PROJECT REPORT ON

ONLINE SHOP TRACKING SYSTEM

BY

BILAL AHMAD CLASS NO: 02

MUHAMMAD SHEHZAD CLASS NO: 30

MUHAMMAD ZAHID CLASS NO: 474

SESSION: 2020/2024

A project report submitted to The University of Agriculture Peshawar. In The partialFulfillment of the Requirement for the degree of

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

SUPERVISED BY:
MR. MAJID SHAHAB

INSTITUTE OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
FACULTY OF MANAGEMENT AND COMPUTER SCIENCES
THE UNIVERSITY OF AGRICULTURE, PESHAWAR
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Approved by

_____ Supervisor
Mr. Majid Shahab
Lecturer, ICS/IT

_____ Member 1
Lecturer, ICS/IT

_____ Member 2
Lecturer, ICS/IT

_____ HOD CS/IT (FMCS)
Dr. Asfandyar Khan
Assistant Professor

INSTITUTE OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
FACULTY OF MANAGEMENT AND COMPUTER SCIENCES
THE UNIVERSITY OF AGRICULTURE, PESHAWAR
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ABSTRACT

PROJECT TITLE: PROJECT REPORT ON ONLINE SHOP TRACKING SYSTEM

Project Overview

The Online Shop Tracking System is a web application designed to let users easily check out ashop’s inventory, prices, and products online. The goal is to create a user-friendly online platform for a single shop where customers can look at all the products the shop offers withoutleaving their homes or offices.

With this system, users can:

- **Browse Products**: See all the items the shop sells in one place.
- **Check Prices**: Quickly find out how much each product costs.
- **Stay Updated**: Always know what’s available in the shop’s inventory.

This project capitalizes on the rise of online shopping by creating a digital platform that allowscustomers to conveniently access the shop's products from anywhere at any time. By providingdetailed product information, an intuitive user interface, online payment options, and delivery tracking, the shopping process becomes streamlined and efficient. The platform enhances accessibility by being available 24/7, offers personalized recommendations, and keeps customers informed about new arrivals and promotions. Additionally, features like live chat support and customer reviews foster better engagement and satisfaction, ultimately improving the overall shopping experience and driving the shop’s growth in the competitive online market.

ACKNOWLEDGEMENT

In the name of Allah, the most gracious and merciful, we are deeply thankful to Almighty Allahfor giving us the strength, knowledge, and opportunity to successfully complete this study.

We also want to express our sincere appreciation to our respected teacher and supervisor, **Sir Majid Shahab**, from the University of Agriculture Peshawar. His valuable guidance, constantsupport, and professional attitude have been essential in helping us complete this dissertation. Without his assistance and encouragement, this project would not have been possible.

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CHAPTER-1

INTRODUCTION

1.1 Project Introduction

The Online Shop Tracking System is a web application that makes it simple for customers to view a store's products, prices, and inventories online.
In order to enable clients to view all of the products offered by a single shop without ha ving to leave their homes or offices, a user-friendly online platform is being developed.

1.2 Problem Definition

In today's digital era, where online shopping has become a norm across various sectors, there existsa significant gap for smaller shops and local businesses. Many of these establishments lack a robust online presence that allows customers to browse and purchase their products conveniently from anywhere. The Online Shop Tracking System web application aims to address this gap by providing a comprehensive platform tailored specifically for single-shop environments.

The core objective of this web application is to empower individual shops to establish a strong online presence. It offers a user-friendly interface where shop owners can showcase their completeinventory, including detailed product descriptions, prices, and images. Customers can explore these offerings, compare different products, and make purchases directly through the platform, enhancing convenience and accessibility.

For shop owners, the application serves as a digital storefront that complements their physical store. It facilitates efficient inventory management, allowing updates in real-time and providing insights into sales trends and customer preferences. This digital transformation not only streamlines operations but also opens new avenues for reaching a broader audience beyond the local community.

By integrating e-commerce capabilities, the Online Shop Tracking System enables small businesses to compete more effectively in the digital marketplace. It enhances customer engagement through personalized shopping experiences and secure online transactions, thereby fostering loyalty and growth. Ultimately, this web application represents a crucial tool for bridgingthe gap between traditional retail practices and the

evolving expectations of modern consumers.

1.3 Background

In today's rapidly evolving world, technology has become essential for progress and connectivity across all sectors. As digital transformation reshapes industries, establishing an online presence is no longer just advantageous but crucial for both personal and business endeavors. The digital landscape offers unparalleled opportunities for businesses to enhance visibility, achieve growth, and operate more efficiently.

The development of an online shop tracking system specifically targets the needs of small businesses, empowering them with the tools necessary to thrive in a digital-first marketplace. By creating dedicated websites for individual shops, our project aims to provide a robust platform where customers can easily discover, explore, and interact with local businesses online. This initiative not only facilitates easier access to products and services but also enriches the customer experience by enabling seamless browsing, comparison, and online purchasing.

Beyond immediate benefits to individual shops, this project contributes to broader goals of digitalinclusion and empowerment. It emphasizes how technology can level the playing field, allowing small businesses to compete more effectively with larger enterprises and reach a wider customer base. By embracing digital solutions, businesses can adapt to evolving consumer behaviors and market trends, thereby fostering resilience and sustainability in today's dynamic business environment.

In essence, the online shop tracking system exemplifies the transformative impact of technology,bridging the gap between traditional retail practices and the digital age. It underscores the pivotal role of innovation in driving economic growth, promoting entrepreneurship, and ensuring that businesses of all sizes can thrive in an increasingly interconnected world.

1.4 Motivation

In today's digital era, technology has transformed the way we live, connecting us more than ever before. Mobile apps and websites have become our daily companions, simplifying tasks and enhancing our lives. Amid this dynamic landscape, our motivation

arises from a simple yet powerful idea: to create an innovative online shop tracking system. Our web application and PWAredefine the shopping experience by addressing the common challenges faced by customers. Motivated to integrate technology seamlessly, our user-friendly tools bridge gaps, fostering a moreefficient and satisfying shopping experience globally. In an era of instant accessibility, we innovateto deliver essential services and create a digital space where convenience and customer satisfaction come together. The vision of our online shop tracking system is to provide immediate, transparent, and responsive shopping assistance, using technology as a strategic imperative for a better, more connected shopping experience.

1.5 Purpose

The project has a dual purpose. First, it seeks to revolutionize the online shopping experience by transforming traditional tracking methods into a seamless, comprehensive digital solution in the form of a Progressive Web App (PWA). This transformation enhances efficiency, transparency, and customer satisfaction, ensuring that users can effortlessly monitor their purchases in real-time.Second, it aims to expand the reach and impact of our e-commerce platform, serving a broader audience and providing a more efficient shopping experience. Ultimately, this project leverages technology to solve shopping challenges, creating a more connected and satisfying journey for customers.

1.6 Objectives

- Design and develop a user-friendly web application for a single shop
- Enable users to browse and view available products and their prices online
- Provide a comprehensive online platform for a single shop
- Enhance the shopping experience by making product information easily accessible.

CHAPTER-2

METHODOLOGY

2.1 Introduction

This chapter provides a comprehensive overview of the steps taken to gather final requirements aswell as the technology utilized during the system development process.

Firstly, it details the methodologies employed to collect and analyze the final requirements for thesystem. This includes stakeholder interviews, surveys, focus group discussions, and document analysis. These methods ensured that the perspectives and needs of all relevant parties were thoroughly understood and integrated into the project. The chapter elaborates on how these requirements were validated and prioritized to align with the project goals and objectives.

Additionally, the chapter describes the iterative process of refining these requirements through continuous feedback and collaboration with stakeholders. This iterative approach ensured that the final requirements were accurate, complete, and reflective of the users' needs.

The chapter also delves into the technology stack selected for the development of the system. It explains the rationale behind choosing specific technologies, considering factors such as scalability, security, performance, and ease of maintenance. The chosen technologies encompass front-end and back-end development tools, databases, and frameworks, highlighting their roles inbuilding a robust and efficient system.

Furthermore, it discusses the implementation of industry best practices and standards throughout the development process. This includes adherence to coding standards, version control, automatedtesting, and continuous integration and deployment practices. These practices ensured the delivery of a high-quality, reliable, and maintainable system.

Overall, this chapter provides an in-depth understanding of the meticulous process followed to gather final requirements and the thoughtful selection and application of technology, laying a solidfoundation for the successful development and deployment

of the system.

2.2 Requirement Engineering Phase

Before embarking on the design and implementation phases of a project, the requirementsgathering stage is crucial as it lays the foundation for the entire system by providing a clear understanding of its functionality and operation. This phase involves various approaches to ensurethat the final requirements accurately reflect the needs and expectations of stakeholders. First, conducting interviews with end-users and key stakeholders is essential for collecting detailed insights into their needs, preferences, and pain points, which helps in defining the system's objectives and features. Second, surveys and questionnaires can be distributed to gather broader feedback from a larger audience, capturing diverse perspectives and requirements that may not emerge from individual interviews. Third, observation techniques are employed to study how usersinteract with existing systems or perform tasks, providing valuable information on their workflowsand identifying areas for improvement. Fourth, workshops and brainstorming sessions involve collaborative discussions among stakeholders, allowing for the generation of ideas, clarification of requirements, and alignment of expectations. Additionally, reviewing existing documentation and analyzing current systems can offer insights into existing processes and potential enhancements. Prototyping is another key approach, where preliminary versions of the system aredeveloped and tested with users to gather feedback and refine requirements based on their interactions. Each of these methods contributes to a comprehensive understanding of the system'srequirements, ensuring that the final design will meet user needs and project goals. By employingthese diverse approaches, the requirements gathering phase ensures that all relevant factors are considered, reducing the risk of missed requirements and enhancing the likelihood of successful project outcomes.

2.3 Stakeholder Interviews

The process of conducting interviews with stakeholders involved several systematic steps to ensure comprehensive understanding and accurate gathering of requirements. Initially, we identified the key stakeholders who had a vested interest in the project, including shop managers, shop owners,and staff members who would be the primary users of the system. We scheduled one-on-one interviews with these individuals,

allowing for in-depth conversations about their needs and expectations. During the interviews, we asked open-ended questions designed to uncover specific pain points, desired features, and potential improvements over existing systems. For example, questions like "What are the biggest challenges you face with your current inventory management system?" and "What features would make your day-to-day operations easier?" provided valuable insights. From these interviews, we learned about the need for real-time inventory tracking, user-friendly interfaces, and robust reporting capabilities. These insights directly influenced the requirements and helped prioritize features that would deliver the most value to the end users.

2.4 Surveys

The design and distribution of surveys were carefully planned to reach a broader audience and collect quantitative data to supplement the qualitative insights from stakeholder interviews. We crafted a survey with a mix of multiple-choice, rating scale, and open-ended questions to capture a wide range of feedback. The survey was distributed both online and in person to ensure maximum participation from the target audience, which included shop employees, managers, and occasional customers who interact with the system. The response rate was encouraging, with over 70% of those approached completing the survey. Key findings from the surveys highlighted a strong demand for mobile accessibility, ease of use, and integration with existing payment systems. These findings played a crucial role in shaping the system's design and functionality, ensuring it met the practical needs of its users.

2.5 Focus Group Discussions

Focus group discussions were organized to facilitate interactive dialogue and collective brainstorming among different stakeholders. These sessions included shop managers, staff, and a few regular customers who provided diverse perspectives on the system's requirements. Each discussion was structured around key topics such as user interface design, feature priorities, and potential challenges. The participants were encouraged to share their experiences and expectations openly, which led to lively debates and valuable exchanges of ideas. Major conclusions drawn from these discussions emphasized the importance of customizable features, real-time notifications, and a seamless user experience. The collaborative nature of focus groups allowed us to

validate our initial findings and refine the requirements further, ensuring they were aligned withthe users' needs and expectations.

