

Zipshop

AN INTERNSHIP REPORT

Submitted by

Patel SheelKumar Kirankumar

210800107009

In partial fulfilment for the award of degree of

BACHELOR OF ENGINEERING

In

Computer Engineering

Vadodara Institute of Engineering, Kotambi



Gujarat Technological University, Ahmedabad

[April, 2025]



**Vadodara Institute of engineering
Kotambi, Vadodara.**

CERTIFICATE

This is to certify that the project report submitted along with the project entitled ZipShop has been carried out by **Patel Sheelkumar Kirankumar** under my guidance in partial fulfilment for the degree of Bachelor of Engineering in **Computer Engineering**, 8th semester of Gujarat Technological University, Ahmedabad during the academic year 2024-25.

Prof. Jemisha Patel
(Internal Guide)

Prof. Jemisha Patel
(Head of the Department)

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To,
Patel Sheelkumar Kirankumar
(M): (+91) 95379 0448
Email: sheelpatel0710@gmail.com

OFFER FOR INTERNSHIP

We are delighted & excited to welcome you to **SCRUPULOUS TECHNOLOGY** as a **Software Development Intern**. At **SCRUPULOUS TECHNOLOGY**, we believe that our team is our biggest strength, and we take pride in hiring only the best and the brightest. We are confident that you would play a significant role in the overall success of the venture and wish you the most enjoyable, learning packed and truly meaningful internship experience with **SCRUPULOUS TECHNOLOGY**.

Your appointment will be governed by the terms and conditions presented in the **Annexure A**.

We look forward to you joining us. Please do not hesitate to call us for any information you may need. Also, please sign the duplicate of this offer as your acceptance and forward the same to us.

Congratulations!

Employee: Patel Sheelkumar Kirankumar

Date: 20-01-2025



Sankalp Patel - Proprietor
Scrupulous Technology

COMPANY CERTIFICATE



GSTIN : 24COZPP0492L1Z3

Date: 19-04-2025

To,
Patel Sheelkumar Kirankumar
(M): (+91) 95379 0448
Email: sheelpatel0710@gmail.com

INTERNSHIP COMPLETION CERTIFICATE

This is to certify that, Patel Sheelkumar Kirankumar a student of Vadodara Institute of Engineering has successfully completed his internship in the field of Software Development at Scrupulous Technology from 20/01/2025 to 19/04/2025 under the guidance of Dweep Patel.

His internship activities include (MongoDb, Node.Js)

During the period of his internship program with us, he had been exposed to different processes and was found diligent, hardworking and inquisitive.

We wish his every success in his life and career.

Congratulations!

Employee: Patel Sheelkumar Kirankumar

Date: 19-04-2025



Sankalp Patel - Proprietor
Scrupulous Technology



Vadodara Institute of engineering

Kotambi, Vadodara.

DECLARATION

We hereby declare that the Internship report submitted along with the Internship entitled ZipShop submitted in partial fulfilment for the degree of Bachelor of Engineering in Computer Engineering to Gujarat Technological University, Ahmedabad, is a Bonafede record of original project work carried out by us at **Scrupulous Technology** under the supervision of **Sankalp Patel** and that no part of this report has been directly copied from any student's reports or taken from any other source, without providing due reference.

Name of the student

Sign of student

ACKNOWLEDGEMENT

I am very thankful for giving me the opportunity to undertake my internship training at the prestigious "ZipShop". It was a very good learning experience for me to have at this site.

First, I would like to thank the Principal sir **Dr. Jayesh Patel** and Head of The Department **Prof . Jemisha Patel** of Vadodara Institute of engineering for giving permission to commence this Internship.

Further, I would like to express my sincere gratitude to my Industrial Mentor **Sankalp Patel** for continuously guiding me at the company and dispel all my doubts with patience. Also, I am very obliged to my Internal Mentor **Prof. Jemisha Patel** for helping me throughout my internship and giving me necessary suggestions and advice along with their valuable coordination. Without their continuous support it would not have been possible to complete my internship.

I own my wholehearted thanks and appreciation to the entire staff of the company for their cooperation & assistance during my internship.

I also thank my parents, friends, and all the members of the family for their precious support encouragement which they had provided in the completion of my work.

Sheel Patel

Computer Engineering

210800107009

ABSTRACT

This report accounts my 14-week internship journey, a vital component of my Bachelor of Engineering in Computer Engineering degree at Gujarat Technological University, Ahmedabad, in the academic year 2023-24. Serving as a web developer at Scrupulous Technology, I immersed myself in a diverse technological landscape encompassing HTML, CSS, JavaScript, React.js, Express.js, Node.js, and MongoDB. Through practical engagement with real-world projects, I refined my proficiency in crafting visually captivating and responsive web interfaces, mastering both frontend and backend development complexities. Guided by experienced mentors, I cultivated collaborative coding practices, proficient version control methodologies, and the art of constructing feature-rich web applications. This internship provided me with a versatile skill set, empowering me to navigate digital challenges with assurance and creativity.

Central to my internship tenure was the inception of "ZIP SHOP - The Online Clothing Shop," an ambitious e-commerce endeavor poised to redefine the online shopping landscape for fashion enthusiasts. ZIPSHOP aspires to curate a dynamic and user-centric website, facilitating seamless exploration, discovery, and purchase of diverse clothing items from the confines of home. Through its sleek interface, and intuitive navigation, ZIP SHOP pledges an unparalleled shopping voyage. Leveraging innovative features, personalized recommendations, and responsive customer service, ZIP SHOP strives to emerge as the most appropriate destination for fashion enthusiasts seeking the latest trends and wardrobe essentials.

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Abbreviation

SEO	Search Engine Optimization
HTML	Hypertext Markup Language
IDE	Integrated Development Environment
CSS	Cascading Style Sheet
UI	User Interface
UX	User Experience
MERN	MongoDB , Express.js , React.js , & Node.js
AWS	Amazon Web Service
JSON	Javascript Object Notation
JWT	JSON Web Token
MVC	Model ,View ,Controller
API	Application Programming Interface
JSX	Javascript XML
CRUD	Create , Read, Update and Delete

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CHAPTER1: COMPANY OVERVIEW



FIG1.1:Company Logo

Company Name: Scrupulous Technology

Address: G-66/67 Manjit Nagar Society, Tulsidham-GIDC Road, Manjalpur, Vadodara, Gujarat 390011

Contact No.: +91 917-343-4601

Website: <https://www.scrupuloustechnology.com/>

Email: info@scrupulous.in

About US: At Scrupulous Technology, we prioritize building enduring partnerships with our clients.

Beyond merely delivering a website or app, we are committed to fueling your online growth journey. With a proven track record of serving over 330 satisfied clients, we specialize in web design, mobile app development, search engine optimization, and social media marketing. Our expertise spans diverse industries, ensuring tailored solutions that align with your unique objectives. Your success is our priority. That's why we take the time to understand your specific needs and aspirations before crafting a bespoke strategy exclusively for you.

1.1 COMPANY HISTORY

It was established in 2013 and is an IT Services Company with expert professionals that provides strategic business solutions and customized software. It is a team of dedicated and highly skilled software professionals focused on providing world class IT solutions.

1.2 CAPACITY OF COMPANY

The capacity of Scrupulous Technology as an organization is robust, with a capacity rating exceeding 25. This indicates a strong capability to handle a multitude of projects and tasks efficiently. With a dedicated team of professionals and a commitment to excellence, Scrupulous Technology has the resources and expertise to deliver high quality services across various domains, including web development, digital marketing, software development. Additionally, the company's adaptability and agility enable it to respond effectively to changing market dynamics and client requirements, further enhancing its overall capacity to excel in the competitive digital landscape.

1.3 SCOPE OF WORK

Scrupulous Technology provides a comprehensive range of digital solutions designed to help businesses establish a strong online presence. The company specializes in web development, crafting visually engaging, functional & user friendly websites tailored to meet specific client needs. Beyond website creation, Scrupulous Technology excels in digital marketing, offering search engine optimization (SEO), social media marketing, and online advertising to enhance visibility and drive targeted traffic.

In addition to marketing and web development, the company offers custom software development, creating tailored applications to meet unique business challenges. Scrupulous Technology also provides branding services, ensuring businesses develop a strong identity through impactful visuals and messaging. To further support its clients, the company offers web maintenance, domain & hosting management, ensuring seamless functionality .

Serving businesses across various industries, Scrupulous Technology is dedicated to delivering innovative solutions that drive growth, improve engagement, and enhance digital success. With a commitment to excellence and cutting-edge strategies, the company empowers brands to stay ahead in the competitive digital landscape.

1.4 COMPANY SERVICES

- Website Development
- Application Development
- Digital Marketing
- Search Engine Optimization
- Customer Relationship Management (CRM)

CHAPTER 2 : OVERVIEW OF THE PROCESS

At Scrupulous Technology, we follow a well-structured process to ensure seamless service delivery and client satisfaction. Our workflow begins with in-depth consultations to understand client goals and business needs. Based on this, our team conducts strategic planning and brainstorming sessions to develop tailored solutions.

Once the strategy is finalized, the execution phase begins. For services like social media marketing, SEO, and digital advertising, we focus on content creation, campaign setup, and performance monitoring. Our skilled designers and developers work together to build visually compelling websites, graphics, and branding materials, ensuring a strong and cohesive digital presence.

Throughout execution, we maintain a regular communication with clients, incorporating feedback to refine and optimize strategies. Our data-driven approach ensures campaigns and websites are continuously improved for better performance.

Post-implementation, we emphasize monitoring and analysis, tracking key metrics to evaluate success and make necessary adjustments. Additionally, we provide ongoing maintenance and support for website performance, hosting management, and security. Whether it's technical upkeep or crisis management, our team remains proactive in addressing any challenges.

At Scrupulous Technology, we blend creativity, collaboration, and continuous improvement to deliver outstanding digital solutions, helping businesses thrive in a competitive online landscape.

2.1 DETAILS OF WORK CARRIED OUT IN EACH DEPARTMENT

Overview of the work carried out in each department at Scrupulous Technology :

1. **Search Engine Optimization & Maintenance:** Optimizing websites for better search visibility, monitoring performance, and implementing technical improvements.
2. **Web Development:** Building e-commerce websites, WordPress sites, and responsive platforms with thorough quality assurance.
3. **Web Maintenance:** Conducting regular updates, backups, managing content, and ensuring website security and stability.
4. **Application Development :** Building iOS and Android application cross-platform application & also build ecommerce applications and social networking application
5. **Digital Marketing :** At Scrupulous Technology, we offer a range of digital marketing services including social media marketing (SMM), pay-per-click advertising (PPC), email marketing, and content marketing
6. **Domain & Hosting:** Assisting with domain registration, setting up reliable hosting solutions, & managing server performance.
7. **Customer Relationship Management (CRM):** At Scrupulous Technology, our CRM system plays the crucial role in managing customer interactions, optimizing workflows, and enhancing business efficiency.

