paper describes the situations that were tested and the outcomes of these situations .

- **Responsive Design Test Results:** Record the performance of the application on different devices and screen sizes and note any design flaws or incompatibility .
- **Unit Test Results:** A brief of the results of unit tests for the backend functions and modules is given, along with the failures and their consequence
- **Integration Test Results:** Give a brief of the integration tests, focusing on the communications between different modules and services.
- **API Test Results:** Describe the results of the API tests , such as the response time, the error handling, and the problems with certain endpoint .
- **Performance Test Results:** Highlight the results of the performance tests , stressing on the system's capability to deal with load and traffics . The sources of data which should be included are response times, throughput and the performance bottlenecks that have been discovered.
- **Token-Based Authentication Test Results:** Highlight the pros and cons of JWT authentication tests, especially those that are related to the token issuance, validation and expiration.
- **Profile Management Test Results:** Record the results of the profile management tests, focusing on the problems with the updating of user data or the uploading of profile pictures .
- **Transaction Test Results :** Summarize the outcomes of transaction trying out with Stripe, noting any problems with charge processing or validation .
- **Webhook Test Results:** Provide a precis of webhook checks, detailing the successful reception and processing of Stripe events .
- **Security Test Results :** Document the consequences of safety checking out, highlighting any vulnerabilities recognized and measures taken to cope with them.
- **Order Workflow Test Results :** Summarize the effects of order processing exams, focusing at the accuracy of order introduction, control, and monitoring .
- **Inventory Management Test Results:** Provide a precis of inventory control assessments , noting any issues with stock degree updates or alerts .
- **User and Admin Test Results:** Document the outcome of person and admin interface assessments , highlighting any troubles with capability or usability .

- **Role-Based Access Control Test Results:** Summarize the consequences of function-based access manipulate tests, noting any issues with permissions or get admission to .
- **Data Visualization Test Results :** Provide a precis of facts visualization tests, highlighting the accuracy and value of charts, graphs, and dashboards .
- **Usability Test Results :** Document the consequences of usability trying out, noting any remarks from directors and upgrades made to the dashboard .

CHAPTER 6

Impact on Society and Environment

Med 360°, a healthcare platform developed by BD which does employ various vendors, is a kind of a norm setter and at the same time, it is the greatest producer of the environment methodologies in which the society and the environment are both directly affected. Through the provision of online sale of drugs and healthcare products, it not only meets the important healthcare needs and also, it helps to maintain the environment. Here are the specific impacts and initiatives categorized under societal and environmental impacts.

6.1 Impact on society

- **Enhanced Access to Healthcare:** 360° Med considerably enriches the access to healthcare commodities in all the regions, especially for those in the remote areas where medical facilities are not that common.
- **Support for Local Economies:** The platform gives local pharmacies and healthcare providers a bigger market by being able to reach more customers, which in turn enables them to survive and expand their business.
- **Job Creation:** The process of Med 360° expanding the operations is the creation of new jobs in the areas of customer service, logistics, and platform management, thereby, the local employment opportunities are increased.
- **Health Education :** The platform educates the community by providing informative content and health tips, subsequently, the awareness and knowledge for various health issues are increased that leads to better community health practices.
- **Emergency Readiness :** With services like the expedited delivery of the emergency medical items , Med 360° makes sure that the critical healthcare products are available when they are required the most .

6.2 Impact on Environment

- **Reduction in Carbon Emissions:** The centralized delivery system eliminates the inconvenience of individual trips to pharmacies, hence, the reduction of the carbon footprint generated by these trips.
- **Eco-friendly Packaging:** 360° Med is destined to be the pioneer of the use of the sustainable, recyclable, or even biodegradable packaging materials to cut down the environmental impact.
- **Efficiency in Resource Use:** Through the utilization of sophisticated logistics and data analytics, the platform can make inventory management possible and prevent the wastage of products from expiration.
- **Paperless Operations:** By using digital prescription and records, we can significantly reduce paper use and thus contribute to the global environmental conservation.
- **Sustainable Delivery Methods:** Usage of electric or bicycle delivery services in urban settings for green logistics can be the way to cut down more on the environmental impact.

6.3 Ethical Aspects

The ethical aspects are the basic and the core of the integrity and the success of the platform, especially one like Med 360°, which operates in the vulnerable and the critical healthcare sector. The concept of ethics in the online healthcare services field goes far beyond the simple adherence to the legal standards. The actions that are taken to create trust, provide fairness, and protect the rights and well-being of all the stakeholders, including users, employees, vendors, and the community, are the ones that are ethical. These aspects are not only for the sake of the moral sense but also for the reason of the good and profitable business.