2.6 Document Analysis

The document analysis phase involved a thorough review of various documents relevant to the project. These included existing system manuals, competitor analysis reports, and industry standards. The methodology for document analysis involved systematically categorizing and examining these documents to identify common features, gaps, and best practices. We also compared the current systems in use at different shops to understand their strengths and weaknesses. Significant insights from this analysis highlighted the necessity for improved data security, scalability, and user training materials. These insights informed the system's architectureand design, ensuring it was not only functional and efficient but also compliant with industry standards and capable of evolving with future needs.

2.7 Multiple Visits

Our project required visits to various locations within the same domain in order to gather realrequirements. Physically visiting different places allows us to gain direct experience and insights that are difficult to obtain through online research. Interacting with different people, such as staff, Shop managers and shop owner to give us direct feedback and a betterunderstanding of what’s actually needed.

The places we visited multiple times are listed below;

1. Amin Mobile Hub forest Bazaar.
2. Friends Mobile center
3. Brother’s Mobile’s & Camera’s zone
4. Shayaan Mobiles

2.8 Brainstorming

After conducting an extensive study of various systems and visiting multiple locations, including Amin Mobile Hub, Forest Bazaar, Brother’s Mobile & Camera’s Zone, and Friends Mobile Center,we gathered valuable insights into the operational and customer experience aspects of mobile retail. In addition to these site visits, we

interviewed a diverse group of end users to understand their needs and preferences. This comprehensive approach allowed us to collect a broad range of data, which we then analyzed through brainstorming sessions. This iterative process was crucial in refining our requirements and features, ensuring that our final design is well-aligned with both user expectations and industry standards. By integrating feedback from these interviews and observations from our visits, we aimed to enhance the effectiveness and user-friendliness of the system, ultimately leading to a more refined and functional solution for our project.

2.9 Prototypes

A prototype is a representation of the system, developed ahead of the development stage and in the early stages of the design process. It is a visual representation of the user interface, functionality, and flow of work of the web application. The main purpose of the prototype is to validate the design and gather feedback. As the initial prototype is shared with stakeholders(shopkeepers) and end users, it is evaluated, and based on feedback, different changes are made. When we developed our initial prototype, it consisted of all the basic functionality, but as we shared it with the concerned **Shopkeepers**, different changes were recommended, which ledto the final product.

2.10 Software Process Model

The software process model is a method that describes the activities and steps involved in developing software. The process model breaks down the project into smaller elements, and eachelement is carried out in accordance with the specific model type. We select a certain software process model based on the complexity and nature of the project from among the various types available. For our project, we have used the agile model, because our project involved changing requirements at different stages, for which Agile is best suited.

2.11 Agile Software Model

The agile process model is a software development approach in which the entire project is brokendown into smaller parts called iterations. The team works on a different aspect of the project throughout each iteration, delivering a finished product at the end.

2.12 Challenges and Solutions

During the requirement gathering and technology selection phases of the single shop tracking system, several challenges were encountered. One significant challenge was obtainingcomprehensive and accurate requirements from stakeholders due to their varying levels of technical knowledge and differing perspectives on system needs. To address this, a multi-faceted approach was adopted, including detailed interviews, surveys, and focus group discussions to ensure all viewpoints were captured and validated. Another challenge was the selection of the appropriate technology stack that would meet the project's needs for scalability, security, and performance. The solution involved conducting a thorough analysis of available technologies, considering factors such as ease of integration, community support, and long-term viability. To ensure the chosen technologies were optimal, prototypes were developed and tested with end users, allowing for early identification and resolution of potential issues. Additionally, balancing the diverse requirements from different stakeholders required iterative feedback loops, ensuringcontinuous alignment and adjustments based on stakeholder input. This iterative approach not onlyhelped in refining the requirements but also in building consensus among stakeholders. By systematically addressing these challenges through a combination of comprehensive data collection, iterative feedback, and rigorous technology evaluation, the project was able to establisha robust foundation for successful development and implementation.

CHAPTER-3

TOOLS AND TECHNOLOGY

3.1 Introduction

Tools and technology encompass the instruments and methods used to accomplish tasks and solveproblems across various fields. Tools, which range from simple hand-held devices to complex machinery, enhance human capabilities by providing precision, efficiency, and functionality. Technology, on the other hand, refers to the application of scientific knowledge for practical purposes, including software, hardware, and processes that drive innovation and progress. Together, tools and technology are integral to modern life, facilitating advancements in industriessuch as information technology, engineering, medicine, and manufacturing. They enable the development of new products, streamline operations, and improve communication and productivity. For instance, in web development, tools like text editors, version control systems, and frameworks are used alongside technologies such as HTML, CSS, and JavaScript to create and manage websites and applications. Overall, tools and technology work in tandem to expand human potential, address complex challenges, and enhance the quality of life by making tasks more manageable and efficient.

3.2 Figma

Figma is a web-based design tool for collaborative UI/UX design. It excels in long-term complexprojects by enabling real-time collaboration, supporting design systems, facilitating prototyping, and streamlining the design-to-development handoff.

3.3 VS code

We have used VS Code, a lightweight and versatile code editor, with its rich extension ecosystem. It provides fast performance, cross-platform compatibility, integrated Git support, powerful editing features, and a supportive community. We leverage its live code-sharing capabilities for team collaboration, debugging, and testing.

3.4 HTML

We used HTML (hypertext Markup Language) for the structure of this web application. It is the backbone of a website, providing the structure and content that the web browser renders to the user. HTML consists of a series of elements, represented by tags (<>), which are used to define different parts of a web page.

3.5 CSS

CSS (Cascading Style Sheets). is a styling language used to control the layout and appearance of web pages written in HTML and XHTML. CSS3 is the latest version of the CSS standard, which adds many new features and improvements to the previous versions.

Note: we have used Bootstrap 5, which is CSS framework used for styling. But somehow we haveused custom CSS for styling.

3.6 Bootstrap 5

We have used Bootstrap 5 framework for styling purpose. It is a free front-end framework for faster and easier web development. This version supports the latest stable releases of all major browsers and platforms, but does not support Internet Explorer 11 and down. Bootstrap 5 is mobile-first, meaning mobile-first styles are part of the core framework. Bootstrap 5 is compatible with all modern browsers, including Chrome, Firefox, Edge, Safari and Opera

The main differences between Bootstrap 5 and previous versions are new components, a faster stylesheet and more responsiveness.

3.7 JavaScript

We have used JavaScript for the interactivity of the web pages. JavaScript is a high-level, dynamic, and interpreted programming language that is primarily used for client-side scripting on the web. JavaScript is often used to add interactive elements to websites.

JavaScript is often used in conjunction with HTML and CSS to create a complete web page or application.

JavaScript is also used in mobile and desktop applications, game development, and server-side programming with technologies like Node.js.

3.8 PHP

PHP (Hypertext Preprocessor) is a server-side scripting language used for web development. It's a popular language for building dynamic websites, web applications, and content management systems (CMS).

PHP is:

Server-side: Runs on the web server, generating HTML, CSS, and JavaScript for clients.
Open-source: Free to use, modify, and distribute.

Loosely typed: No need to declare variable types before using them.

Platform-independent: can run on various operating systems (Windows, macOS, Linux, etc.)

PHP is commonly used for:

Web development (websites, web apps,
e-commerce sites)Database interaction
(MySQL, PostgreSQL, MongoDB)
RESTful APIs

Server-side scripting

3.9 SQL

We have used SQL for storing data in the database. SQL (Structured Query Language is a programming language designed for managing and manipulating data stored in relational database management systems (RDBMS).

SQL is used to

- Create and modify database structures (tables, indexes, views)
- Insert, update, and delete data
- Query and retrieve data (SELECT statements)
- Control access and permissions (GRANT, REVOKE).

3.10 GitHub

GitHub, a widely adopted platform, plays a pivotal role in modern software development, offering robust features and collaboration tools. Developed by GitHub Inc., it provides a streamlined environment for version control, project management, and collaborative coding. The entire software development lifecycle through a wide range of management features,

- Distributed Version Control
- Community Collaboration
- Efficient Repository Management
- Integration Capabilities

CHAPTER-4

DETAILED DESIGN AND ANALYSIS

4.1 Introduction

This chapter provides a comprehensive overview of the detailed design and analysis of the web application for a single shop tracking system. Detailed design is a crucial phase in the software development lifecycle where the system is broken down into modules and components. This stage involves the translation of the requirements specified in the System Requirement Specification (SRS) into detailed system design specifications. It includes architectural design, database design, user interface design, and system integration.

4.2 Detailed Design

Detailed design is the phase where the system's design is refined and specified at a lower level. It involves the creation of detailed models and specifications from the higher-level architectural design. This includes detailed descriptions of the system's modules, components, interfaces, and data models. The goal of detailed design is to prepare the system for implementation by providing a clear and complete blueprint.

4.3 Types of Detailed Design

4.3.1 Architectural Design

- Defines the overall structure of the system.
- Describes the system components and their interactions.
- Focuses on high-level structures, like modules and layers.

4.3.2 Component-Level Design

- Details the specific functionalities of each component.
- Specifies algorithms, data structures, and interfaces for each module.
- Ensures that each component can be developed and tested independently.

4.3.3 Database Design

- Involves the design of the database schema.
- Defines tables, fields, relationships, and constraints.
- Ensures data integrity, security, and performance.

4.3.4 User Interface (UI) Design

- Specifies the layout and behavior of the user interface.
- Focuses on user experience (UX) and usability.
- Includes wireframes, mockups, and interaction design.

4.3.5 System Integration Design

- Defines how different system components will interact.
- Ensures seamless communication and data exchange.
- Includes API design, middleware, and integration protocols.

4.4 Detailed Design and Analysis of the Single Shop Tracking System

4.4.1 Architectural Design

The architectural design of the single shop tracking system is based on a three-tier architecture, consisting of the Presentation Layer, Business Logic Layer, and Data Access Layer.

4.4.1.1 Presentation Layer

- Comprises the user interface components.
- Developed using HTML, CSS, Bootstrap, and JavaScript.
- Provides an intuitive and responsive interface for users.

4.4.1.2 Business Logic Layer

- Contains the core functionalities of the system.
- Implemented using PHP.
- Manages the business rules, workflows, and processing logic.

4.4.1.3 Data Access Layer

- Interacts with the database to perform CRUD operations.
- Uses SQL for database interactions.
- Ensures d ata is stored and retrieved efficiently.

4.5 Component-Level Design

Each component of the system is designed to perform specific tasks. Key components include:

4.5.1 User Management Module:

- Handles user authentication and authorization.
- Manages user profiles and roles.

4.5.2 Product Management Module:

- Allows adding, updating, and deleting product information.
- Tracks product inventory levels.

4.5.3 Order Management Module:

- Manages customer orders and transactions.
- Tracks order status and history.

4.5.4 Reporting Module:

- Generates reports on sales, inventory, and user activity.
- Provides insights for decision-making.

4.6 Database Design

The database design involves creating a relational schema to store the necessary data. Key tables include:

- Users: Stores user details like username, password, and role.
- Products: Stores product information like name, description and price.

- Orders: Stores order details including customer, product, quantity, and status.
- Order_Items: Stores details of products included in each order.
- Reports: Stores generated reports for historical data analysis.

4.7 User Interface (UI) Design

The UI design focuses on providing a user-friendly experience. Key UI components include:

- Login Page: Allows users to authenticate themselves.
- Dashboard: Provides an overview of key metrics and quick access to functionalities.
- Product Management Interface: Allows users to manage products.

4.8 Analysis

Detailed design and analysis ensure that the system meets the specified requirements and functions efficiently. This phase identifies potential issues and resolves them before implementation, reducing the risk of errors and enhancing system reliability. The design is validated through reviews and simulations to ensure it aligns with the overall system architecture and requirements.

4.9 Purpose

The analysis phase, as the first step in the system development lifecycle, is dedicated to thoroughly understanding and documenting the requirements and constraints of the system to be developed. This phase involves engaging with stakeholders to identify their needs, priorities, and expectations, ensuring that these are clearly understood and agreed upon by all parties involved. It aims to create a comprehensive and detailed set of requirements that serve as a blueprint for the system's design and implementation. By establishing a solid foundation through rigorous requirement gathering, analysis, and documentation, the analysis phase helps to minimize misunderstandings, reduce the risk of scope creep, and set clear goals that guide the project towards successful completion.