2.2 LIST OF TOOLS AND TECHNOLOGIES USED IN VARIOUS DEPARTMENT

1. Development Department (Frontend):

- HTML5
- CSS3
- JavaScript (React.js, Angular, Vue.js)
- Bootstrap

2. Development Department (Backend):

- Programming languages (Python, Java, PHP, Node.js)
- Frameworks (Django, Flask, Spring Boot, Laravel, Express.js)
- Database management systems (MySQL, MongoDB)
- Version control systems (Git)

3. Domain & Hosting:

- Domain registration services (GoDaddy, Google Domains)
- Web hosting providers (Bluehost, SiteGround, HostGator)
- Domain and hosting management platforms (WordPress Hosting)

4. Application Development

- Java
- Kotlin
- Android Studio (IDE)
- React-Native ,Flutter and Angular (Frameworks)
- Mysql Sqlite for Database

5. Search Optimization Engine

- Google Analytics (website traffic analysis and insights)
- Google Search Console (performance tracking and site optimization)
- SEMrush (keyword research, competitor analysis, and site audits)
- Ahrefs (backlink analysis and SEO audit)

6. Customer Relationship Management (CRM)

- HubSpot CRM
- Salesforce
- Zoho CRM

7. Digital Marketing

- Hootsuite, Buffer, Sprout Social (For Social Media Marketing)
- Mailchimp , Sendinblue, Constant Contact (For Email Marketing)
- BuzzSumo, CoSchedule Headline Analyzer , Grammarly(For Content Marketing)
- Google Ads , Facebook Ads Manager, Instagram Ads(For Pay Per Click Marketing .

2.3 STEPS TO BUILD A SUCCESSFUL DIGITAL PRODUCT

Details of each stage of production for a project carried out at Scrupulous technology :

1. Client Consultation(Meeting):

- The process begins with thorough consultations with clients to understand their goals, requirements, and expectations.
- The company gathers insights into the client's industry, target audience, competitors, & desired outcomes.

2. Planning and Requirements Gathering:

- In this stage, Scrupulous Technology collaborates closely with the client to understand project goals, objectives, and requirements.
- Detailed documentation is created, outlining project scope, deliverables, timelines, & requirements.
- Requirements gathering involves conducting stakeholder interviews, analyzing business needs, and identifying technical specifications.

3. Design and Prototyping:

- Scrupulous's design team translates project requirements into visual concepts, creating wireframes, mockups, and prototypes.
- User experience (UX) design focuses on creating intuitive interfaces, while user interface (UI) design emphasizes aesthetics and branding.
- Prototypes are developed to provide a tangible representation of the final product, allowing for feedback and iteration before development begins.

4. Development:

- Frontend and backend development teams at Scrupulous Technology collaborate to build the project according to the approved designs and specifications.
- Agile methodologies such as Scrum or Kanban may be utilized, with regular sprints and continuous integration to facilitate rapid development and iteration.
- Code is written, reviewed, and tested to ensure functionality, performance, and security.

5. Testing and Quality Assurance:

- A comprehensive testing strategy is implemented, including unit testing, integration testing, system testing, and user acceptance testing (UAT).
- Automated testing tools and manual testing processes are employed to identify and rectify any defects.
- Quality assurance measures ensure that the final product meets quality standards and fulfills the client's requirements.

6. Deployment:

- The deployment process involves configuring servers, databases, and other infrastructure components to support the application.
- Continuous integration and deployment (CI/CD) pipelines automate the deployment process, ensuring consistency and reliability.
- Deployment to staging and production environments is carefully orchestrated to minimize the downtime & disruptions.

7. Monitoring and Optimization:

- Scrupulous Technology monitors the performance and stability of the project post-launch, using tools and analytics to track metrics such as uptime, response time, and user engagement.
- Continuous optimization efforts focus on improving performance, user experience, and business outcomes based on feedback and data-driven insights.

By following these stages meticulously, Scrupulous Technology delivers high-quality digital solutions that meet client expectations and drive business success.

CHAPTER 3 : INTRODUCTION TO INTERNSHIP AND PROJECT

Title: ZipShop (Ecommerce Website)

3.1 PROJECT SUMMARY

Zipshop is an innovative online shopping platform meticulously crafted using React-Js to deliver an exceptional user experience. Boasting a user-friendly design, the website features robust functionalities such as secure user registration and authentication, ensuring the confidentiality of user information. The product catalog is thoughtfully organized, providing users with clear images, detailed descriptions, and intuitive navigation through categories and filters. Responsive design principles have been applied to guarantee a seamless and consistent user experience across various devices.

Zishop shopping cart system enables users to effortlessly add and review products before proceeding to a secure checkout process facilitated by integrated payment gateways and SSL encryption. Real-time updates keep users informed about their order status, while the option to track purchases adds transparency. The platform encourages community engagement through user reviews and ratings, fostering a sense of trust among shoppers. A wishlist feature allows users to curate their favorite items for future consideration.

Additionally, the website incorporates an efficient admin dashboard for streamlined management of products & orders. Emphasizing security, Zipshop implements best practices to protect against potential web vulnerabilities. Looking ahead, potential enhancements include social media integration, a recommendation engine, and diversification of product categories, reflecting Zipshop's commitment to continuously improving and enhancing the online shopping experience for its users.

3.2 PURPOSE OF PROJECT

The Purpose of the project is to create a user-friendly platform that facilitates user to browse , select and purchase the apparel online and aim to improve the user's satisfaction and establish a strong digital brand presence. The project aims to serve the following purposes:

- **Ensure Security of Data**

Implement secure authentication, encryption, and payment gateways to instill confidence in users, to ensure the safety of their personal information and transactions.

- **Optimized Product Browsing**

Develop a well-organized product catalog with clear information and visuals,enabling users to easily navigate and explore a diverse range of categories .

- **Assist Administrative Functions**

Provide an admin Panel with an efficient dashboard for seamless management of products, orders, and activities, improving overall operational efficiency.

- **Evolution to Industry Trends**

Lay the foundation for potential future enhancements, such as social media integration, recommendation engines, and diversified product categories, to make a stand in a dynamic e-commerce landscape.

- **Regular Upgrades and Servicing**

Establish a framework for ongoing maintenance and updates to ensure the website remains current, secure, and aligned with emerging technologies and user expectations in future.

- **Build Customer Trust**

Create an interactive and memorable online shopping experience to cultivate brand loyalty, encouraging repeat business and positive word-of-mouth referrals.

- **Contribute to E-commerce Innovation**

Contribute to the broader landscape of e-commerce innovation by implementing modern technologies and best practices, setting a standard for online shopping platforms

- **Encourage User Participation**

Foster a sense of community by incorporating features like user reviews and ratings, encouraging users to share their experiences and insights with others.

- **Enhance Order Handling**

Streamline the order processing workflow, including a functional shopping cart, order tracking, and real-time updates, to enhance the efficiency of managing and receiving orders

In Summary the Purpose of the Project is to meet the User's needs and Satisfactions to prioritize the user's data security and contribute to evolution and improvement of online shopping experience

3.3 OBJECTIVE OF PROJECT

The main objectives of the Zipshop website project are as follows:

- **Create a User-Friendly Platform**

Develop a visually appealing and intuitive user interface to ensure a positive and user-friendly shopping experience.

- **Enable Secure Transactions**

Implement robust security measures, including secure user authentication, SSL encryption, and secure payment gateways, to safeguard user data and facilitate secure transactions.

- **Efficient Product Management**

Build a well-organized product catalog with clear images, detailed descriptions, and effective navigation features, allowing users to easily explore and find products of interest.

- **Responsive Design Across Devices**

Ensure the website's responsiveness, making it accessible and functional on various devices & screen sizes to cater to a diverse user base.

- **Streamlined Order Processing**

Implement a smooth and transparent order processing system, including shopping cart functionality, order tracking, and real-time updates, enhancing the overall customer experience.

- **Promote User Engagement**

Foster community engagement through features such as user reviews and ratings, encouraging customers to share their experiences and helping others make informed purchase decisions.

- **Efficient Admin Dashboard**

Develop an efficient admin dashboard for easy management of products, orders, and user activity, facilitating streamlined operations for site administrators.

- **Security Best Practices**

Incorporate security best practices to protect against potential web vulnerabilities, ensuring the safety and confidentiality of user information.

- **Future-Ready Enhancements**

Lay the groundwork for potential future enhancements, such as social media integration, a recommendation engine, and expanded product categories, to adapt to evolving user needs and market trends.

- **Continuous Improvement**

Establish a framework for ongoing maintenance and updates to ensure the website remains current, secure, and aligned with emerging technologies and user expectations.

By addressing these objectives, the project aims to deliver a comprehensive online shopping platform that not only meets the immediate needs of users but also allows for adaptability and growth in the dynamic e-commerce landscape.

3.4 SCOPE OF THE PROJECT

The scope of an ecommerce website is determined by the functionality and features it offers. Generally, the scope of an e-commerce website includes the following:

- **Product Catalog:** The website should have a comprehensive Catalog of products, including high-quality images, descriptions, and pricing.
- **Shopping Cart:** A shopping cart is an essential feature that allows customers to add products to their cart and proceed to checkout.
- **Search Functionality:** The website should have a search function that allows customers to find products quickly and easily.
- **Mobile Optimization:** The website should be optimized for mobile devices to ensure that customers can access it from anywhere and on any device.
- **Social Media Integration:** The website should have social media integration to allow customers to share products and reviews on social media platforms.

The ZipShop online shopping website project focuses on building, launching, and maintaining a secure and user-friendly platform for online shopping. The project includes key features, technologies, and possible future improvements.

Our main goal is to develop a responsive and visually appealing website with essential features such as user registration, product catalog, secure payment processing, order tracking, and customer reviews.

The project also involves setting up backend systems and databases to manage data smoothly. Security is a priority, ensuring user information and transactions are protected. An admin dashboard will help manage products and orders efficiently.

While the initial plan is well-defined, the project is flexible for future upgrades. Possible enhancements include social media integration, a product recommendation system, and expanding product categories to improve user experience.

The scope may evolve based on feedback, new technologies, and market trends. Regular updates and improvement will help keep the website competitive in the fast-changing e-commerce industry. Open communication and teamwork between the development team and stakeholders will be key to successfully managing the project.

3.5 TOOLS AND TECHNOLOGIES

It was Established in 2013 and is an IT Services Company with expert professionals that provides strategic business solutions and customized software. It is a team of dedicated and highly skilled software professionals focused on providing world class IT solutions.