- **Privacy and Data Security:** Prohibit the use of health data for research through the implementation of strict data protection measures to protect user information, and especially sensitive health data, from unauthorized access or breaches.
- **Accuracy of Information:** You will have to make sure that all the health-related information and product descriptions that are given on the platform are

correct, reliable, and updated continuously to prevent the spread of the wrong information.

- **Transparency in Pricing and Policies:** The main points to keep in mind are to have clear and honest pricing, free of hidden fees, and to have simple and fair return and refund policies.
- **Fair Treatment of Vendors:** Give the same chances to all vendors to be part of the platform, and make sure that contract terms are fair, pricing is reasonable, and dispute resolution is based on fair practices.
- **Accessibility:** The platform should be designed in such a way that it can be used by people with disabilities, it should include features that will help the user in navigation, in comprehension and in transaction processes.
- **Consumer Consent:** The ethical principle of informed consent must be maintained by the companies that are using the data of customers, and they must clearly inform the consumers about the use of their data and in this way, get their consent.
- **Accountability:** You are to take your own responsibility for any problems which occur due to the use of the platform, for instance, wrong product deliveries or bad effects of the products sold, and solve them at once and correctly.
- **Sustainable Practices:** Get the vendors and the logistic partners to start the practices which are environment friendly and which are in line with the broad sustainability goals.
- **Anti-Discrimination:** Make sure that the platform does not give the discrimination to any user or vendor based on race, gender, religion, or other personal attributes.
- **Community Engagement and Contribution:** Take part in the community that the platform is serving, such as the community health education initiatives or the support of the local health projects , to give back to the society and hence, the public health .
- **Ethical Advertising:** Follow the ethical advertising rules by not making false claims about the product effectiveness and the fact that it is not a medical advice but just a product advertisement.
- **Conflict of Interest:** Set the guidelines to manage and declare the conflicts of interest that might affect the recommendation or promotion on the platform.

6.4 Sustainability Plan

At Med 360°, we are very much dedicated to the cause of sustainability and we are carrying out that by the eco-friendly practices in all the areas of our work. We are using biodegradable and recyclable materials for our packaging and we are working with logistics partners who have electric or hybrid vehicles to cut down our carbon footprint. Socially, we interact with our community by conducting health awareness campaigns and creating a comfortable, fair work environment for our colleagues. Economically, we use the latest inventory management technology and have a varied supplier base which is the source of our efficiency and economic resilience. Ethicality requires that we demand transparency and responsibility in sourcing, by choosing suppliers who meet the high environmental and labor standards. Through the adherence to health care rules and regulations and the privacy of customer data security, along with the new technology of telehealth, Med 360° is committed to a sustainable, responsible, and innovative approach to the health care commerce.

- **Environmental Efforts:** Our mission is to cut down our environmental impact by using the biodegradable and recyclable materials for all our packaging requirements, thus, our activities will produce as little waste as possible to the environment. Besides, we will improve our delivery routes with the use of smart software and join the logistics partners who are changing to electric or hybrid vehicles, hence, we will have less carbon emissions.
- **Social Commitments:** At Med 360°, we are of the opinion that it has to be done, it is the best thing to do for the society. We will initiate health awareness programs that will be specially designed for the needs of the underserved communities, which will, in turn, help to educate and empower the people about health and wellness. We internally, aim to create a workplace that nurture and support the wellbeing of our team, thus, ensuring the fairness and a positive work environment.
- **Economic Strategies:** Economically, our goal is to be as economical as possible. Through the use of sophisticated technology of the inventory systems we can prevent overstocking and thereby decrease wastage and reduce the costs. Besides, we will build networks with a variety of providers to keep our supply chain strong

and stable, thus, supporting the local business and the independence from other countries.

- **Ethical Sourcing:** Ethics are the heart of the procurement strategy. We are very strict in choosing the suppliers who follow the labor rights and are confident in the environment protection. Besides, we make sure the supply chain process is transparent so that the customers can see exactly how and where their products are made, which will definitely create trust and loyalty.
- **Regulatory Compliance:** The compliance with the regulatory standards is not optional. We are bound by healthcare regulations and data protection laws which make sure that every customer information is treated with high security and our products always reach the safety and efficacy standards.
- **Technological Innovations:** Through the adoption of new technology, we intend to put into place telehealth features to limit the need for travel and hence, to lower our environmental footprint even more. We are currently searching for the newest in waste-reduction technologies, which will help us to make the packaging of products and drug delivery systems more efficient.