4.10 Requirements Gathering

Requirement gathering is a crucial part of the analysis phase, involving several key methods to ensure comprehensive understanding of stakeholder needs. Stakeholder interviews are conducted to directly engage with individuals involved in or affected by the system, allowing for a detailed collection of their specific needs and expectations. Surveys and questionnaires are employed to reach a wider audience, capturing a broad spectrum of input and opinions that might not be covered in individual interviews. Additionally, workshops and brainstorming sessions are organized to facilitate collaborative discussions among stakeholders, fostering an environment where diverse perspectives can be shared and detailed requirements can be developed collectively. Together, these methods help create a well-rounded and accurate picture of what the system must achieve.

4.11 System Architecture

Our system is based on a client-server architecture. The client side comprises a progressive web app (PWA) developed for the “Online Shop Tracking System” and a dashboard for the admin panel. On the other hand, the server-side comprises the backend infrastructure. The client side of the system is responsible for managing user interactions such as exploring the complete shop, rates(prices) as well as users viewing the website. It provides users with a user-friendly interface to easily interact with the system. On the other hand, the server side of the system handles requests from the client side as well as the admin dashboard. The server-side components receive and process message submissions from the client side and communicate with the dashboard to store and manage the user data.

4.12 Functional Requirements

The **“Online Shop Tracking System”** is composed of two sections: the user panel and the Adminpanel, each with its functions and features to meet users' needs.

4.12.1 User Panel

The ‘User Panel’ of the “Online Shop Tracking System” is designed to provide a

seamless shopping experience for customers. Users can create and manage their accounts, including updating personal details and managing passwords. They have access to a product catalog where they can view detailed information and images for each item. The shopping process allows users to add and remove products from their cart, review their selections, and proceed to checkout with various payment options. Once an order is placed, users can track its status and receive updates on shipping. Additionally, customers can leave reviews and ratings for purchased products, contributing valuable feedback to the product listings.

4.12.2 Admin panel

The ‘Admin Panel’ is tailored for the management and operational needs of shop administrators. Admins have control over user accounts, enabling them to view profiles and manage issues. They can oversee the product catalog by adding new products, updating existing entries, or removing outdated items, and they manage inventory levels to ensure stock accuracy. Order management is another critical function, allowing admins to process orders, update their status, and handle returns or cancellations. The Admin Panel also provides tools for generating sales reports and monitoring system performance, which helps in analyzing sales trends and ensuring the smooth operation of the shop.

4.12.3 Shared Requirement

The term functional requirement refers to the expected behavior of a system or its components, based on inputs and outputs. Table below displays the functional requirement for "Registration". Upon accessing the system, the user will be directed to the registration page to register themselves.

Table 1 for user Registration.

Input	The user will need to register by providing their username, Email, phone number, and password. Then they will be asked to confirm the password. And chose a file.
Output	After successful registration, the user will be notified through a pop-up message and redirected to the login screen.
Process	Once the user clicks the “Create Account” button, the system will verify and evaluate the user's input to ensure that it is correct and meets all the requirements.

Table 4.1: Table for user registration

Table 2 displays the functional requirement for "Login". Users will log in toaccess the system.

Input	Users will need to enter their email and password to log in.
Output	After logging in successfully, the user will see a pop-up notification on the home screen that says "Signed in successfully".
Process	When the user clicks on login, the system checks the credentials against stored data. If there is a mismatch, the system displays an "error: user not found" message.

Table 4.2: table for user login

4.13 Conclusion

This chapter thoroughly examined the design and analysis of the single shop tracking system by deconstructing the system into its fundamental components and meticulously designing each aspect. This comprehensive approach ensures a well-organized and clear blueprint for developers, facilitating the implementation process. The detailed design encompasses various crucial elements, including architectural,

component-level, database, user interface (UI), and system integration designs, each contributing to the system's overall functionality and efficiency. By addressing each component with precision, potential issues are identified and resolved early, enhancing system reliability and performance. The architectural design establishes a robust structure by defining the high-level framework within which all components will interact, ensuring the system is scalable and maintainable. Component-level design delves into the specific functionalities of each module, promoting modular development that allows for easier debugging, testing, and future upgrades. Database design is critical for ensuring data integrity and efficient storage; it involves the creation of detailed schemas and relationships that enable reliable data retrieval and manipulation, thereby supporting the system's operational needs. The UI design focuses on user experience, ensuring that the interface is intuitive, accessible, and responsive, which is vital for user adoption and satisfaction. System integration design ensures seamless communication between all components, addressing how different modules will interact and ensuring that data flows smoothly and efficiently throughout the system. This aspect of the design is crucial for preventing bottlenecks and ensuring that the system operates as a cohesive unit. Additionally, by incorporating industry best practices and standards into each stage of the design process, the project adheres to established protocols for coding, version control, and automated testing. This thorough and iterative design process not only prepares the system for implementation but also ensures that it is robust, scalable, and user-friendly. The end result is a single-shop tracking system that is reliable, efficient, and capable of meeting the needs of its users, ultimately leading to a successful and effective deployment. By methodically addressing and integrating each element of the design, the project minimizes risks and maximizes the potential for a seamless and productive implementation phase, setting a solid foundation for future enhancements and scalability.

CHAPTER-5

NON-FUNCTIONAL REQUIREMENTS

5. 1 Usability Requirement

The app's design should be simple and intuitive, ensuring it's easy for everyone to use, no matter their tech knowledge. This involves having a clean and uncluttered look, with easy-to-navigate menus and buttons. Clear and simple instructions should guide users, and the layout should be consistent across all screens. Additionally, the app must be accessible to people with different abilities by offering features like larger text options and compatibility with screen readers. Clear feedback for user actions is essential, so users know their inputs are being processed correctly. Furthermore, easily accessible help or support options should be available, ensuring that users canget assistance whenever needed. By incorporating these elements, the app caters to users with varying levels of digital literacy, making it comfortable and effective for all. The goal is to createa user-friendly experience where everyone can navigate and use the app's features without frustration, enhancing overall usability and satisfaction.

5.2 Availability Requirement

Our system ensures users have access 24/7, every day of the year, providing uninterrupted availability anytime and anywhere. Whether it's day or night, weekdays or weekends, or even holidays, you can use the application whenever you need. The system is designed for continuous operation, guaranteeing reliable service at all times. This means users can perform tasks like browsing products, placing orders, managing accounts, and processing payments without worrying about downtime. By offering round-the-clock access, the system meets the needs of users with diverse schedules and time zones, ensuring convenience and flexibility. This constant availability enhances user experience and trust, knowing they can depend on the system whenever they need it. The robust design and infrastructure of the system ensure it remains operational under various conditions, providing a seamless and dependable service that users can count on every time they use the application.

5.3 Accuracy

The "Online Shop Tracking System" will provide precise real-time information, ensuring that all data is accurate and up-to-date. It will handle multiple users and transactions happening simultaneously without any errors, addressing any concurrency issues effectively. This means that whether you're tracking an order, checking inventory, or monitoring sales, the information you see will be completely reliable and correct. The system's accuracy ensures that users can trust the data provided, making the system dependable for all online shop tracking needs.

5.4 Performance Requirement

The application is designed to automatically and instantly update data whenever changes occur, ensuring that all information is always current. When a user requests access to this data, the system is designed to respond within two seconds for standard tasks, providing a fast and efficient experience. For larger or more complex tasks, the response time may be slightly longer, which is understandable. Once a user requests to view specific information, the system aims to display the requested data on the screen within four seconds. This approach ensures that users receive the information they need quickly, without significant delays, while still allowing the system enough time to accurately process more extensive tasks. This balance between speed and accuracy provides a smooth and efficient user experience. The goal is to ensure users can trust that the information they see is up-to-date and that the system will respond promptly to their needs, whether they are performing simple queries or more complex operations. By maintaining these standards, the application ensures reliability and user satisfaction, making it a dependable tool for accessing and managing data. This quick response time, coupled with the automatic updates, creates a seamless experience where users can efficiently perform their tasks and make informed decisions based on the most current data available.

5.5 Security

The security of the system is of utmost importance, being the most critical non-functional requirement. This ensures that user data remains confidential, meaning it is accessible only to authorized individuals and protected from unauthorized access. The

system also guarantees data integrity, ensuring that information is accurate and unaltered, both when stored and during transmission. To achieve this, comprehensive encryption mechanisms are in place, safeguarding user data from potential threats. Availability is another key aspect, ensuring that users can access the system whenever needed without any interruptions. By maintaining high standards of security, the system assures users that their sensitive information is protected at all times. This involves using advanced encryption to shield data during communication between the user and the system, preventing unauthorized access and tampering. Additionally, the system employs strict authentication methods to verify the identity of users, ensuring that only legitimate users can access confidential data. Regular security updates and patches are applied to address potential vulnerabilities and keep the system secure. Moreover, continuous monitoring is implemented to detect and respond to any suspicious activities promptly. This comprehensive approach to security instills confidence in users, allowing them to trust the system with their personal and sensitive information. The emphasis on confidentiality, integrity, and availability ensures that the system is reliable and trustworthy, providing a secure environment for all users. This robust security framework is essential for protecting user data from various threats and maintaining the system's credibility. By prioritizing security, the system not only meets the essential non-functional requirements but also enhances user satisfaction and trust. In summary, the system's security measures are designed to provide maximum protection for user data, ensuring confidentiality, integrity, and availability through encryption, authentication, regular updates, and continuous monitoring. This comprehensive security approach ensures that users can rely on the system to keep their information safe and accessible at all times.

5.6 UML Diagrams

UML (Unified Modeling Language) diagrams serve as fundamental tools in system design, offering a standardized and comprehensive way to visualize and document a system's structure, behavior, and interactions. By employing a set of well-defined symbols and notations, UML diagrams enable the clear representation of complex systems, which is crucial for effective communication and analysis throughout the development lifecycle. Various types of UML diagrams cater to different aspects of system modeling: class diagrams illustrate the static structure by detailing classes, their

attributes, methods, and relationships, providing a blueprint of the data model and the organization of system components. Use case diagrams capture the functional requirements of a system by showing interactions between users (actors) and the system, highlighting the goals and functionalities from an end-user perspective. Sequence diagrams focus on the dynamic behavior of the system by depicting the flow of messages between objects or components over time, which helps in understanding how interactions are sequenced and how different parts of the system collaborate to achieve specific outcomes. Activity diagrams outline the workflow of processes, showing the sequence of activities, decision points, and the overall flow of operations within the system, thus aiding in the visualization of business processes and their efficiency. State diagrams represent the various states an object or system can be in and the transitions between these states, providing insights into the system's dynamic behavior and how it responds to different events. Together, these diagrams enhance the clarity of system design, facilitating a shared understanding among stakeholders by translating complex requirements and interactions into visual formats that are easier to comprehend. This visualization not only helps in identifying potential design flaws and inefficiencies early in the development process but also supports thorough documentation, which is essential for both development and maintenance. UML diagrams thus play a crucial role in ensuring that all participants have a consistent and accurate understanding of the system's architecture, functionality, and behavior, ultimately contributing to a more streamlined and effective development process.