1. Frontend: React (JavaScript)

- **React.js:** A popular JavaScript library used to build fast, interactive, and user-friendly web pages.
- **CSS (Cascading Style Sheets):** Styles the website to make it visually appealing.
- **JavaScript:** Adds interactive and dynamic features to improve the user experience.

2. Backend: Node.js & Express.js

- **Node.js:** A powerful tool that allows JavaScript to run on the server, making it efficient and scalable.
- **Express.js:** A framework that helps manage server-side tasks like handling requests, routes, and APIs easily.

3. Database: MongoDB

- **MongoDB:** A flexible, NoSQL database that stores information like users, products, and orders in an organized way.
- **Mongoose:** A tool that helps manage and interact with MongoDB efficiently.

4. Code Editor: VS Code

- **Visual Studio Code:** A lightweight yet powerful code editor with features like debugging, task management, and version control.

5. Security: SSL/TLS & Authentication

- **SSL/TLS (Secure Sockets Layer/Transport Layer Security):** Protects data transfer between the user and the server, keeping personal details and payment info safe.
- **Authentication:** Secure login and user verification to prevent unauthorized access.

Front End Technologies

Sr No.	Technology	Description
1.	REACT JS	A popular JavaScript library used to build fast, interactive and user-friendly web pages.
2.	CSS	Styles the HTML elements, controlling aspects such as layout, colors, fonts, and spacing to enhance visual presentation.
3.	JavaScript	Adds interactivity and dynamic behavior to web pages, enabling features like form validation, animations, and DOM manipulation.

Table 3.1 Frontend Technologies

Backend Technologies

Sr No.	Technologies	Description
1.	Node.js(JavaScript)	A JavaScript runtime that allows you to execute server-side code. It's known for its efficiency and scalability, making it a popular choice for building backend services.
2.	MONGODB	A flexible, NoSQL database that stores information like users, products, and orders in an organized way.
3.	Express.js	A framework that helps manage server-side tasks like handling requests, routes, and APIs easily.

Table 3.2 Backend Technologies

3.6 PROJECT AND INTERNSHIP PLANNING

In the project planning phase for the ZipShop online shopping website, clear objectives, scope, and purposes are defined. Since the project is managed individually, a structured plan ensures smooth execution. A MERN stack (MongoDB, Express.js, React.js, Node.js) is chosen for scalability and efficiency. Key aspects include timeline management, task allocation, and resource planning. Security measures like SSL/TLS are prioritized to protect user data. Budget, testing strategies, and deployment plans are outlined, along with proper documentation for coding standards and design. Post-launch, regular monitoring and maintenance ensure the website stays secure & optimized. Regular reviews help track progress and make necessary improvements for a successful launch.

3.6.1 Project / Internship Planning

The ZipShop project follows the Agile Development Methodology, ensuring flexibility, iterative development, and continuous improvements. The approach includes:

- **Requirement Analysis:** Understanding client needs and defining core features.
- **Planning & Design:** Wireframing, UI/UX design, and database structuring.
- **Development:** Implementing frontend (React.js), backend (Node.js & Express.js), and database (MongoDB).
- **Testing & Debugging:** Identifying and fixing bugs for a smooth user experience.
- **Deployment & Maintenance:** Hosting on AWS or a cloud platform with ongoing support.

Justification:

- Agile allows quick adaptability to changes.
- Iterative development ensures better feedback integration.
- Efficient resource utilization enhances productivity and learning.

3.6.2 Roles and Responsibilities

Role	Responsibilities
Project Manager	Overseeing project progress, team coordination, and task allocation.
Frontend Developer(s)	Developing UX/UI using React.js, ensuring responsive design.
Backend Developer(s)	Building server-side logic with Node.js, Express.js, and integrating MongoDB.
Database Administrator	Structuring and managing the database, ensuring data security.
UI/UX Designer	Designing user-friendly interfaces and wireframes.
Quality Assurance (QA) Tester	Testing features, debugging, and ensuring a bug-free experience.
Intern(s)	Assisting in coding, testing, and documentation while gaining hands-on experience.

Table 3.3 Roles and Responsibilities

3.6.3 Group Dependencies

- **Frontend Depends on Backend:** The React.js frontend requires APIs from the Node.js backend to fetch data
- **Backend Depends on Database:** The Express.js server relies on MongoDB for storing and retrieving product, user, and order details.
- **QA Depends on Development:** Testing can only start once major features are implemented.
- **Deployment Depends on Testing:** The project must be stable and optimized before launching.
- **Interns Depend on Mentors:** Interns require guidance and training from senior developers.

3.7 PROJECT / INTERNSHIP SCHEDULING

Project scheduling is a crucial phase which allows for a structured approach to project development, ensuring that each phase is completed within the allocated time frame. It includes time for planning, development, testing, and documentation, with built-in flexibility to accommodate unforeseen challenges or adjustments. Regular progress monitoring and communication with stakeholders can help ensure adherence to the schedule & successful project delivery.

The proposed timeline and milestones for the project are as follows: Timeline and Milestones:

1. Week 1-2: Planning and Design

- Define project scope, objectives, and requirements.
- Create wireframes and design the layout of the website.
- Finalize the user interface (UI) and user experience (UX) design.

2. Week 2-3: Frontend Development

- Code HTML structure for web pages based on the finalized design.
- Implement CSS styles to enhance the appearance and layout of the website.
- Develop frontend functionalities using JavaScript, such as navigation menus, interactive elements, and form validations.
- Ensure responsiveness and cross-browser compatibility.

3. Week 2-3: Frontend Development

- Code HTML structure for web pages based on the finalized design.
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- Develop frontend functionalities using JavaScript, such as navigation menus, interactive elements, and form validations.
- Ensure responsiveness and cross-browser compatibility.

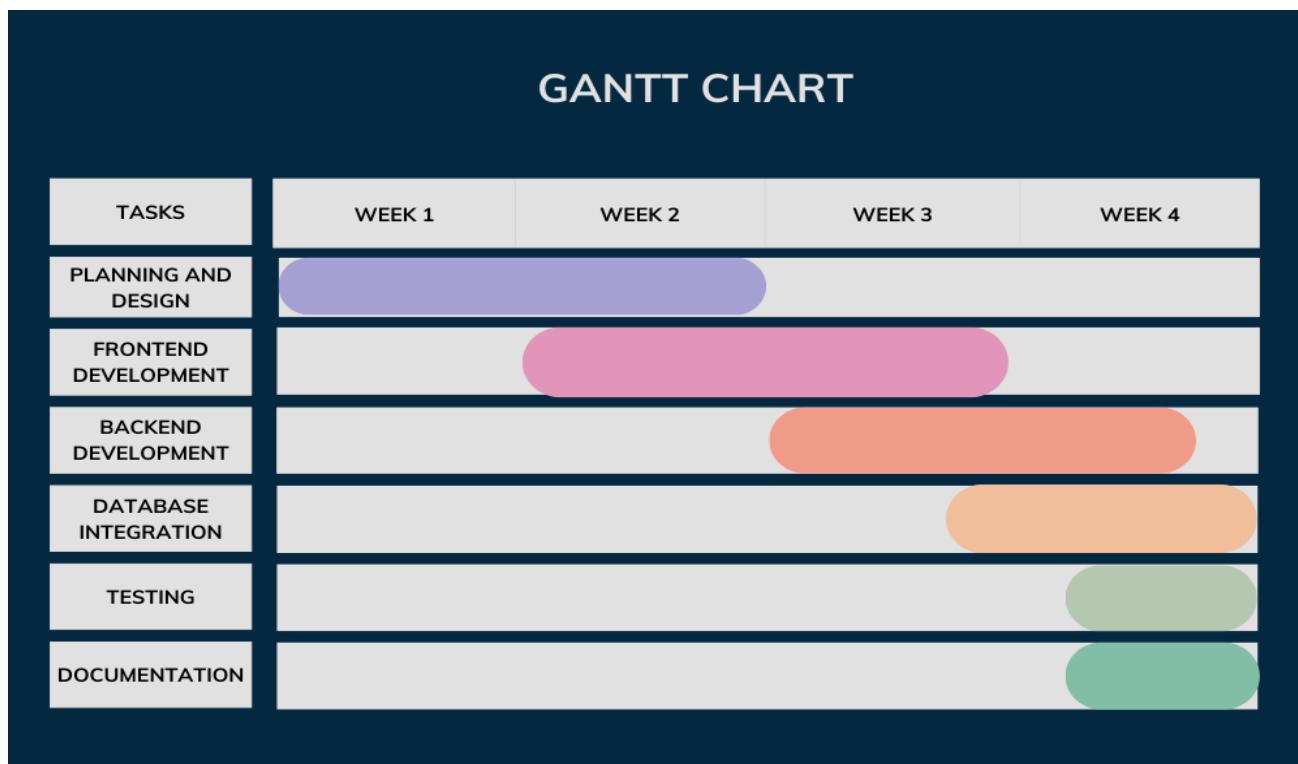


Fig 3.7.1 Gantt Chart

CHAPTER 4 : SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM

Currently, many small and medium-sized businesses still depend on traditional retail stores and older e-commerce platforms that lack essential modern features. These outdated systems do not provide real-time inventory updates, making it difficult for businesses to track stock levels accurately. Many also lack secure payment options, which can make customers hesitant to complete purchases.

Additionally, many online shopping websites suffer from slow loading speeds, poor mobile responsiveness, and inefficient order management systems. A slow website can frustrate users, causing them to leave without making a purchase. If the website is not mobile-friendly, it becomes difficult for customers to shop on their smartphones, leading to fewer sales.

Furthermore, inefficient order processing and inventory tracking can result in delayed deliveries, incorrect stock information, and customer dissatisfaction. These limitations reduce sales, impact customer trust, and slow business growth. To stay competitive, businesses need modern, fast, and user-friendly e-commerce solutions that enhance the shopping experience and improve operational efficiency.

4.2 PROBLEM AND WEAKNESS OF CURRENT SYSTEM

The existing e-commerce solutions face several issues:

- **Lack of Scalability:** Many platforms struggle to handle high traffic and product expansions.
- **Poor User Experience:** Outdated designs, slow loading times, and non-responsive interfaces lead to customer dissatisfaction.
- **Security Risks:** Weak security measures increase risks of data breaches and fraud.
- **Limited Integration:** Many systems do not support third-party payment gateways, shipping APIs, or marketing tools, reducing efficiency.