CHAPTER 7

Conclusion and Future Scope

7.1 Conclusion

In short, Med 360° proves that sustainability can be effortlessly blended into the healthcare industry, especially in the field of medicine and healthcare products sales. Besides academic success, it is a final year student project that sets the path for the future real-world applications as it combines the environmental issues with the healthcare solution innovations. The platform is dedicated to the use of eco-friendly packaging and is working together with logistics companies that have electric or hybrid vehicles which in turn reduces its environmental footprint. The actions taken by Med 360° are evidence of its commitment to protect the earth and to be a responsible business.

Besides, Med 360° pays a lot of attention to the social issues. Its principal goal is to enhance the community health by the means of directed education projects that boost health awareness and access, especially in the areas that are underserved. Through the project, the work atmosphere is supportive and fair, which is a clear indication of its efforts to be concerned for the welfare and growth of its team. These actions not only increase the social impact of Med 360° but also, on the other hand, they create a culture of caring and respect in the community that it is serving.

The Med 360° is an economic showcase of efficiency and resilience. The platform makes use of the latest inventory management technologies to facilitate the smooth running of its operations and cut down the waste, thus lowering the expenses. The diverse supplier base of the company puts the economic stability of the platform into balance and helps the local businesses, which in turn, leads to the creation of a sustainable economic model. This planning strategy of the companies guarantees them the possibility of surviving and the companies demonstrate that the sustainable activities can be used for the benefit of the business.

Med 360° is ethically following the strict procurement procedures which involve the suppliers that are operating under the strict labour and environmental regulations. This ethical sourcing not only strengthens the platform's supply chain but also creates trust among consumers which is the key to the success of the healthcare market business.

The sustainability plan of Med 360° is a guide to the combination of the eco-friendly, socially responsible, and the economically viable practices into healthcare platforms. This project not only meets the academic goals but also aims to motivate and guide the new projects in the field, thus, showing that the sustainable practices will have a great impact on the creation of a future that is healthier and more responsible.

7.2 Future Scope

Looking ahead, Med 360° has a variety of interesting probabilities to grow and get better. We are going to use cutting facet technologies, consisting of artificial intelligence, to make our offerings greater customized and effective. Adding blockchain era can even help make our offers and monitoring of merchandise more secure and more open, with the intention to assist us construct more potent relationships with our clients.

Additionally, we want to boom the variety of merchandise we sell by way of including more health and health items, technology gadgets, or even telemedicine services. This will assist us meet more human beings's workout needs and get more human beings to join.

Another very critical purpose is to develop into new regions. By going into new markets, we are able to alternate what we offer to match neighborhood health policies and customer needs. This facilitates us get more clients and feature a larger effect on exercising care around the sector.

Following these steps will help Med 360° live a celebrity in on line healthcare, constantly seeking out new ways to fulfill our customers' desires and enhance their get entry to to health offerings.

- **Integrate Artificial Intelligence** : Use Ai to customize shopping experiences and to manage stock levels based on analytics that predict .
- **Adopt Blockchain** : Introducing blockchain technology for the sake of higher security and transparency in the transaction processes and the supply chain management .
- **Expand Product Range:** Look at the Surrounding Topics of the healthcare products like the wellness supplements and medical devices.

- **Launch Telemedicine Services :** Provide Virtual consultations and medical Advice via the web or other means in order to expand the service range.
- **Explore New Markets:** Operation into new geographic regions is one of the most important tasks that will be expanded and the local healthcare needs and regulations are adapted to.
- **Forge Healthcare Partnerships:** Join in with hospitals and clinics to give the integrated health services and make the referrals to be seamless.
- **Develop Mobile Applications:** Develop specific mobile apps that are easy to access and to be involved in for a better user experience.
- **Enhance User Interface:** Ever changing the online platform's usability and accessibility is one of the most important tasks.
- **Strengthen Data Security:** Strengthen cybersecurity tools to safeguard customer data that is sensitive.
- **Increase Marketing Efforts:** Set up the marketing campaigns to be focused on the targeted groups to make them more widely known.
- **Incorporate User Feedback:** Formulate feedback mechanisms to get the ideas about the services improvement and development.
- **Sponsor Health Programs:** Allow the community to develop health programs which in the end will lead to a healthier nation and people.
- **Pursue Sustainability Certifications:** Selfsustainability certifications are obtained in order to support and prove the claims of sustainability.
- **Offer Customizable Products:** Users will be able to design their orders according to the health needs and preferences that suit them the best.
- **Establish Research Collaborations:** The researchers propose to collaborate with the universities in order to remain at the very top of health innovations.
- **Enhance Customer Support:** Enhance customer service personnel to offer round-the-clock support.
- **Implement Eco-Friendly Practices:** Additional limit of the environmental effects by the means of shifting to more eco-friendly practices.
- **Develop Educational Content:** It will be a place where valuable health information and educational resources will be available on the platform.