5.7 Activity Diagram

An activity diagram is a dynamic visual tool in UML (Unified Modeling Language) that illustrates the flow of activities, actions, and decisions within a system or process, offering a detailed overview of the sequence and dependencies of various tasks. It employs a range of symbols to represent different elements: nodes (such as action nodes and decision nodes) indicate specific steps or decisions in the process; arrows depict the flow and order in which activities occur; and swim lanes are used to partition the diagram into sections, often representing different actors or components, to clarify who or what is responsible for each part of the process. By visually mapping out the flow of activities, an activity diagram helps in understanding how a process operates from start to finish, highlighting the sequence of actions, the branching of decisions, and parallel

activities that occur simultaneously. This clear representation aids in identifying potential bottlenecks, inefficiencies, and decision points that may affect the overall performance or outcome of the process. For instance, it can show where delays might occur due to waiting for certain conditions or where tasks could be streamlined to improve efficiency. Additionally, activity diagrams are useful in visualizing complex processes by breaking them down into more manageable components, making it easier to analyze and optimize workflows. They serve as an invaluable tool for both designing new processes and refining existing ones, providing a straightforward way to document and communicate how various parts of a system or process interact and depend on each other. Through this comprehensive depiction, activity diagrams facilitate better understanding and management of processes, leading to more effective problem- solving and process improvement.

User Activity Diagram

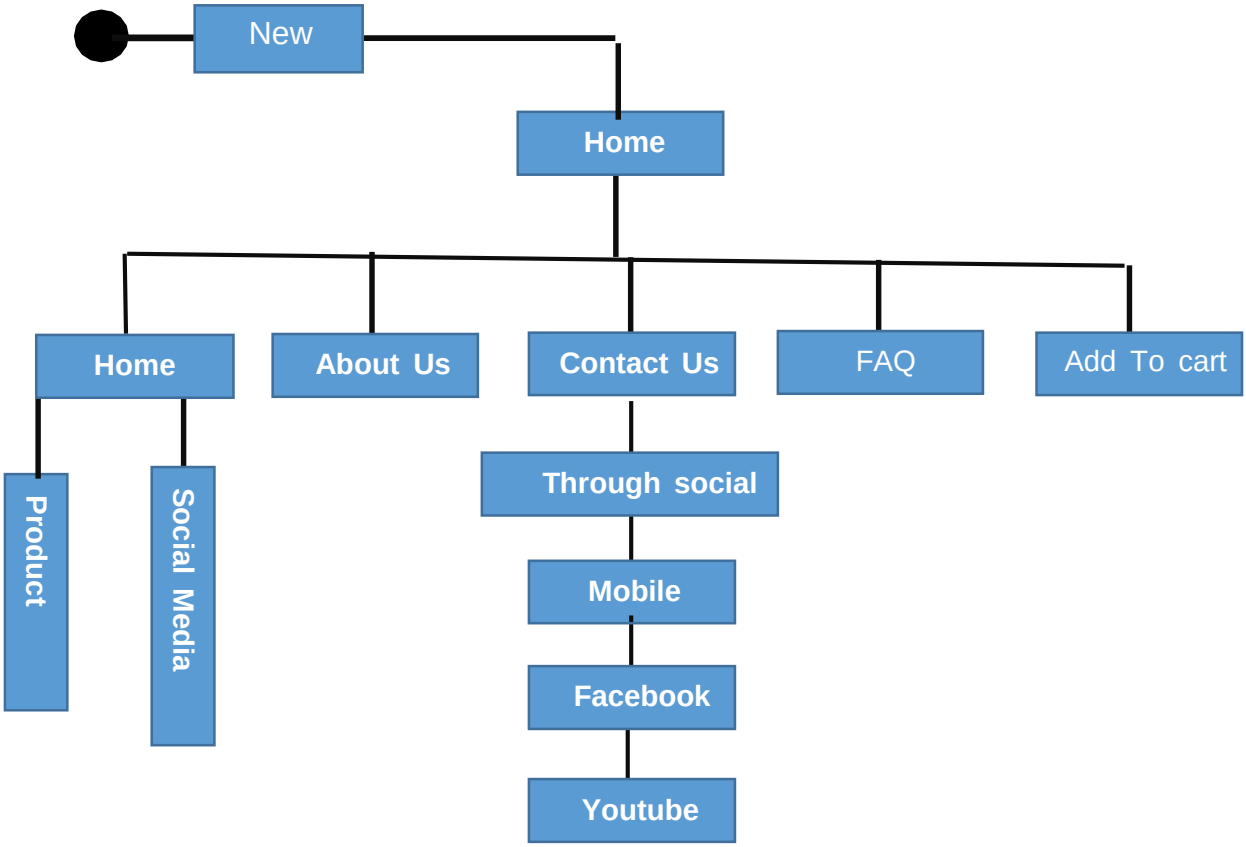


Fig 5.1: user activity diagram

- Upon entering the app, the user will be directed to the home screen.

- "About Us “, “Contact Us”, “FAQ”, “Add To Cart ” buttons will be displayed to the user.
- If the user clicks on any of the buttons, he will be directed to that page.
- When he enter into “contact us” page then he/she can use social media links to reach us

Admin Activty Diagram

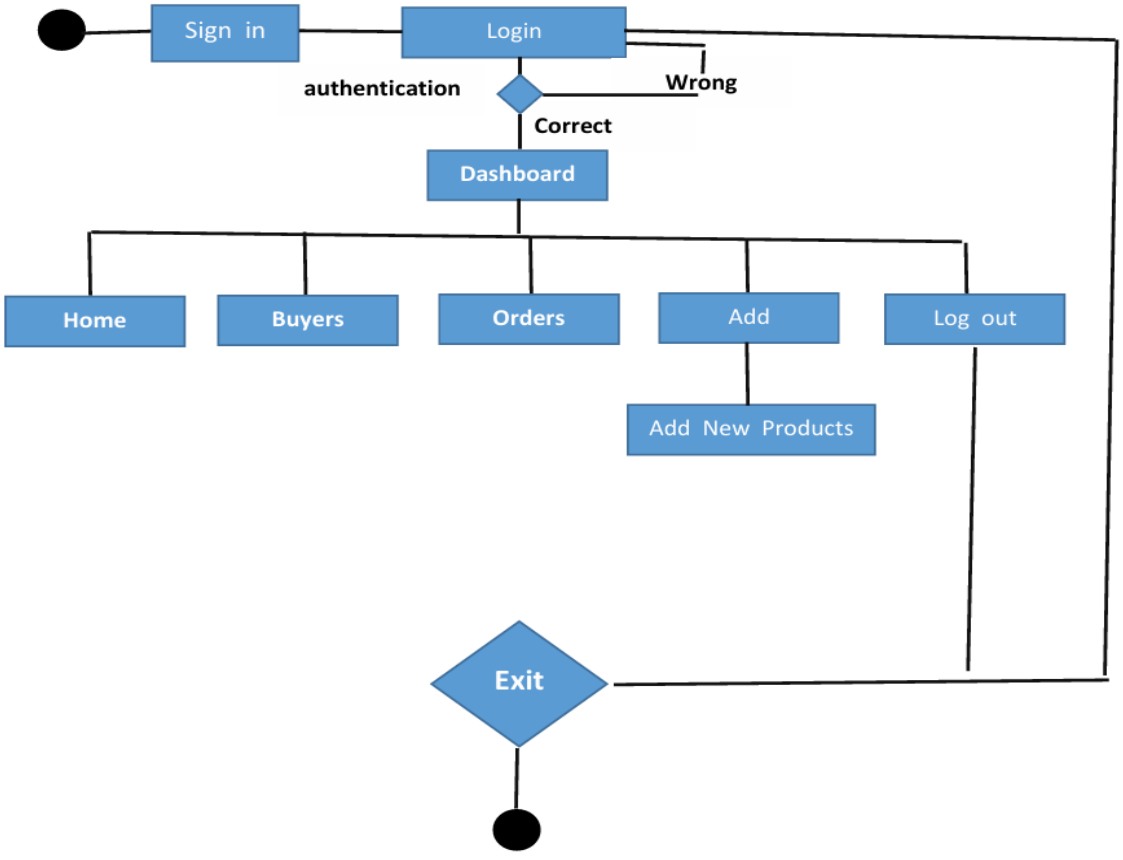


Fig 5.2: admin activity diagram

- Upon entering the app, the user (admin) will be directed to the Dashboard screen.
- "Home “, “Byers”, “Orders”, “Add Product” and “Log Out” buttons will be displayed to the user.
- If the user (Admin) clicks on any of the buttons, he will be directed to that page.

User Use Case Diagram

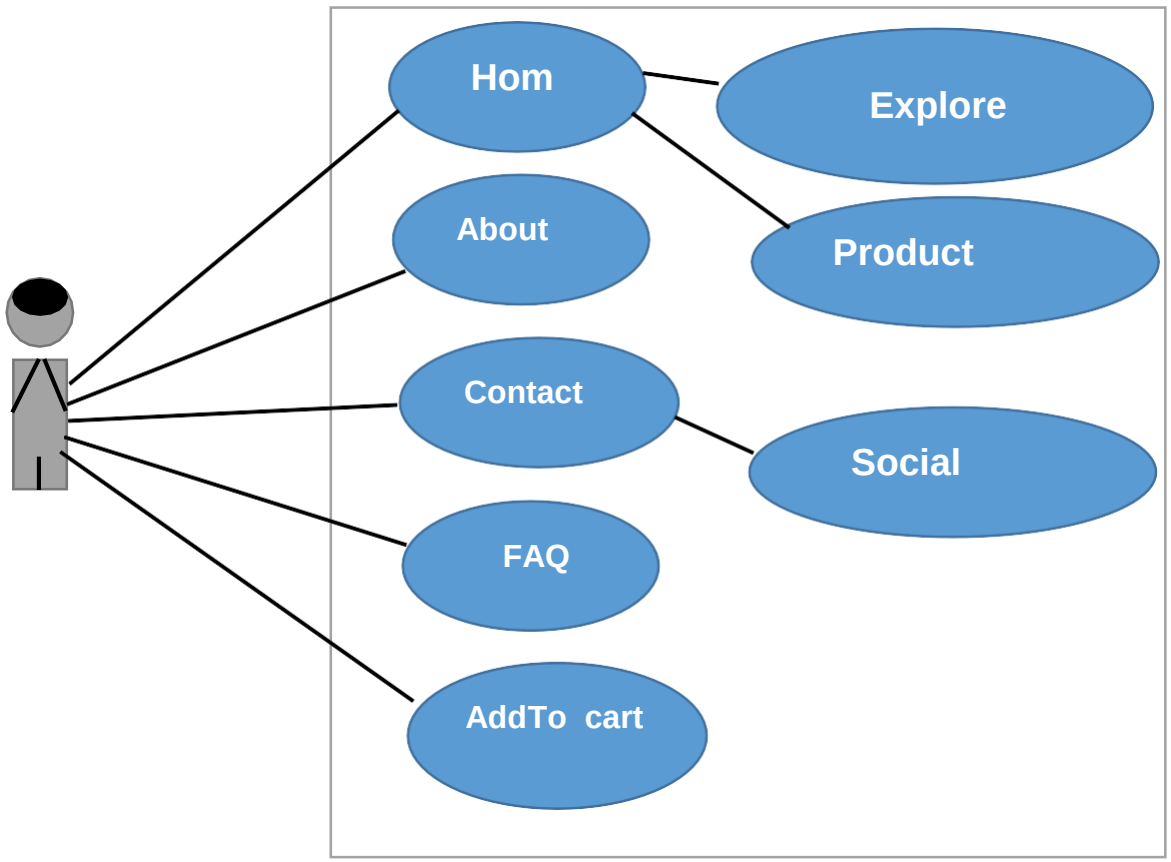


Fig 5.3: User use case diagram

- When the user enters the system (application), then the system enables him/her to visit all pages (Home, About Us, Contact Us, FAQ and Add To Cart).
- The user can easily explore the complete shop easily online.