4.3 REQUIREMENT OF NEW SYSTEM

The new system, **ZipShop**, is designed to address these issues with:

- A responsive and user-friendly interface (React.js) for better navigation.
- A secure backend (Node.js, Express.js, MongoDB) to manage users, orders, and payments.
- Secure payment integration using SSL/TLS encryption.
- Scalability to support business growth and increased traffic.
- Admin panel for managing orders, products, and users efficiently.
- Mobile-friendly design for a seamless shopping experience on all devices.

4.4 SYSTEM FEASIBILITY

4.4.1 Does the system contribute to the overall objectives of the organization?

Yes, ZipShop aligns with business goals by enhancing user experience, improving sales, and providing secure transactions. It helps businesses establish a strong online presence with efficient management tools.

4.4.2 Can the system be implemented using current technology and within the given cost and schedule constraints?

Yes, the MERN stack (MongoDB, Express.js, React.js, Node.js) is open-source and cost-effective. Development is feasible within the planned budget and timeline. Hosting on AWS or Vercel ensures affordability & scalability.

4.4.3 Can the system be integrated with other systems already in place?

Yes, ZipShop can integrate with third-party APIs, including:

- Payment Gateways (PayPal, Stripe)
- Shipping Services (DHL, FedEx)
- Marketing & Analytics Tools (Google Analytics, Facebook Pixel)

4.5 ACTIVITY AND PROCESS IN THE NEW SYSTEM

The new system involves managing product and user data, facilitating shopping cart and checkout processes, fostering user interaction, analyzing website performance, and ensuring ongoing maintenance and updates. These activities collectively contribute to the system's functionality, usability, and success.

4.5.1 Entity-Relation (ER) Diagram

The ER diagram for the ZipShop e-commerce platform visually represents the system's core components and their relationships. At the center is the ZIPSHOP entity, which connects to three major entities: Users, Orders, Products, reflecting the essential operations of an online shopping system.

The Users entity includes key attributes such as USER_ID, NAME, EMAIL, PASSWORD, and CART_DATA. A user can have both Orders and a Wishlist. Each Order includes attributes like ORDER_ID, USER_ID, AMOUNT, ADDRESS, STATUS, PAYMENT MODE, PAYMENT STATUS, DATE, and ITEMS, showing the full scope of a purchase transaction. This depicts a one-to-many relationship between Users and Orders.

The Wishlist entity is also linked to the User through USER_ID, and it includes WISHLIST_ID and a list of PRODUCTS, forming a many-to-many relationship between users and products via the wishlist.

The Products entity, shared between Orders and Wishlist, includes PRODUCT_ID, NAME, DESCRIPTION, PRICE, IMAGE, CATEGORY, SUB CATEGORY, SIZES, BESTSELLERS, and DATE. This provides detailed information about each item available for sale.

Overall, this ER diagram clearly outlines how users interact with the system, place orders, and manage wishlists, ensuring efficient e-commerce functionality.

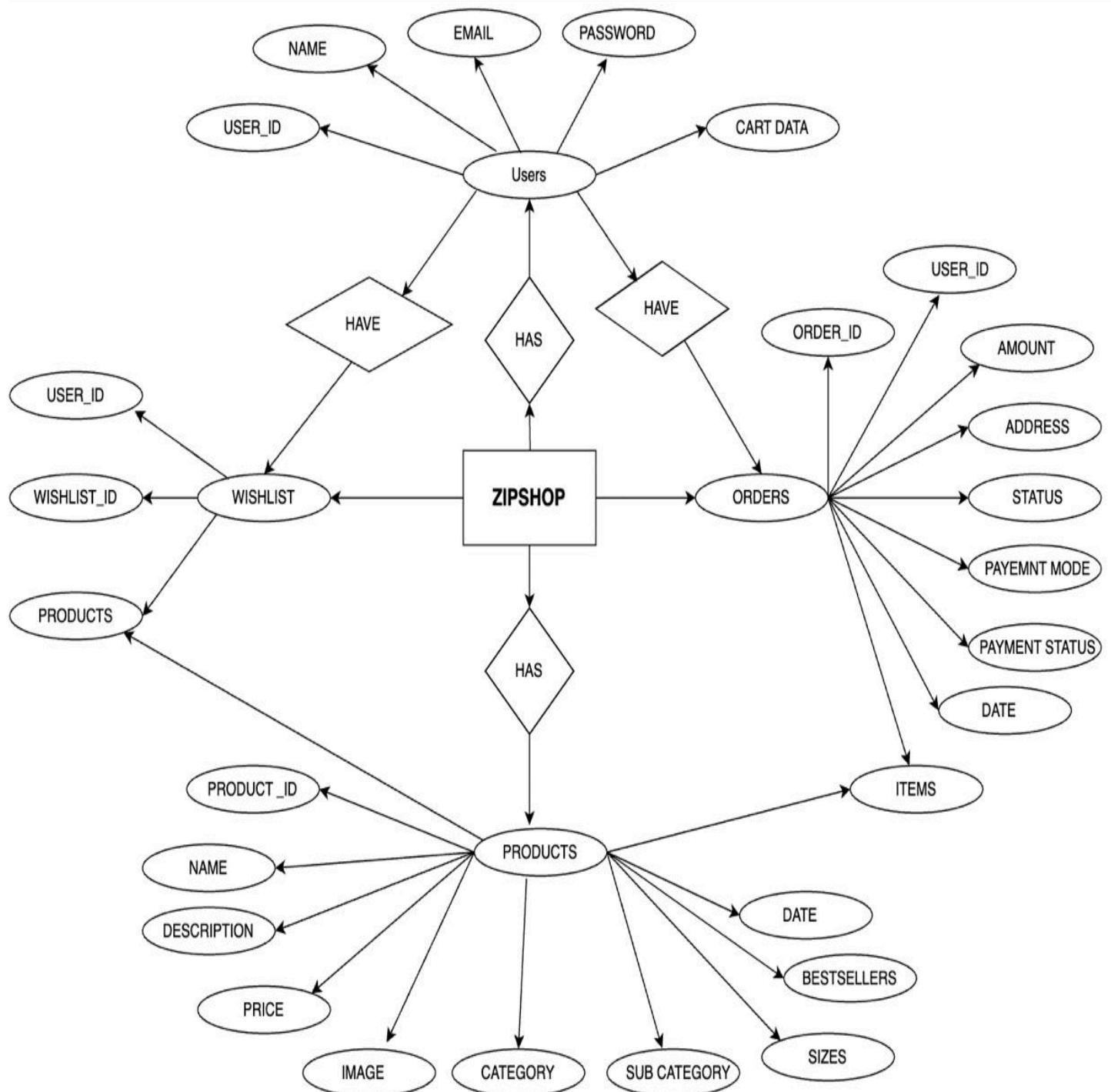


FIG 4.5.1 : ER Diagram

4.5.2 Use-Case Diagram

The use case diagram of the ZipShop project illustrates the interactions between users (Customers and Admins) and the system. Customers can register, log in, browse products, add items to the cart or wishlist, place orders, make payments, and view order history. Admins can log in, manage products (add, update, delete), manage orders, and view sales analytics. The system also interacts with a payment gateway during checkout. Each use case represents a specific functionality that the actor can perform, showing how users engage with the e-commerce platform to fulfill a various tasks and streamline shopping and administrative operations.

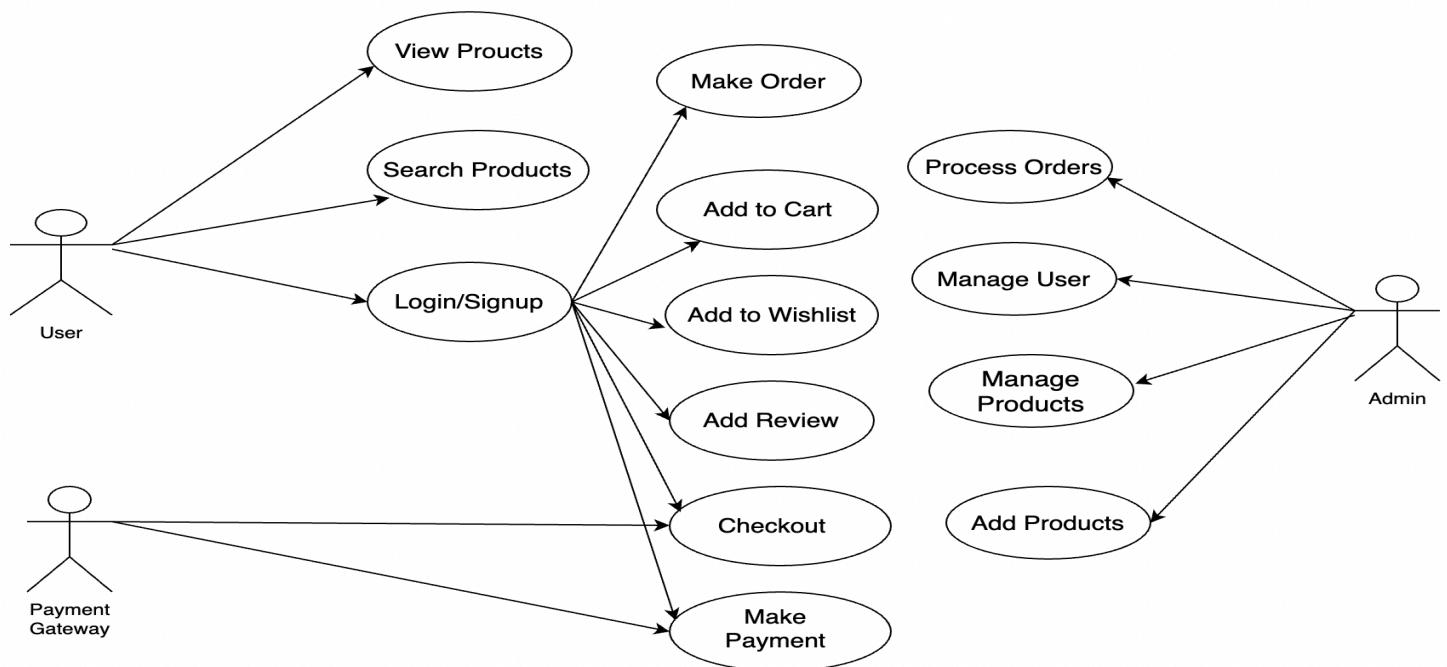


FIG 4.5.2 : Use-Case Diagram

4.5.3 Activity Diagram

The activity diagram of ZipShop illustrates the workflows for both admin and user roles in the system.