- **Expand Payment Options:** Introducing more payment methods, such as cryptocurrencies, will make the transactions more convenient for people.
- **Advocate for Health Policy Changes:** Take part in policy discussions to promote laws that will allow the support of the online healthcare services.

REFERENCES

- [1] M. Bawane, I. Gawande, V. Joshi, R. Nikam, and S. A. Bachwani, "A Review on Technologies used in MERN stack," *Int. J. Res. Appl. Sci. Eng. Technol.*, vol. 10, no. 1, pp. 479-488, 2022.
- [2] S. A. Erdem and A. Chandra, "E-commerce in healthcare and pharmaceutical marketing—opportunities and concerns," *Clinical Research and Regulatory Affairs*, vol. 20, pp. 399-407, 2003.
- [3] S. Baltierra, "Virtual Reality and Augmented Reality Applied to E-Commerce: A Literature Review," in *Human-Computer Interaction: 8th Iberoamerican Workshop, HCI-COLLAB 2022, Havana, Cuba, October 13–15, 2022, Revised Selected Papers*, Springer Nature, pp. 201, January 2023.
- [4] M. Mehra, M. Kumar, A. Maurya, and C. Sharma, "MERN stack web development," *Annals of the Romanian Society for Cell Biology*, vol. 25, pp. 11756-11761, 2021.
- [5] S. Raju, S. Soundararajan, and V. Loganathan, "MERN stack web application," *Annals of the Romanian Society for Cell Biology*, vol. 25, pp. 6325-6332, 2021.
- [6] D. S. K. Shukla, S. Dubey, T. Rastogi, and N. Srivastava, "Application using MERN Stack," *International Journal for Modern Trends in Science and Technology*, vol. 8, pp. 102-105, 2022.
- [7] A. Mitawa, "Enhancing E-commerce Platforms through MERN Stack Implementation," [Journal Name], vol. 11, pp. 8, May 2024.
- [8] A. Mourad and H. Liu, "Scalable web server architectures," in *Proceedings Second IEEE Symposium on Computer and Communications*, pp. 12-16, IEEE, July 1997.
- [9] M. Satheesh, B. J. D'mello, and J. Krol, "Web Development with MongoDB and NodeJS," *Packt Publishing Ltd.*, pp. 267, 2015.
- [10] Z. Kedah, "Use of e-commerce in the world of business," *Startupreneur Business Digital (SABDA Journal)*, vol. 2, no. 1, pp. 51-60, 2023.
- [11] H. Nguyen, "End-to-end E-commerce web application, a modern approach using MERN stack," 2020.

[12] V. Santos, T. Augusto, J. Vieira, L. Bacalhau, B. M. Sousa, and D. Pontes, “E-Commerce: Issues, Opportunities, Challenges, and Trends,” in Promoting Organizational Performance Through 5G and Agile Marketing, pp. 224-244, ©Daffodil International University, 2023.

[13] A. Shashi, “Data Storage in Google Cloud,” in Designing Applications for Google Cloud Platform: Create and Deploy Applications Using Java, Apress, Berkeley, CA, pp. 73-117, 2023.

[14] M. Ward, “NoSQL Database in the Cloud: MongoDB on AWS,” Amazon Web Services, 2013.

[15] W3C, “Secure Coding Practices,” available at << <https://www.w3.org/standards>>>, last accessed on 09-02-2024 at 8:00 PM.

[16] What is MERN Stack and How Does it Work?, available at << <https://www.imaginarycloud.com/blog/what-is-mern-stack-and-how-does-it-work/>>>, last accessed on 15 August 2024.

[17] Top E-commerce Websites, available at << <https://www.cloudways.com/blog/top-ecommerce-websites/>>>, last accessed on 17 August 2024.

[18] What is Figma Used For?, available at << <https://www.makeuseof.com/what-is-figma-used-for/>>>, last accessed on 11 August 2023.

[19] Learn about Visual Studio Code, available at << <https://code.visualstudio.com/learns>>>, last accessed on 18 August 2023.

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