Admin Use Case Diagram

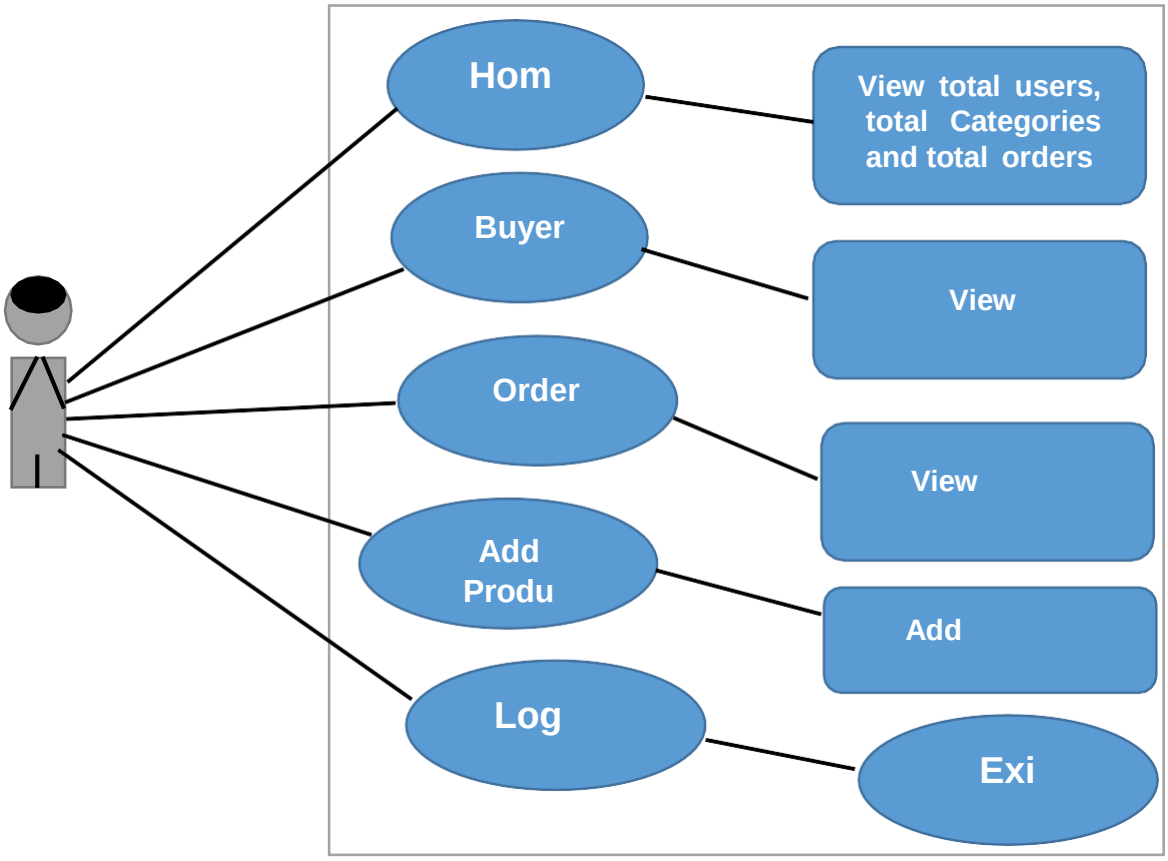


Fig 5.4: admin use case diagram

- The admin will sign in to the dashboard.
- Upon logging in successfully, the admin will have the ability to view the 'total users', 'total available Categories and 'total orders'
- The system can be updated by the admin.
- The admin can upload new products or images that showcase the available products.

CHAPTER-6

VISUAL FLOW OF THE APP

6.1 Introduction

The visual flow of the app shows how a user navigates through it, highlighting key screens, interactions, and transitions. When a user opens the app, the first screen they see is the home screen. From there, users can browse products, place orders, manage their accounts, and process payments. Each interaction is smooth and intuitive, with clear transitions guiding the user from one function to another. This flow ensures that users can easily find what they need and completetasks efficiently, providing a seamless and user-friendly experience throughout the app.

6.2 User Visual Flow

When a user clicks on the link for the first time, they will be directed to a welcome screen. On this screen, they will see a prominent icon located in the top right corner. The user needs to click on this icon to proceed. Upon clicking, they will be presented with two options for signing up: "Login as a User" or "Login as an Admin." The user must choose one of these options to continue. If they select "Login as a User," they will go through the user registration or login process. If they select "Login as an Admin," they will proceed through the admin-specific login or registration steps. This initial interaction ensures that the user is correctly categorized and directed to the appropriate interface for their needs.

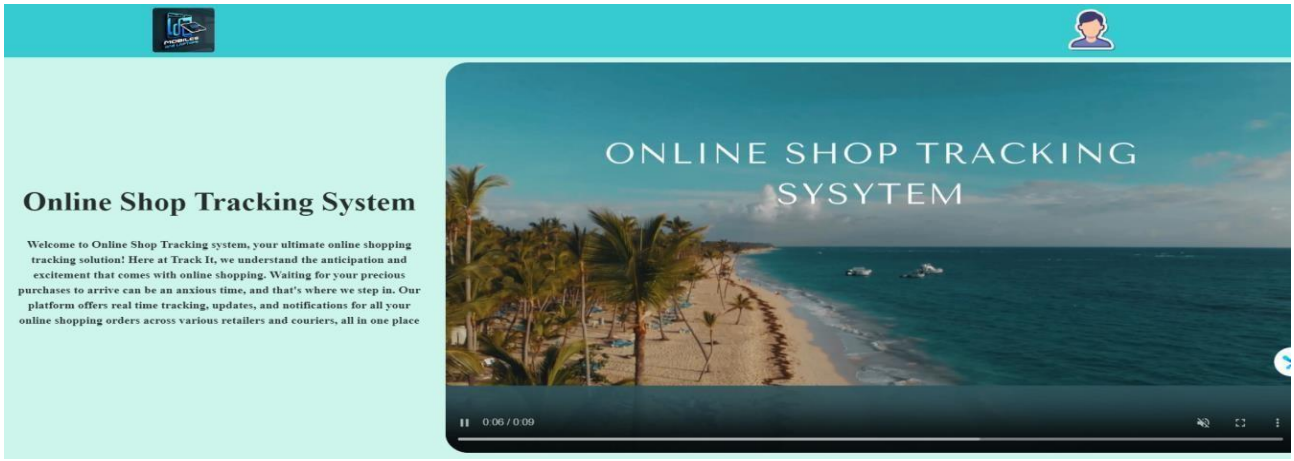


Fig 6.1: First interface of the web app

Upon clicking on the icon in the top right corner for the first time, the user will be presented withtwo options: 'Sign Up as a Seller' or 'Sign Up as a Buyer.' The user must choose one of these options to proceed further. Selecting Sign Up as a Seller' will direct them to the seller-specific login or registration process, where they can manage their products and sales. Alternatively, choosing 'Log in as a Buyer' will take them to the buyer-specific login or registration process, where they can browse and purchase products. This initial choice ensures that users are directed to the appropriate interface tailored to their specific role, whether they are sellers managing their inventory or buyers looking to shop.

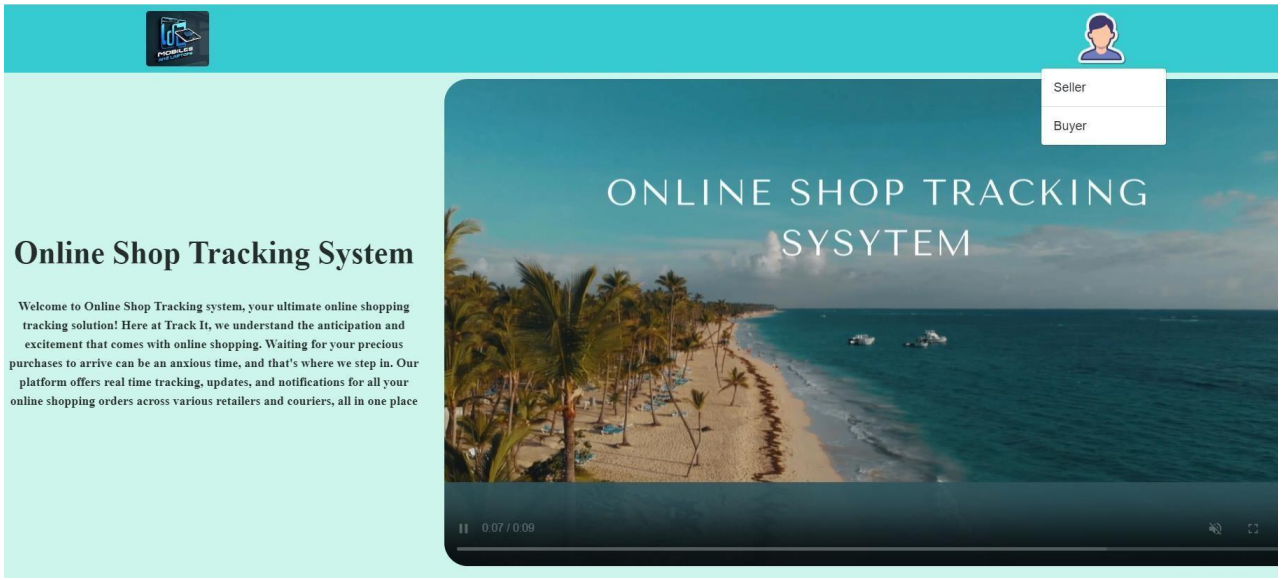


Fig 6.2: Two options on first interface of the web app

After selecting either 'Sign up as a Seller' or 'Sign up as a Buyer,' the user will be directed to a specific form tailored to their choice. If the user chooses to sign up as a seller, the form will requiredetails such as Email and password, which will provided by the admin. Conversely, if the user optsto sign up as a buyer, the form will ask for personal information like their name, email address, phone number, password and a profile picture. Each form is designed to gather all necessary information to set up the user's account appropriately, ensuring a smooth and personalizedexperience based on their role in the system.

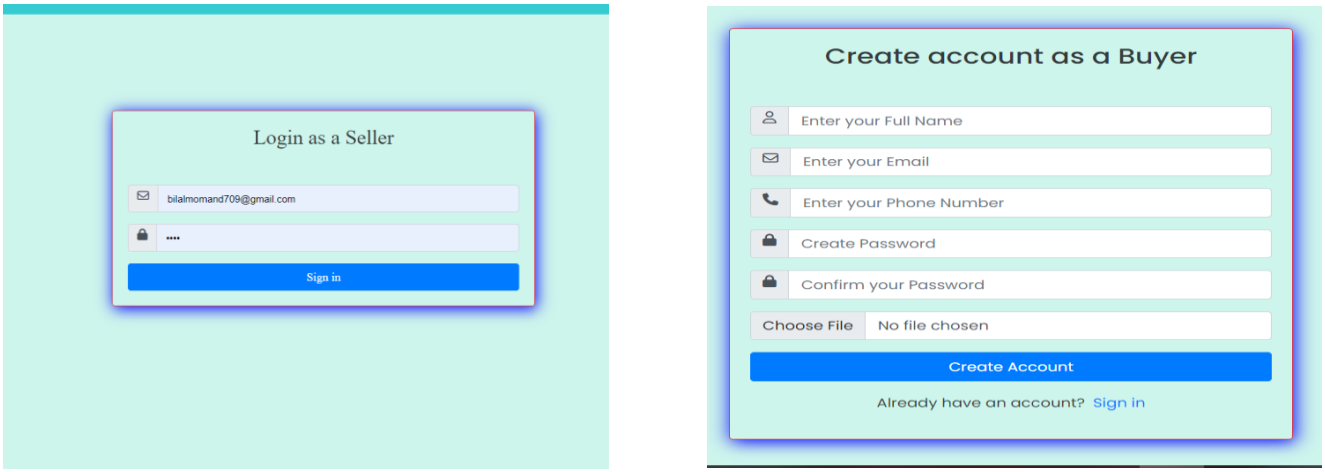


Fig 6.3: two options(forms) for login or sign up as a seller or buyer

6.3 Home Screen/Page

Upon entering the app, the user will be greeted by the home screen, which serves as the central hub for navigating the application. This screen prominently displays the main features of the app, providing an overview of what the app offers. Users will find navigation links to essential pages such as 'About Us,' 'Contact Us,' and 'FAQ,' making it easy to learn more about the app and seek help if needed. Additionally, there is an 'Add to Cart' link for quick access to the shopping cart. The home screen showcases popular product categories and highlights new arrivals, helping usersdiscover trending and newly added items. At the bottom of the page, social media links are provided, allowing users to connect with the app on various platforms and stay updated with the latest news and promotions. This well-organized layout ensures that users can easily find and explore different aspects of the application, enhancing their overall experience.