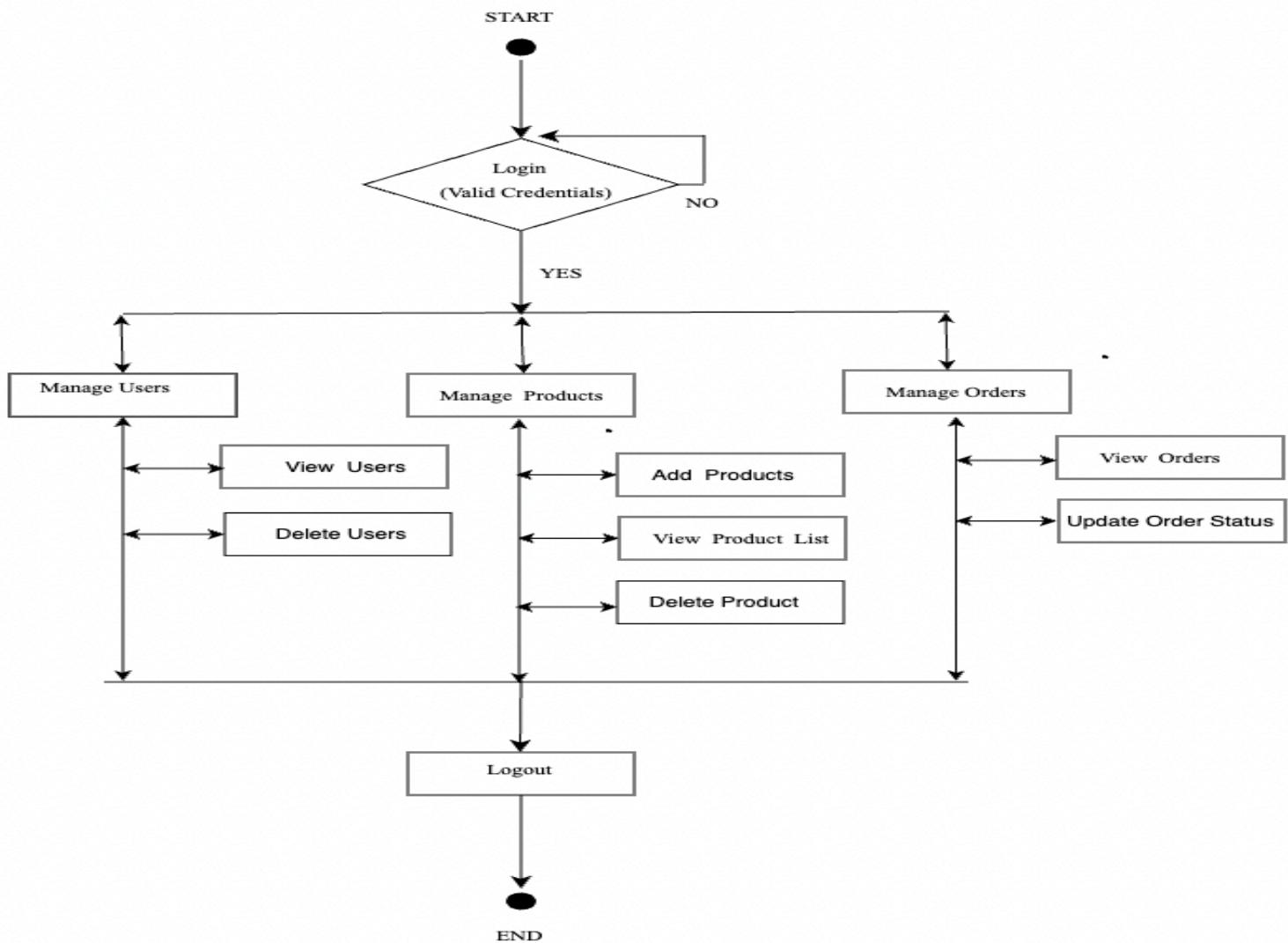


FIG 4.5.3.1 : Activity Diagram (Admin Side)

Admins begin by logging in with valid credentials, after which they can manage users, products, and orders. Admin functionalities include viewing and deleting users, adding and removing products, viewing product lists, and updating order statuses.

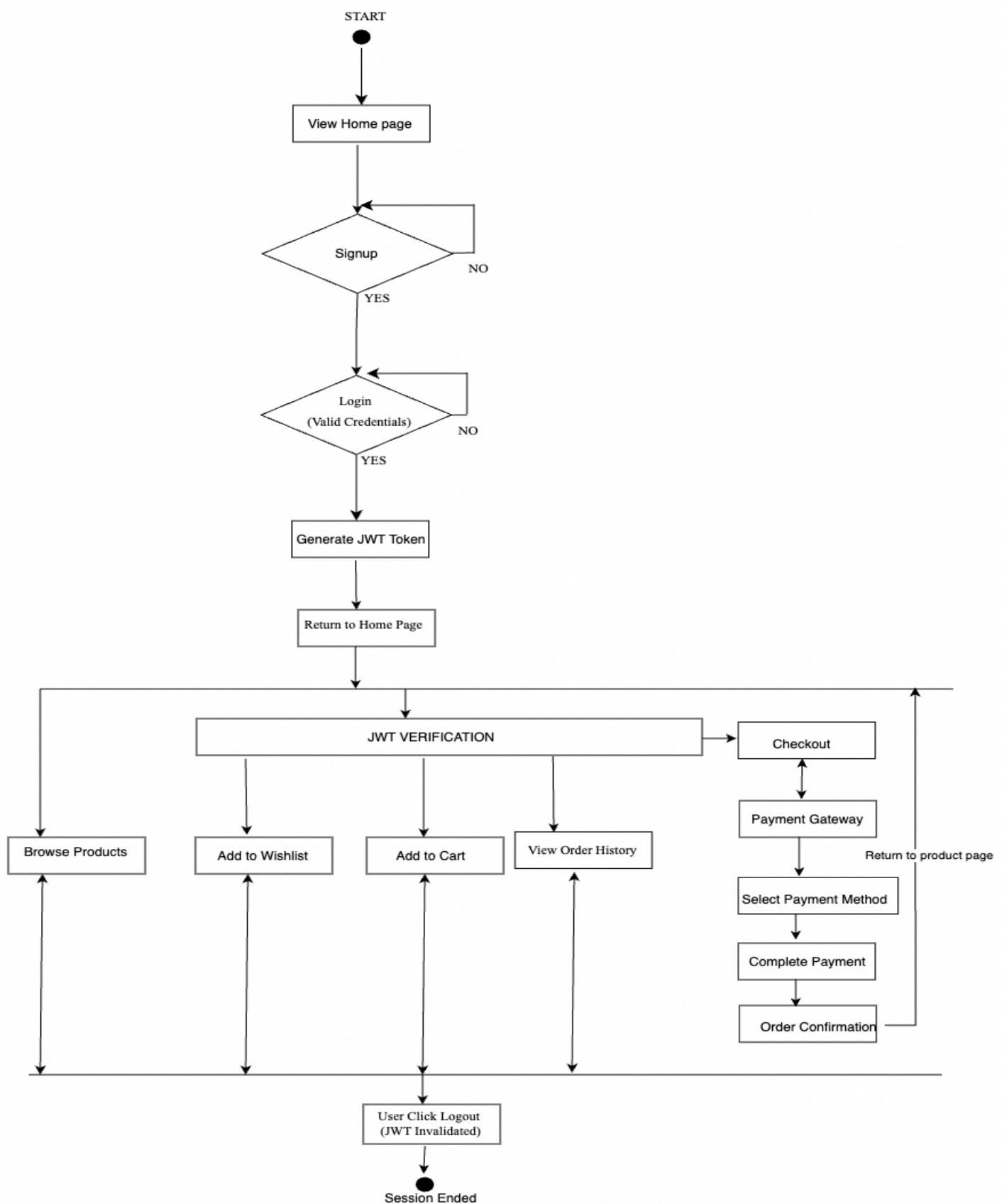


FIG 4.5.3.2 : Activity Diagram (User Side)

On the user side, the journey starts from the homepage, where users can sign up or log in. Upon successful login, a JWT token is generated for session management. Authenticated users can browse products, add items to their wishlist or cart, view order history, and proceed to checkout. The checkout flow includes selecting a payment method, completing payment, and receiving order confirmation. JWT verification is enforced before accessing secure actions. Both roles can end their session via logout, ensuring security. This diagram provides a clear overview of ZipShop's operational flow, emphasizing secure and role-based access across features.

4.5.4 Data Flow Diagram (DFD)

The DFD of the project represents the complete flow of data within an e-commerce system, "ZIPSHOP," covering both user and admin interactions. Users can register, login, browse products, add items to cart or wishlist, place orders, and view order history—each process securely authenticated using JWT. Admins can log in with hardcoded credentials and manage products, orders, and user details via dedicated modules. The system interacts with multiple databases including User, Product, Wishlist, and Order DBs, and integrates with a payment gateway for transaction processing. This structured flow ensures secure, efficient, and seamless operations between frontend requests and backend processing.

0 level DFD

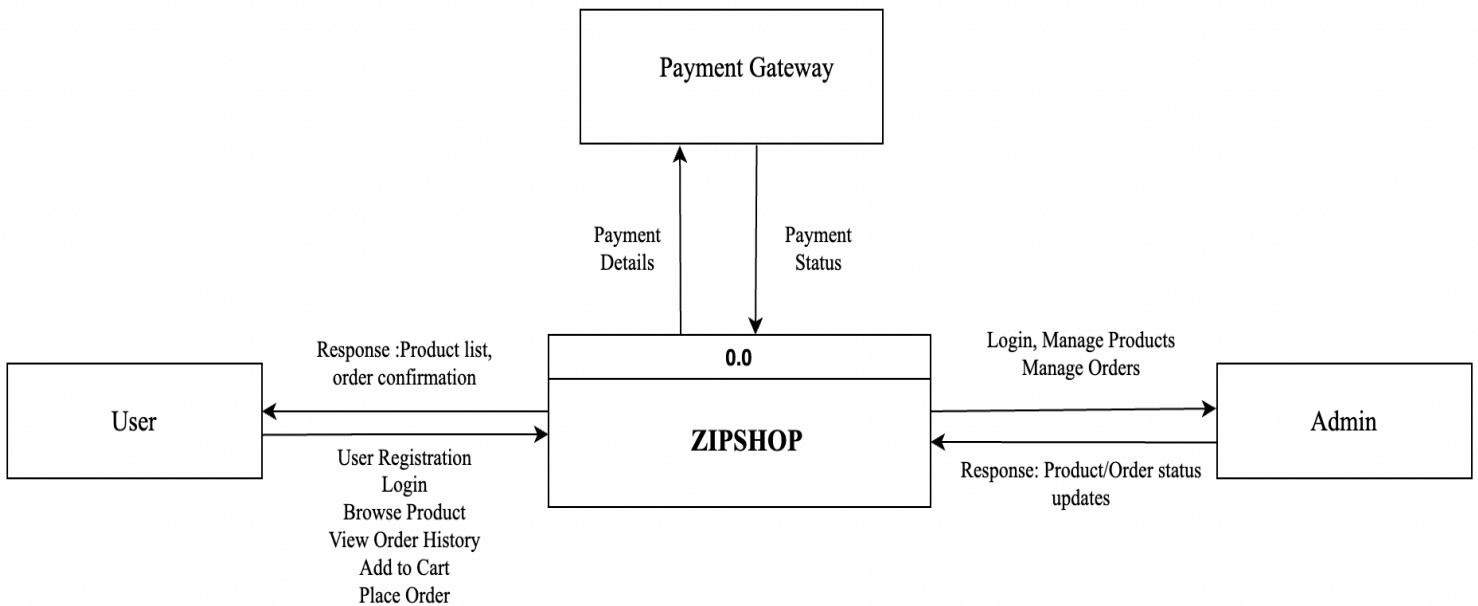


FIG 4.5.4.1 : level 0 DFD (Context Diagram)

This 0 level DFD shows the primary external interactions with the e-commerce system "ZIPSHOP." Users can register, login, browse products, place orders, and view order history. Admins interact with the system for login, managing products, and handling orders. It also shows integration with a payment gateway for processing orders. The diagram highlights key data exchanges such as payment details and statuses, product/order updates, and user responses, forming the overall functional ecosystem of ZIPSHOP at the most abstract level.

1ST LEVEL DFD (ADMIN SIDE)

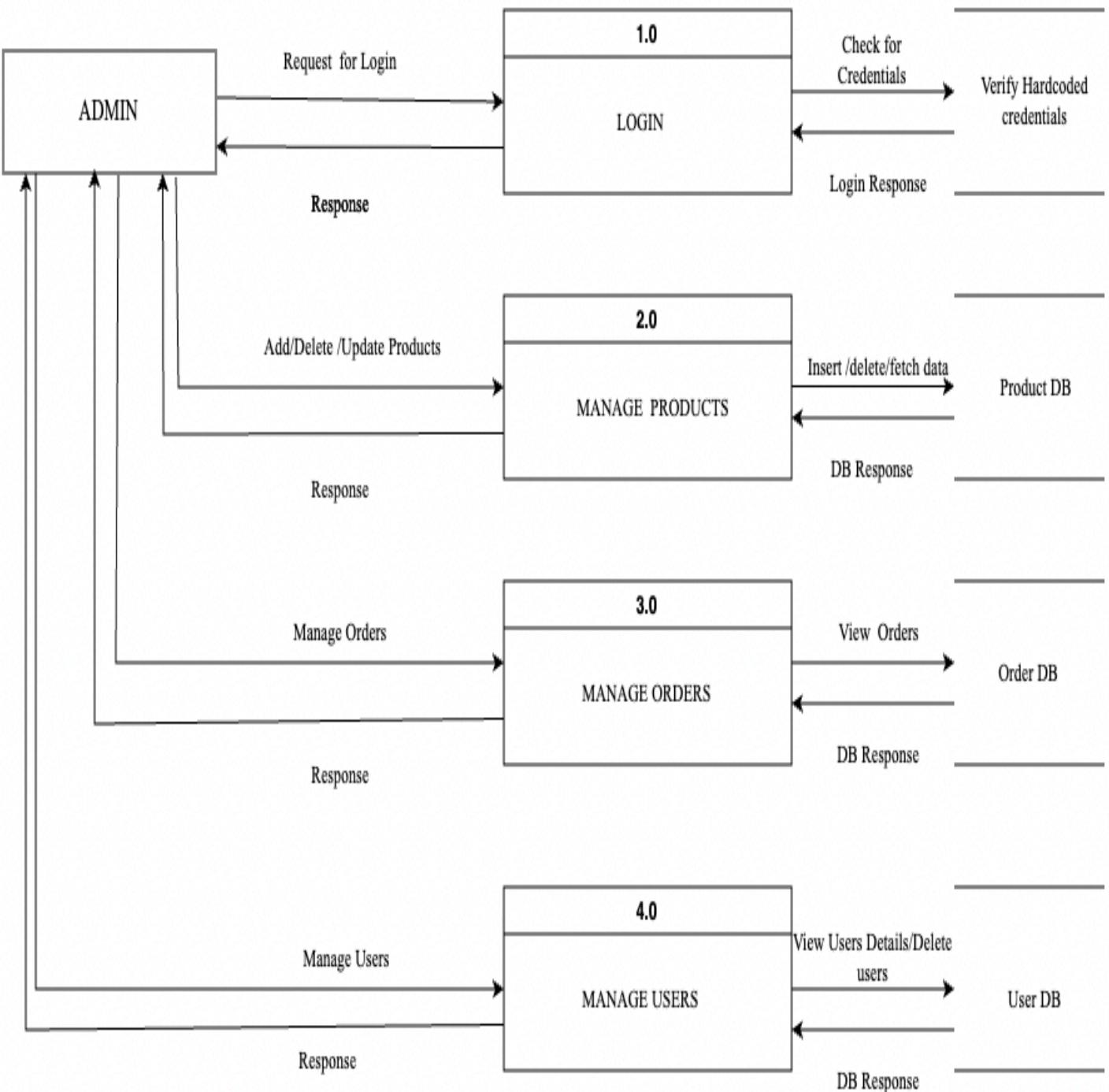


FIG 4.5.4.2 : level 1 DFD (Admin Side)

Above DFD focuses on the admin-side operations of the ZIPSHOP system. Admins can log in with hardcoded credentials and access functionalities like managing products, viewing and updating orders, and managing user details. Each module interacts with its corresponding database (Product, Order, or User DB), performing actions such as insertions, deletions, or updates. The diagram outlines admin-specific workflows and data interactions clearly, showing how the backend supports administrative control over the platform's inventory and user activities.

1ST LEVEL DFD (USER SIDE)

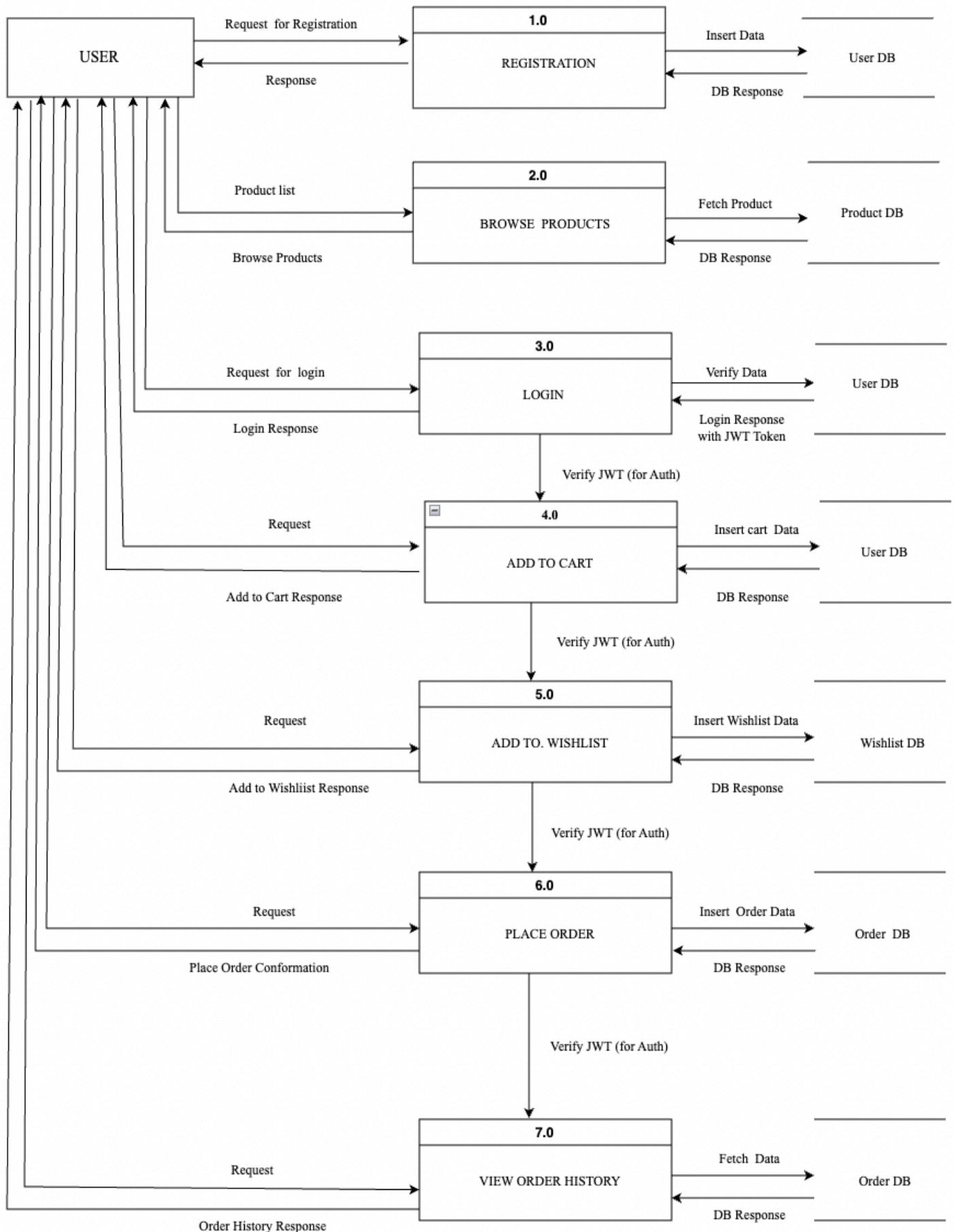


FIG 4.5.4.3 : level 1 DFD (User Side)

Above DFD illustrates the user-side functionality of an e-commerce application. It includes key modules like Registration, Login, Browsing Products, Adding to Cart/Wishlist, Placing Orders, and Viewing Order History. Each module communicates with respective databases—User DB, Product DB, Wishlist DB, and Order DB—while JWT is used for authentication in secure transactions. The system verifies credentials, fetches or inserts data accordingly, and provides feedback to the user at each step. This diagram clearly maps out the sequential interactions between the user and system, emphasizing secure and structured backend communication for a smooth frontend experience.

4.5.5 Data Dictionary

The data dictionary of the ZipShop project defines the structure and attributes of key entities in the e-commerce system. It includes four main collections: User, Product, Order, and Wishlist. Each User has unique identifiers, contact details, and authentication information. Products contain fields like name, price, category, sizes, and images. Orders store user references, product items, total amount, address, status, payment method, and order date. The Wishlist model holds references to users and their selected products. This organized schema ensures data consistency, integrity, and efficient management across the platform, supporting seamless shopping, ordering, and wishlist functionality.