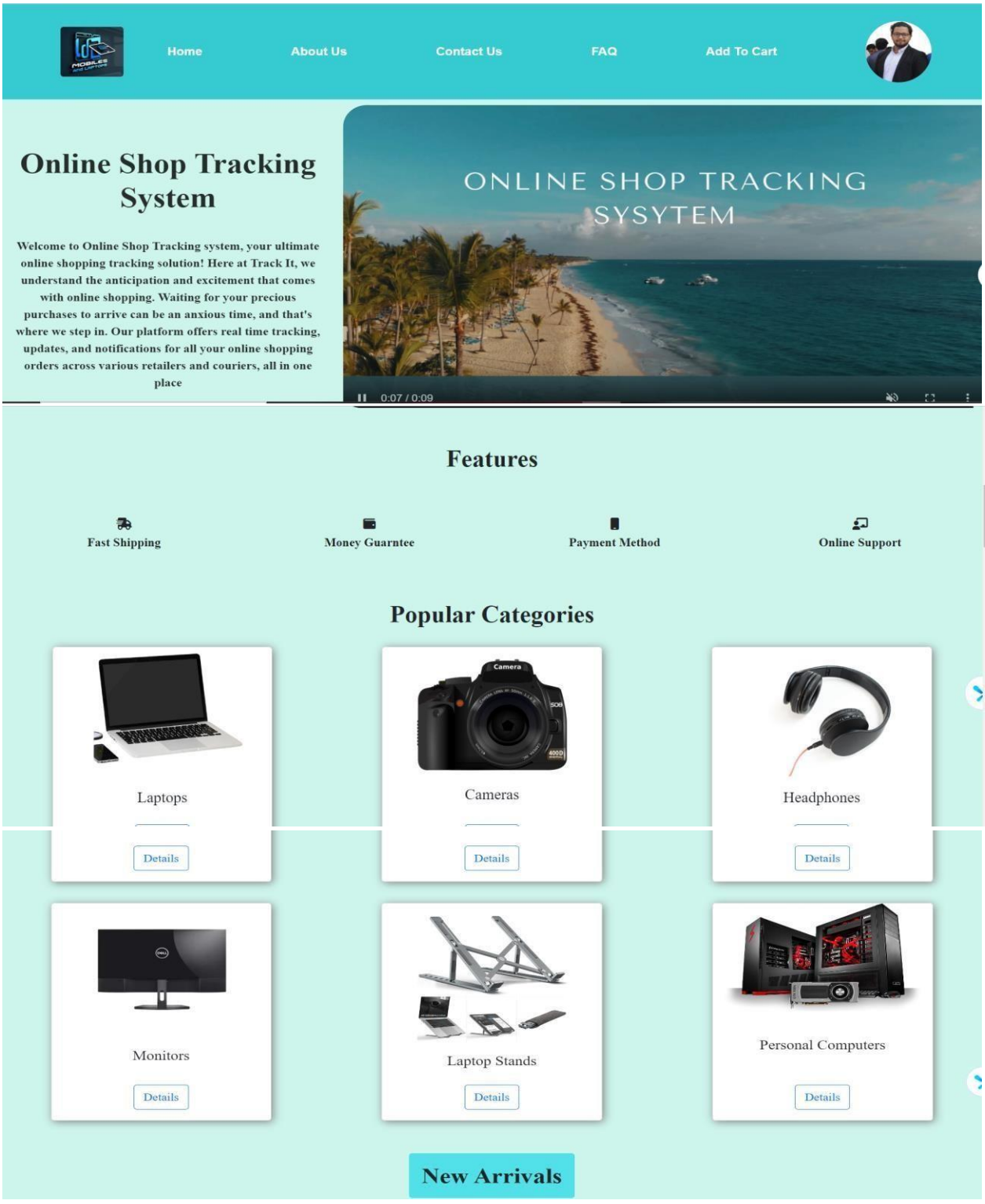
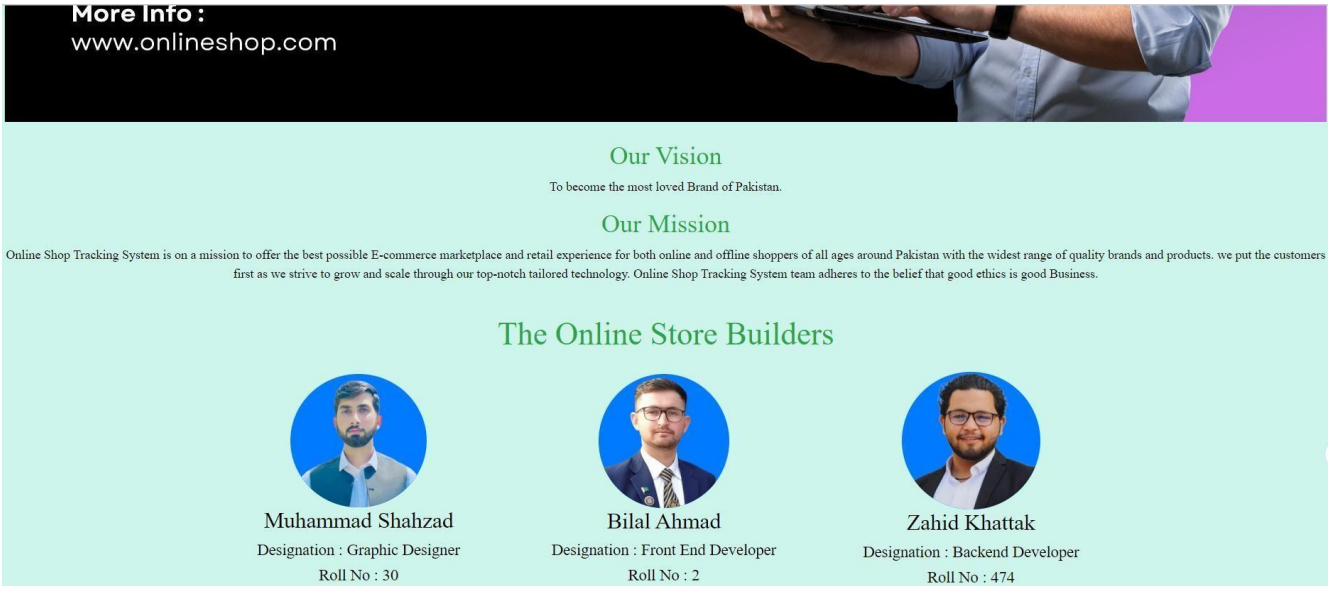


Fig 6.4: Home page interface

6.4About Us

The 'About Us' page provides users with detailed information about the background, aims, and functionality of the online shop. It introduces the team members, their roles, and contributions to the shop. The page also highlights the shop's mission, vision, and goals, explaining what the shop strives to achieve and how it operates. Additionally, it may include information on the shop's history, values, and any unique features or services offered. The purpose of the 'About Us' page isto build trust and transparency with users by giving them insight into the people and principles behind the online shop, helping them understand the shop's commitment to quality and customer satisfaction.

Fig 6.5: About Page



TESTING

6.5 Contact Us Page

The 'Contact Us' page provides users with various contact tools to reach the shop's owner or manager. On this page, users will find the shop's mobile number, email address, physical address,and links to social media profiles, allowing multiple ways to get in touch. Additionally, there maybe a live location map embedded on the page, helping users find the shop's physical location easily.The 'Contact Us' page is crucial for facilitating communication between the users and the shop's management. Its primary purpose is to offer a convenient and accessible way for users to ask questions, provide feedback, or

resolve any issues they may encounter. By providing multiple contact options, the page ensures that users can choose their preferred method of communication, thereby enhancing their overall experience and satisfaction with the shop.

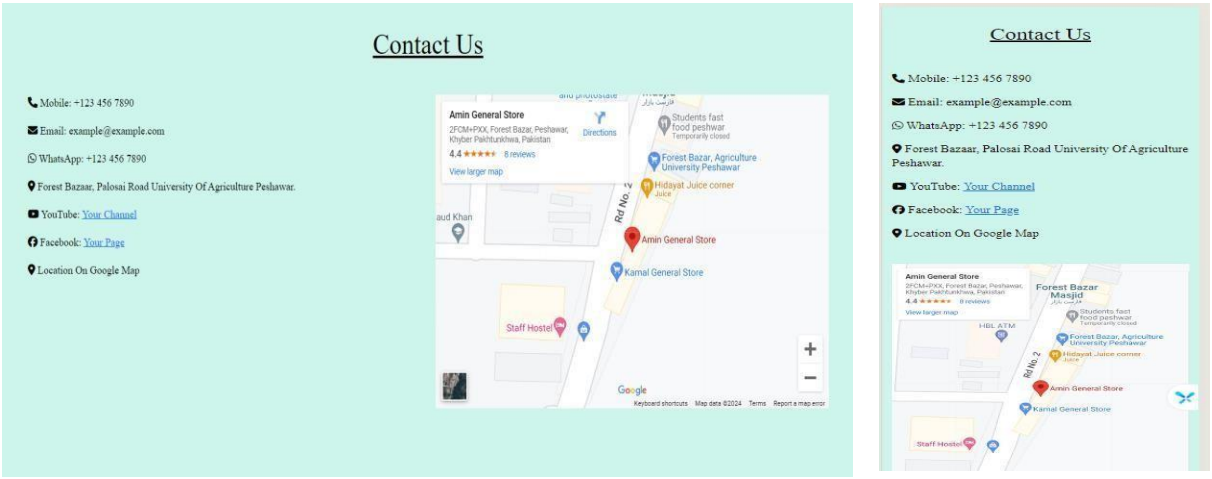


Fig 6.6: Contact us

6.6 FAQ page

The FAQ (Frequently Asked Questions) page is designed to address common queries users may have about the online shop. It contains a comprehensive list of important questions and their corresponding answers, covering various topics such as ordering, shipping, returns, payment methods, and account management. This page aims to provide quick and easy solutions to common issues without the need for direct contact with customer support. Additionally, the FAQpage includes a contact form for users who have questions not covered in the existing list. By filling out this form, users can submit their inquiries directly to the shop's support team. The primary purpose of the FAQ page is to enhance user experience by offering immediate assistanceand reducing the need for direct customer service interactions, ensuring that users can find the information they need quickly and efficiently.

Fig 6.7: FAQ (For Any Query) page

6.7 Add To Cart Page

The "Add To Cart" page serves as a central hub where users can review and manage the productsthey intend to purchase. This page displays a list of all selected items, showcasing essential detailssuch as the product name, description, and price for each item. Users have the ability to remove any product they no longer wish to buy, ensuring they have full control over their potential purchases. Additionally, the page provides a comprehensive summary of all chosen products, enabling users to make informed decisions before proceeding to checkout. The user-friendly interface simplifies the shopping experience, allowing for easy modifications and a clear

overviewof the total cost.

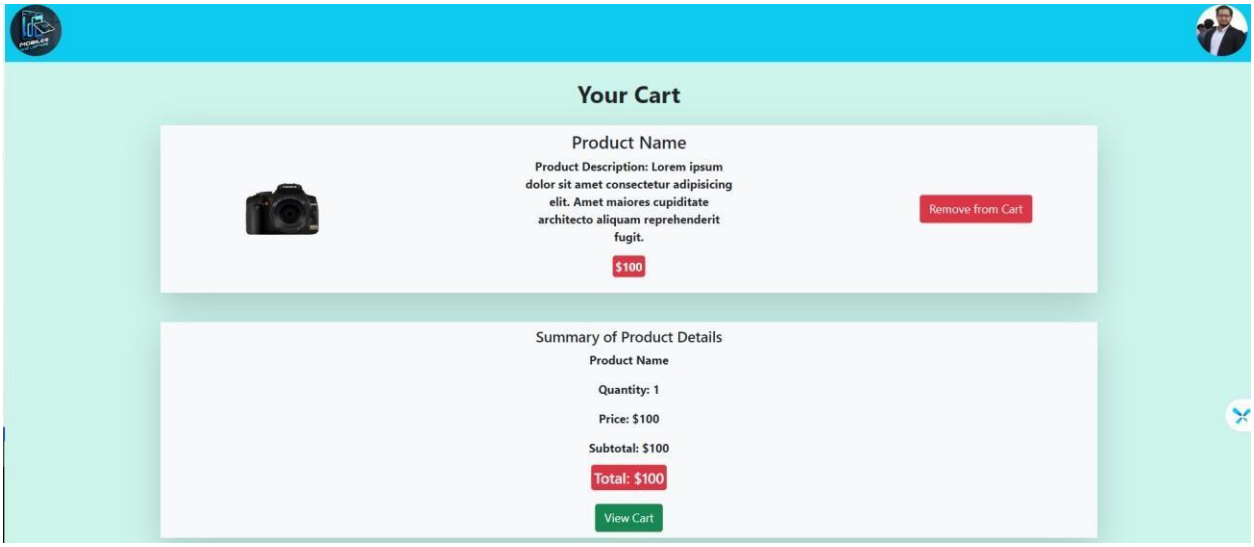


Fig 6.8: Add to cart

6.8 Admin/Seller Visual Flow

When an admin logs in, they are presented with a comprehensive interface featuring essential navigational buttons such as Home, Buyers, Orders, Add Product, and Logout. These buttons enable the admin to seamlessly move between pages and perform necessary modifications to manage the site effectively. Additionally, the admin dashboard prominently displays key metrics, including the total number of users, categories, and orders. This information provides a quick overview of the site's activity and performance, allowing the admin to monitor and manage the platform efficiently. The user-friendly design ensures that all critical functionalities are easily accessible, streamlining the administrative process.

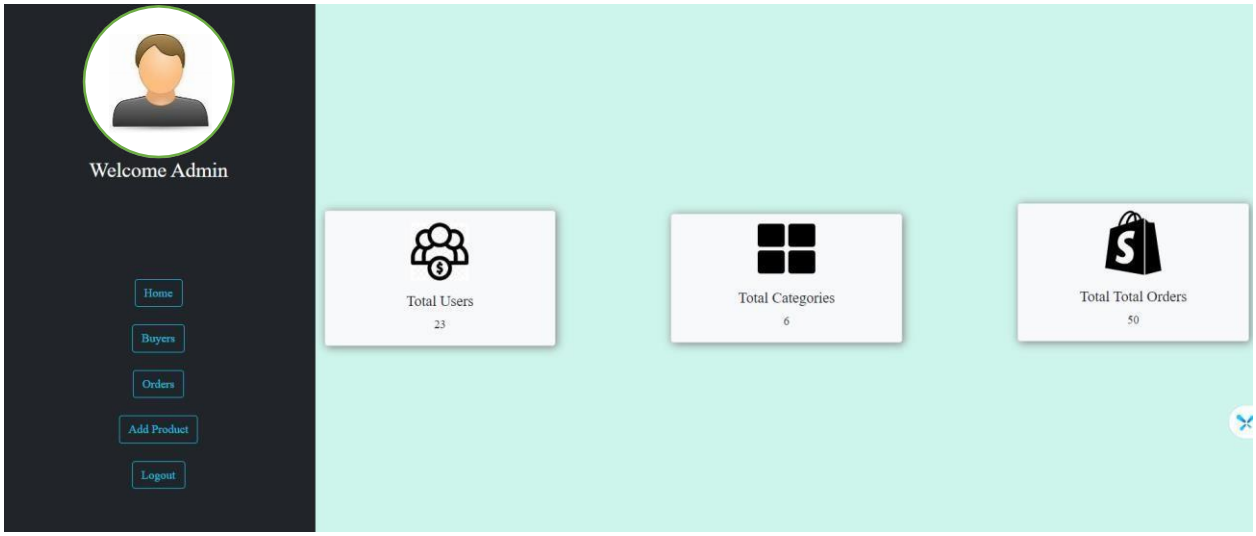


Fig 6.9: admin dashboard

6.9 Buyer's page

When the admin navigates to the "Buyers" section and clicks on the corresponding button, they access a detailed page dedicated to buyer information. This page serves as a centralized hub where all registered buyers' details are displayed prominently. Each entry typically includes the buyer's name, email address, mobile number, and possibly their profile image for easy identification. This comprehensive view allows admins to manage customer interactions effectively, track purchasing patterns, and address any customer service needs promptly. The structured layout of the page facilitates quick navigation and ensures that admins can efficiently oversee and support the buyer community within the online shop platform.

Fig 6.10: Buyers table for admin

6.10 Orders page

When the admin clicks the "Orders" button, they are redirected to the order details page. Here, the admin can view comprehensive information about each order. This includes the name of the product purchased, a picture of the product, and the price of the product. The page provides a clearand organized layout, allowing the admin to easily see all relevant details for each order. This helpsthe admin manage orders efficiently, ensuring that all product information is readily accessible forreview and any necessary actions.

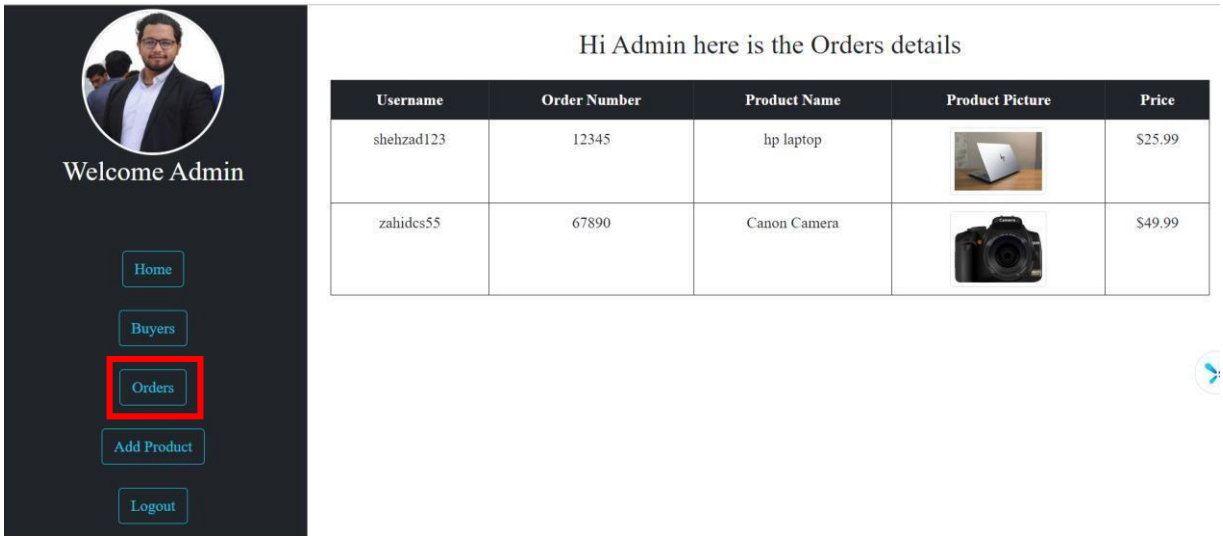


Fig 6.11: orders table for admin

6.11 Add Product

When the admin clicks the "Add Product" button, they are directed to the add product page wherethey can easily add new items to the online store's inventory. This page is designed for simplicity,allowing the admin to input essential details such as product name, description, price, and uploadproduct images. They can select from predefined categories like laptops, cameras, mobiles, and more, ensuring that each product is appropriately categorized for easy browsing by customers. This functionality empowers the admin to efficiently manage and expand the range of products available, enhancing the store's offerings and overall customer experience.

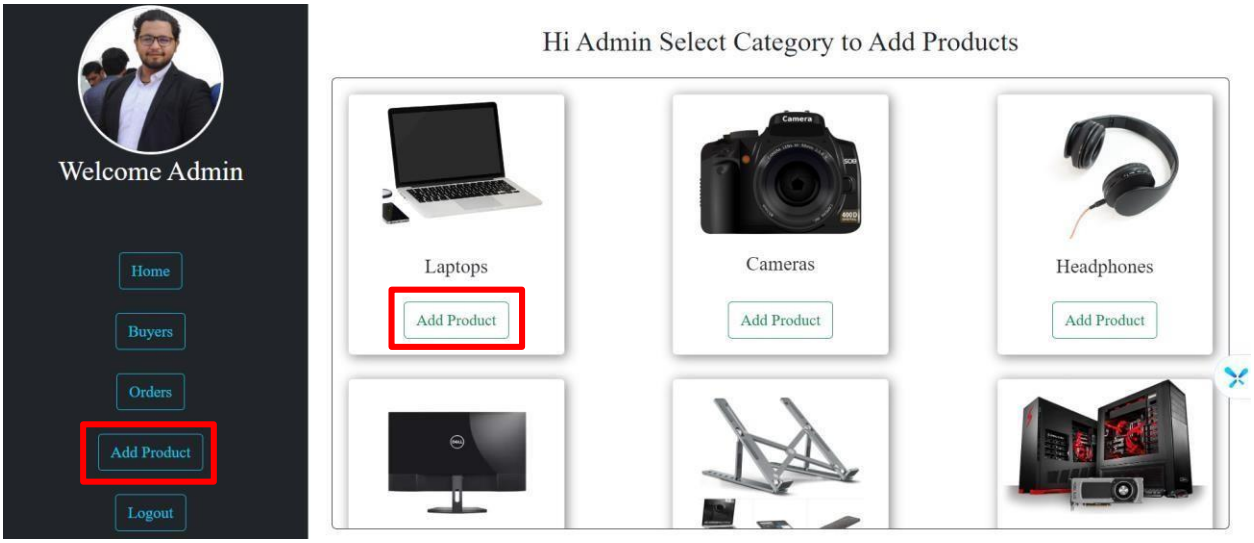


Fig 6.12: Add product interface for admin

When the admin clicks on the "Add Product" button within a specific category card, they are directed to a specialized page tailored for adding products to that particular category. This page isdesigned to collect all essential information about the new product, ensuring it is accurately categorized and properly displayed to customers. For example, if the admin chooses to add a product under the laptop category, they enter details such as the product name, description, price,and upload product images specific to laptops. The process remains consistent for other categorieslike cameras and mobiles, each having their own dedicated input fields and options relevant to their respective products. This streamlined approach ensures that the admin can efficiently manage and expand the store's inventory, maintaining organization and clarity across different product categories for enhanced customer accessibility and shopping experience.