1) User Collection

Field	Type	Description
_id	ObjectId	Unique identifier for each user
name	String	Full name of the user
email	String	User's email (must be unique)
password	String	Encrypted password
mobile	Number	User's contact number
cartData	Object	Stores user's cart items

Table 4.1 User Collection

2) Wishlist Collection

Field	Type	Description
_id	ObjectId	Unique wishlist ID
userId	ObjectId	Reference to the user who owns the wishlist
products	[ObjectId]	Array of product IDs in the wishlist

Table 4.2 Wishlist Collection

3) Product Collection

Field	Type	Description
_id	ObjectId	Unique identifier for each product
name	String	Name/title of the product
description	String	Detailed product description
price	Number	Price of the product
image	Array	Array of image URLs
category	String	Product's main category
subCategory	String	Product's sub-category
sizes	Array	Available sizes for the product
bestseller	Boolean	Indicates if the product is a bestseller
date	Number	Timestamp (e.g., creation date)

Table 4.3 Product Collection**4) Order Collection**

Field	Type	Description
_id	ObjectId	Unique order ID
userId	String	Refers to the user who placed the order
items	Array	Array of ordered items
amount	Number	Total price of the order
address	Object	Delivery address
status	String	Order status (default: "Order Placed")
paymentMethod	String	Method used for payment
payment	Boolean	Payment status (paid or not)
date	Number	Timestamp of the order

Table 4.4 Order Collection

4.6 MAIN MODULE

For ZipShop project, the main modules can be categorized as follows:

1. User Management Module

User Registration & Login (Authentication),Profile Management ,Wishlist Management,Shopping Cart.

2. Product Management Module

Product Listing & Filtering,Product Details Page,Category & Subcategory Management,Bestsellers Products.

3. Order Management Module

Add to Cart & Checkout ,Order Processing & Tracking,Order Status Management,Payment Processing .

4. Payment & Security Module

Secure Payment Gateway Integration,Order Payment Verification,SSL/TLS Encryption for Security.

5. Admin Dashboard Module

User & Order Management,Product Management (Add,Edit,Delete)Inventory Tracking,Analytics ,Reports.

4.7 SELECTION OF HARDWARE AND SOFTWARE TECHNOLOGIES

For the ZIPSHOP e-commerce project, appropriate hardware and software technologies were selected to ensure a scalability, performance, and reliability. On the hardware side, a standard server with at least 8GB RAM, a multi-core processor, and SSD storage is recommended for hosting the backend and database. For software, the project uses the MERN stack—MongoDB for database management, Express.js for server-side logic, React for building responsive user interfaces, and Node.js as the runtime environment. JSON Web Tokens (JWT) are used for secure authentication. Git is used for version control, while tools like Visual Studio Code support efficient development and debugging.

1. Hardware Selection:

Hardware Component	Specification	Justification
Server	AWS EC2 / DigitalOcean VPS	Scalable, secure, and cost-effective cloud hosting for handling high traffic.
Processor	Intel i5/i7 or AMD Ryzen	Ensures fast processing for local development.
RAM	8GB – 16GB	Supports smooth development and execution of MERN applications.
Storage	SSD (512GB – 1TB)	Faster data retrieval for databases and application files.

Table 4.5 Hardware Selection

2. Software Selection:

Software	Justification
Frontend: React.js	Provides a fast, interactive, and component-based UI.
Backend: Node.js (Express.js)	Efficient, event-driven, and scalable for handling API requests.
Database: MongoDB	NoSQL database that efficiently handles large datasets and unstructured data.
Authentication: JWT / OAuth	Secure authentication and user identity management.
Version Control: Git, GitHub	Enables collaboration and tracking of code changes.
Hosting: Vercel / Netlify (Frontend) & AWS / DigitalOcean (Backend)	Ensures high availability, scalability, and easy deployment.

Table 4.6 Software Selection

3. Algorithm Selection:

Algorithm	Use Case	Justification
Bcrypt Hashing	Password Encryption	Securely hashes passwords before storing them in the database.
JWT (JSON Web Token)	User Authentication	Enables secure and stateless authentication.
Search & Filter Algorithms	Product Search & Filtering	Enhances user experience by allowing dynamic filtering of products.
Recommendation Algorithm (Future Enhancement)	Personalized Suggestions	Uses user purchase history to recommend products.

Table 4.7 Algorithm Selection

4. Methodology Selection:

Methodology	Justification
Agile Development	Iterative development approach allowing flexibility and faster feature rollouts.
MVC Architecture	Separates concerns: Model (data), View (UI), Controller (logic). Improves code maintainability.

Table 4.8 Methodology Selection

5. Techniques Used:

Technique	Justification
Component-Based UI (React.js)	Ensures reusability and better state management.
RESTful APIs (Node.js & Express.js)	Efficiently handles communication between frontend and backend.
Lazy Loading (React)	Improves performance by loading components only when needed.
WebSockets (Future Enhancement)	Enables real-time updates for order status tracking.

Table 4.9 Techniques Used

6. Approaches Used:

Approach	Justification
Mobile-First Design	Ensures a responsive and user-friendly experience across devices.
Single Page Application (SPA)	Reduces load times and enhances user interactions.
Token-Based Authentication (JWT)	Ensures secure login and session management.
Microservices Architecture (Future Enhancement)	Helps scale individual modules independently.

Table 4.10 Approaches Used

CHAPTER 5 : SYSTEM DESIGN

5.1 SYSTEM DESIGN & METHODOLOGY

For the ZipShop e-commerce platform, the system follows the MVC (Model-View-Controller) architecture to ensure a modular and maintainable structure.

System Architecture:

- **Frontend (React.js):** Handles the UI, user interactions, and API requests.
- **Backend (Node.js with Express.js):** Processes requests, applies business logic, and interacts with the database.
- **Database (MongoDB):** Stores structured and unstructured data like user info, products, and orders.
- **Authentication:** JWT-based token authentication ensures secure access control.
- **Hosting & Deployment:** Frontend on **Vercel/Netlify**, Backend on **AWS/Digital Ocean**, and Database on **MongoDB Atlas**.

5.2 DATABASE / DATA STRUCTURE / PROCESS / STRUCTURE DESIGN

1. Database Design:

The system uses **MongoDB**, a NoSQL database, designed for scalability and flexibility. The main collections include:

Users Collection: Stores user details, authentication info, cart, and wishlist.

Products Collection: Maintains product details like name, description, price, category, and images.

Orders Collection: Stores order history, user details, payment status, and delivery information.

Wishlist Collection: Maintains a list of user-saved products for future interest or purchase.

2. Data Structure Design:

Hashing (Bcrypt): Used for secure password storage.

Object Storage (JSON Format): MongoDB stores data in BSON (binary JSON) for quick retrieval.

Indexing: Applied on frequently searched fields (e.g., product name, category) for efficient queries.

3. Process Design:

User Flow: Register/Login → Browse Products → Add to Cart → Checkout → Payment → Order Tracking.

Admin Flow: Login → Add/Edit/Delete Products → Manage Orders → View Reports

4. Structure Design:

The system follows a modular structure, separating business logic, API routes, and database interactions.

5.3 INPUT / OUTPUT AND INTERFACE DESIGN

5.3.1 State Transition Diagram

A **State Transition Diagram** can show the different states of an order in ZipShop:

1. Order Placed → 2. Payment Confirmed → 3. Processing → 4. Shipped → 5. Delivered
 - If canceled at any stage, it moves to **Order Canceled**.

5.3.2 Samples of Forms, Reports, and Interface

Forms (Input Design)

- **User Registration/Login Form:** Captures email, password, and mobile number.
- **Product Addition Form (Admin Panel):** Allows admins to enter product name, category, price, images, and description.
- **Order Placement Form:** Collects user address, payment details, and selected products.

Reports (Output Design)

- **Order Status Reports:** Displays pending, shipped, and completed orders.
- **User Reports:** Provides user engagement data (logins, purchases, wishlist items).

Interface Design

1. Homepage

- Displays **featured products** and categories
- Search bar and filter options for easy product discovery
- Promotional banners and discounts

2. Collection Page (Product Listing)

- Displays all products with category-wise filtering
- Sorting options (Price, Popularity, Newest, etc.)

3. Single Product Page

- Shows detailed product information (name, price, description, images)
- Displays **reviews & ratings**
- Related products section

4. Cart Page

- Lists all selected items
- Displays total price, discounts (if any)
- Checkout button for payment processing

5. Wishlist Page

- Users can save products to view later
- Option to move items from wishlist to cart

6. About Us Page

- Overview of ZipShop and its mission
- Company background and services

7. Contact Us Page

- Contact form for customer queries
- Display of email, phone number, and store address

8. Admin Panel

- **Product Management:** Add, update, delete products
- **Order Management:** Track order status (Pending, Shipped, Delivered)
- **User Management:** View registered users and their order history

5.3.3 Access Control / Mechanism / Security

1. Role-Based Access Control (RBAC):

- **User:** Can browse products, add to cart, checkout, and track orders.
- **Admin:** Can add/edit/delete products, manage orders, and access reports.

2. Authentication & Authorization:

- **JWT (JSON Web Token):** Used for securing user sessions.
- **Bcrypt Hashing:** Ensures safe password storage.

3. Security Mechanisms:

- **SSL/TLS Encryption:** Protects data transfer between users and the server.
- **MongoDB Security Measures:** Ensures secure database access with authentication.
- **Input Validation & Sanitization:** Prevents SQL injection, XSS, and CSRF attacks.