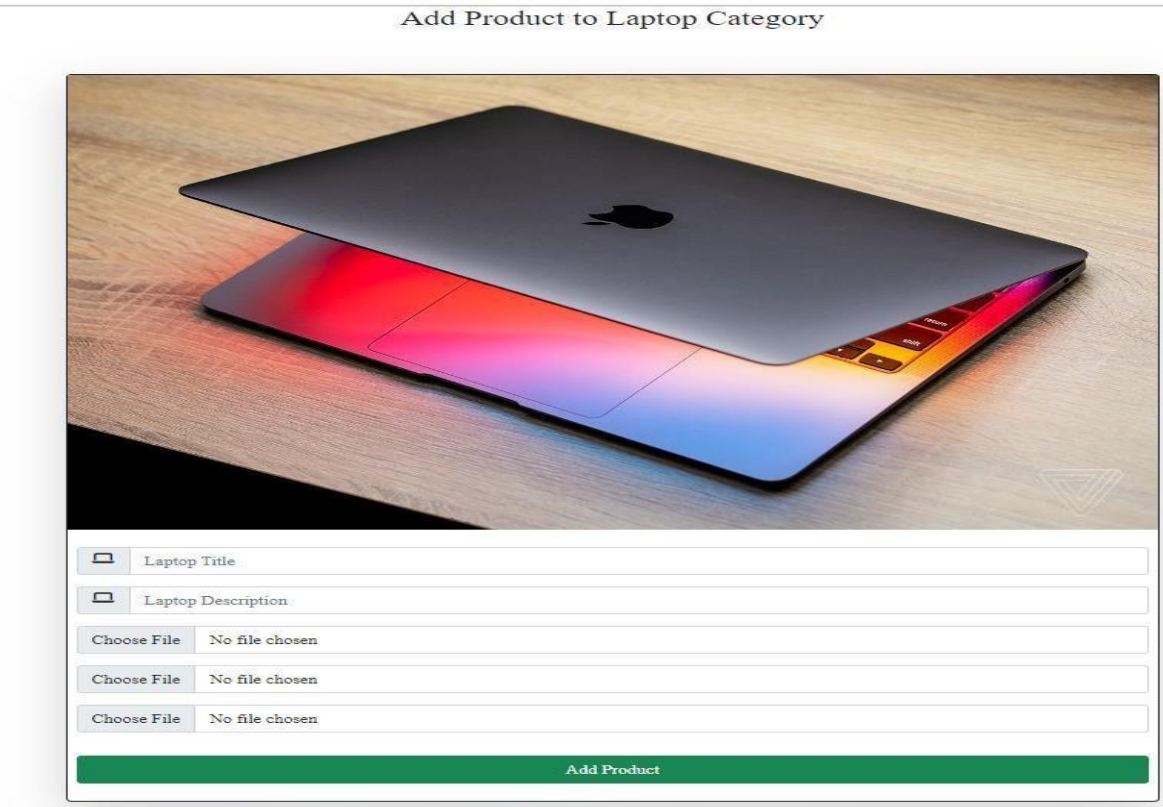


Fig 6.11.1: add product page (form) for admin

6.12 Logout

When the user or admin logs out, they will need to log in again if they want to re-enter the system.This ensures that every session is secure and requires authentication upon re-entry.

Explanation:

1. **Log Out:** When the user or admin clicks the logout button, they are logged out of the system.
2. **Login Again:** To access the system again, they need to enter their username and password andlog in.
3. **Purpose:** This ensures that only authorized individuals can access the system and that eachsession is secure.

CHAPTER-7

TESTING

7.1 Introduction

System testing is a critical phase in the evaluation of the "Online Shop Tracking System" application. This phase involves comprehensive testing of the fully integrated system to ensure it aligns with its defined requirements. Building upon the successful outcomes of integration testing,system testing encompasses the assessment of all integrated components within the application. Itaims to identify any inconsistencies or anomalies within these integrated units, often referred to asassemblages. System testing goes beyond this and also examines the application as a whole. The objective of system testing is to unearth defects not only within the interconnections of assemblages but also within the entire system. This testing phase measures the actual behavior and performance observed when individual components and the entire application are rigorously examined and tested.

7.2 Purpose of Testing

- Finding defects which may get created by the programmer while developing the software.
- Gaining confidence in and providing information about the level of quality.
- To prevent defects.
- To make sure that the end result meets the business and user requirements.
- To ensure that it satisfies the BRS that is Business Requirement Specification and SRS that isSystem Requirement Specifications.
- To gain the confidence of the customers by providing them a quality product.

7.3 Objective of Testing

Testing in the context of the online shop project is essential to ensure that every aspect of the application meets both business and user requirements seamlessly. It involves systematically checking the software across various scenarios and conditions to verify that it functions correctly and performs optimally according to the specified specifications.

Comprehensive test coverage means examining all features, from basic functionalities like product browsing and ordering to more complex operations such as payment processing and user account management. By conducting thorough testing, developers and QA teams can identify and resolve any issues or bugs before the application goes live, ensuring a smooth and reliable experience for customers and fulfilling the overall goals of the online shop project effectively.

7.4 Types of Testing

7.4.1 Unit Testing

Definition: Unit testing involves testing individual components or modules of the software to ensure they work correctly. Each unit is tested separately to validate its correctness and functionality.

Purpose: The main goal is to isolate each part of the program and show that individual parts are correct in terms of requirements and functionality. This helps in early detection of bugs and errorswithin the module.

Methodology: Typically performed by developers using unit testing frameworks such as JUnit (for Java), NUnit (for .NET), or PHPUnit (for PHP).

Example: Testing individual functions within the product catalog module to ensure that products are correctly added, updated, and retrieved.

7.4.2 Integration Testing

Definition: Integration testing examines the interaction between integrated units/modules to ensure they work together as expected. This type of testing focuses on the data flow between modules.

Purpose: To detect interface issues and interaction defects between modules that could not be identified in unit testing.

Methodology: Integration testing can be performed using different approaches such as top-

down,bottom-up, and big bang.

Example: Testing the interaction between the shopping cart module and the payment processing module to ensure they communicate and process transactions correctly.

7.4.3 System Testing

Definition: System testing involves testing the complete and fully integrated software product to evaluate the system's compliance with its specified requirements.

Purpose: To validate the end-to-end system specifications. It ensures that the application meets both functional and non-functional requirements.

Methodology: This testing is performed in an environment that closely mirrors the production environment.

Example: Testing the entire online shop system, including user registration, product search, ordering, payment, and order tracking, to ensure all parts work together seamlessly.

7.4.4 Regression Testing

Definition: Regression testing involves re-running previously conducted tests to ensure that new code changes have not adversely affected existing functionalities.

Purpose: To catch any defects that may have been introduced inadvertently through recent code changes or enhancements.

Methodology: Automated regression tests are often employed to efficiently re-test functionalitiesacross the application.

Example: After adding a new feature to the user account management system, regression testing is done to ensure that existing functionalities such as login, logout, and profile updates still work correctly.

7.4.5 User Acceptance Testing (UAT)

Definition: UAT is the final phase of the software testing process, where the real users test the system in a real-world environment to ensure it can handle required tasks in real-world scenarios according to specifications.

Purpose: To validate the end-to-end business flow. It verifies that the system meets the business requirements and is ready for production.

Methodology: Users or clients perform testing in an environment that simulates the actual use ofthe system.

Example: End-users test the entire online shopping process, from browsing products to completingpurchases and tracking orders, to ensure it meets their expectations and business requirements.

7.4.6 Performance Testing

Definition: Performance testing evaluates how the application performs under various conditions,including load, stress, and scalability testing.

Purpose: To ensure that the application is responsive, stable, and can handle expected loadvolumes without performance degradation.

Methodology: Tools such as LoadRunner, JMeter, or Gatling are used to simulate multiple usersand measure response times, throughput, and resource utilization.

Example: Simulating thousands of users simultaneously browsing products and placing orders toensure the system can handle high traffic volumes without slowing down or crashing.

7.4.7 Security Testing

Definition: Security testing involves identifying vulnerabilities and ensuring that the applicationprotects data and maintains functionality as intended.

Purpose: To safeguard against threats and ensure the integrity, confidentiality, and availability ofdata.

Methodology: This includes testing for SQL injection, cross-site scripting (XSS), and othervulnerabilities. Tools like OWASP ZAP or Burp Suite are often used.

Example: Testing the application to ensure user data is encrypted during transmission, and thatunauthorized users cannot access restricted areas of the system.

7.4.8 Usability Testing

Definition: Usability testing evaluates how easy and user-friendly the application is for end-users.

Purpose: To ensure the application provides a good user experience, is easy to navigate, and meetsuser expectations.

Methodology: This involves observing real users as they interact with the system and gatheringtheir feedback.

Example: Users are asked to complete tasks such as searching for products and placing an order,while their interactions are observed to identify any usability issues or areas for improvement.

7.4.9 Compatibility Testing

Definition: Compatibility testing ensures that the application works correctly

across differentbrowsers, devices, operating systems, and network environments.

Purpose: To ensure that all users have a consistent experience, regardless of their chosen platform.

Methodology: Testing is performed on various devices, operating systems, and browsers toidentify and resolve compatibility issues.

Example: Ensuring the online shop works seamlessly on desktop browsers like Chrome, Firefox,and Safari, as well as on mobile devices running iOS and Android.

7.4.10 Alpha and Beta Testing

Alpha Testing

Definition: Alpha testing is an internal form of acceptance testing conducted by the developersand testers before the product is released to external users.

Purpose: To identify bugs that were not discovered during earlier testing phases and to gatherearly feedback on the product's usability.

Methodology: Typically performed in a controlled environment by internal staff.

Example: Internal teams perform alpha testing on the online shop to identify any last-minute issuesbefore releasing the beta version to external users.

Beta Testing

Definition: Beta testing is an external form of acceptance testing where the product is released toa limited number of external users for real-world exposure.

Purpose: To gather feedback from real users and to identify any remaining issues that need to beaddressed before the final release.

Methodology: Conducted by real users in their own environments.

Example: The beta version of the online shop is released to a select group of customers who use itand provide feedback on their experience, highlighting any bugs or usability issues.

CHAPTER-8

CONCLUSION

After developing and thoroughly testing the "Online Shop Tracking System," we are pleased to report that every part of the application works perfectly. This means that everything from browsingproducts, placing orders, managing user accounts, to processing payments functions exactly as intended and meets all the requirements set by the client. During development, we used the latest tools and technologies to ensure the system's reliability and efficiency.

Creating this system was not only about achieving technical success but also about growing as a team. We significantly improved our web development skills by implementing complex features and learning to handle the intricacies of project management. We gained a deeper understanding of how to align our development process with client expectations, ensuring that the final product met not only the specified functional criteria but also the broader goals and desires of the client.

Throughout this project, we encountered various challenges that required us to think critically andcreatively to find solutions. This experience was invaluable in helping us to refine our problem- solving skills and adapt to new and unexpected issues. Working closely with the client allowed usto better understand their needs and expectations, which was crucial for delivering a product that they were satisfied with. This collaboration also taught us the importance of clear communicationand regular feedback to keep the project on track and make necessary adjustments along the way.

Moreover, the project gave us the opportunity to explore and utilize advanced technologies and tools. This not only ensured the system's efficiency and reliability but also kept us up-to-date with current industry standards and practices. By integrating these technologies, we were able to create a robust and scalable system that can handle the demands of an online shop efficiently.

Beyond the technical aspects, the project was a significant learning experience in

terms of teamwork and project management. We learned to coordinate effectively, delegate tasks based onindividual strengths, and support each other through the project's challenges. This collaboration enhanced our ability to work as a cohesive unit, which is essential for the success of any project.

Additionally, this project highlighted the importance of thorough testing. By rigorously testing each component, we ensured that the system was free of bugs and glitches, providing a smooth and seamless experience for the end-users. This meticulous approach to testing also taught us thevalue of attention to detail and the need for precision in software development.

In conclusion, the "Online Shop Tracking System" project was a comprehensive learning experience that went beyond technical achievements. It enriched our understanding of web development, project management, client collaboration, and the use of advanced technologies. Theskills and knowledge we gained from this project have equipped us with the expertise and confidence needed to excel in future endeavors. This experience has fostered a culture ofcontinuous growth and innovation within our team, preparing us for the challenges and opportunities that lie ahead in the field of software development. We are now better prepared to deliver successful software solutions that meet both functional requirements and client expectations, ensuring the satisfaction of all stakeholders involved.

8.1 Future work

The future trajectory of the "Online Shop Tracking System" project envisions a comprehensive enhancement of the user experience by integrating advanced features such as notifications and reminders to ensure timely updates on new arrivals, discounts, and order statuses. Additionally, the system will incorporate a verification mechanism for the shop’s authenticity, fostering trust and reliability among users. Emphasizing non-functional properties, the project aims to deliver a sophisticated and intuitive user interface, making it easy for customers to navigate and explore products from the comfort of their homes. Furthermore, the system will offer personalized shopping tips and trend alerts, enriching the user experience and promoting informed purchasing decisions. These planned

advancements underscore the project’s commitment to providing a user- centric online shopping experience, enhancing communication, and promoting overall customer satisfaction. By embracing technological innovations and prioritizing user needs, the "Online Shop Tracking System" aims to set new standards in online retail management, ultimately contributing to the holistic success and growth of the shop.

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