Login —

Email

Password

Forgot your password? Create account

Sign In

COMPANY

- Home
- About us
- Delivery
- Privacy policy

INFORMATION

- Privacy Policy
- Refund Policy
- Shipping Policy
- Terms & Condition

GET IN TOUCH

Hno:Dailict college,Reliance Cross Rd,
Ahemadabad,Gujarat
382007
+91 9537904484
Contact@zipshop.com

[in](#) [in](#) [in](#) [in](#)

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FIG 5.1 : LoginPage

Sign Up —

Name

Email

Mobile

Password

Forgot your password? Login Here

Sign Up

COMPANY

- Home
- About us
- Delivery
- Privacy policy

INFORMATION

- Privacy Policy
- Refund Policy
- Shipping Policy
- Terms & Condition

GET IN TOUCH

Hno:Dailict college,Reliance Cross Rd,
Ahemadabad,Gujarat
382007
+91 9537904484
Contact@zipshop.com

[in](#) [in](#) [in](#) [in](#)

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FIG 5.2 : SignUpPage

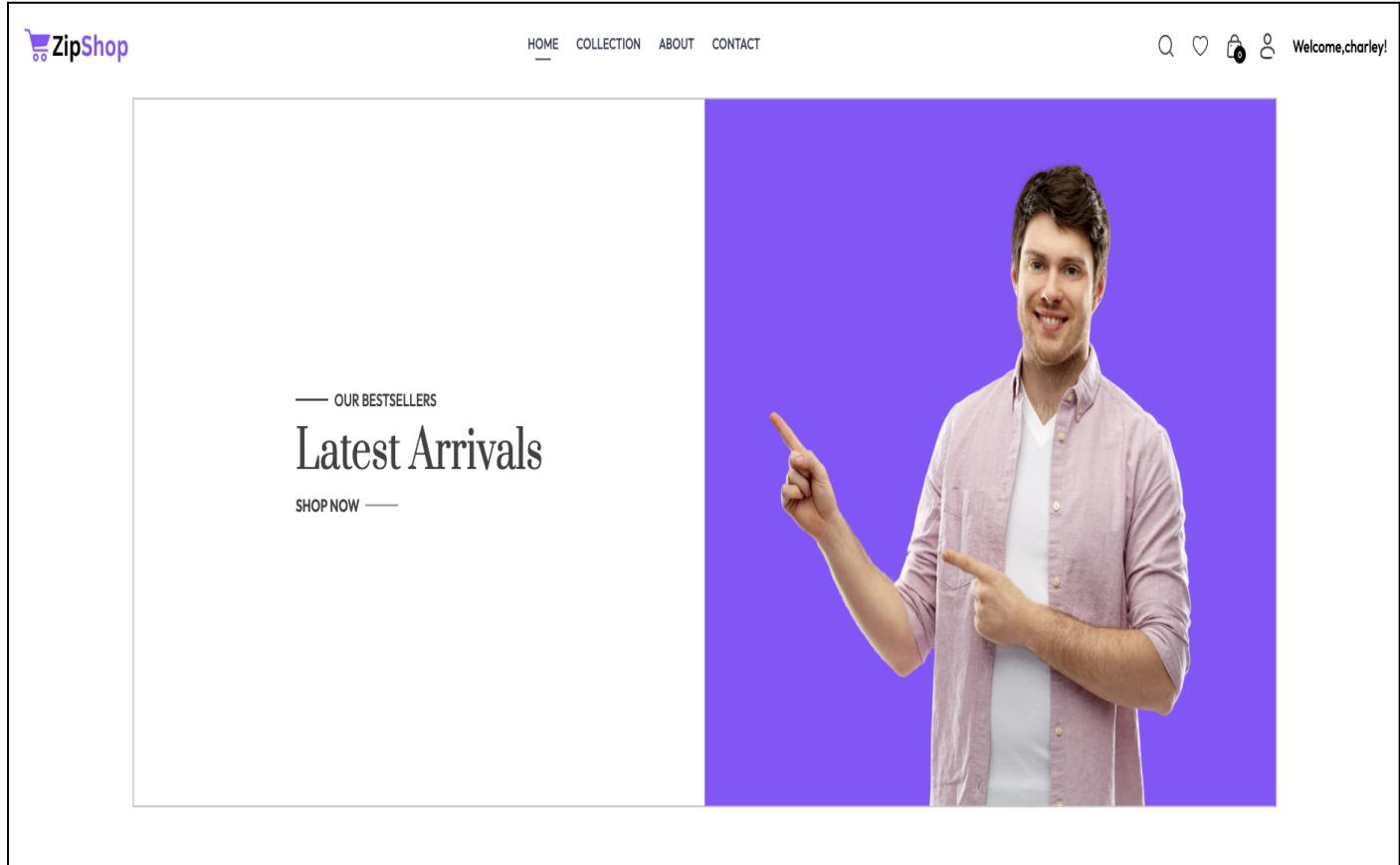


FIG 5.3 : HomePage(1)

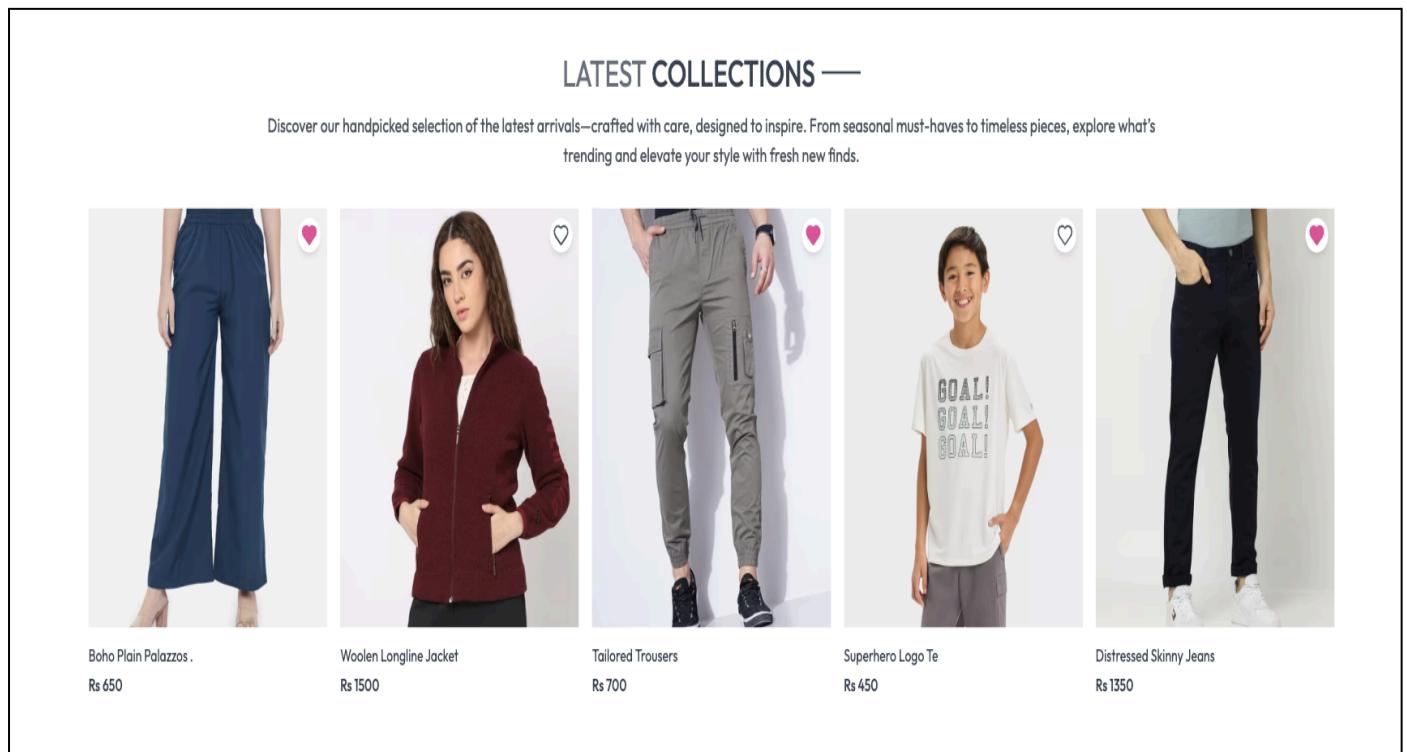


FIG 5.4 : HomePage(2)

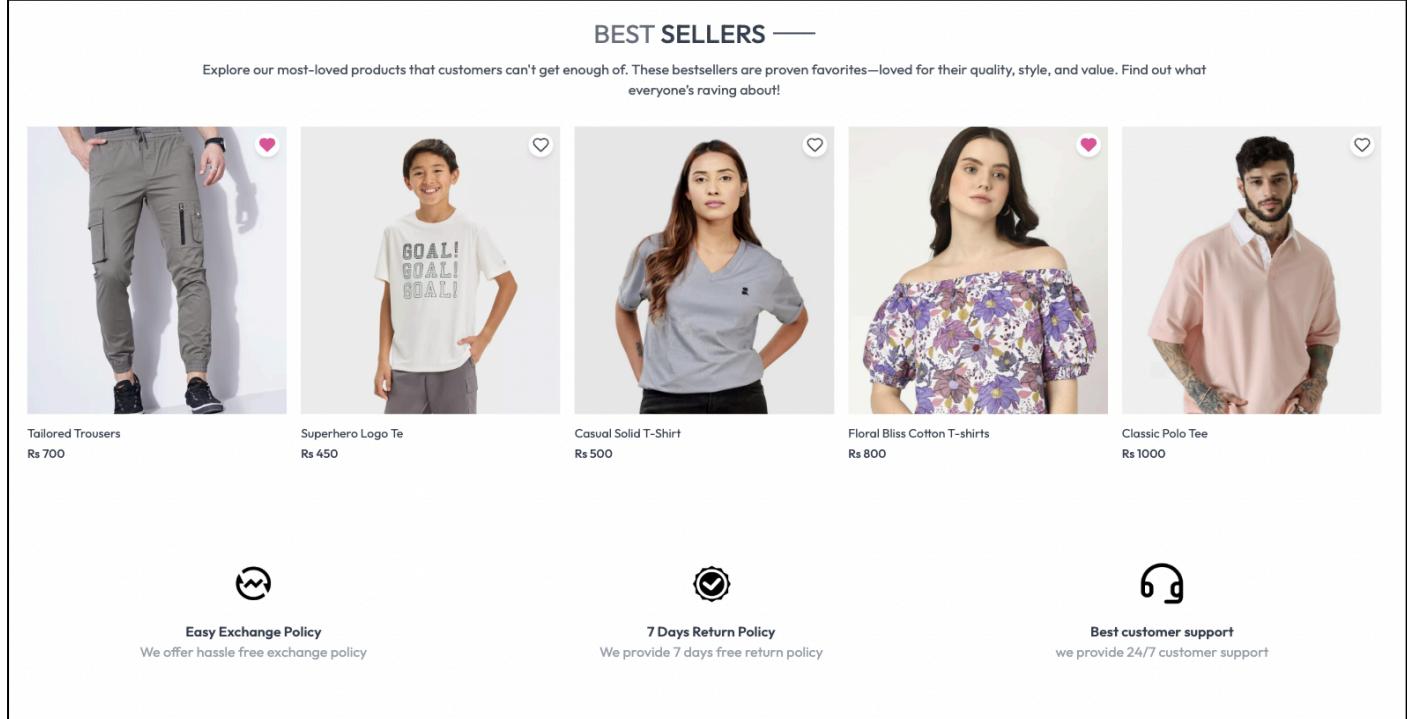


FIG 5.5 : HomePage(3)

ZipShop

HOME COLLECTION ABOUT CONTACT

Welcome,charley!

FILTERS

ALL COLLECTIONS —

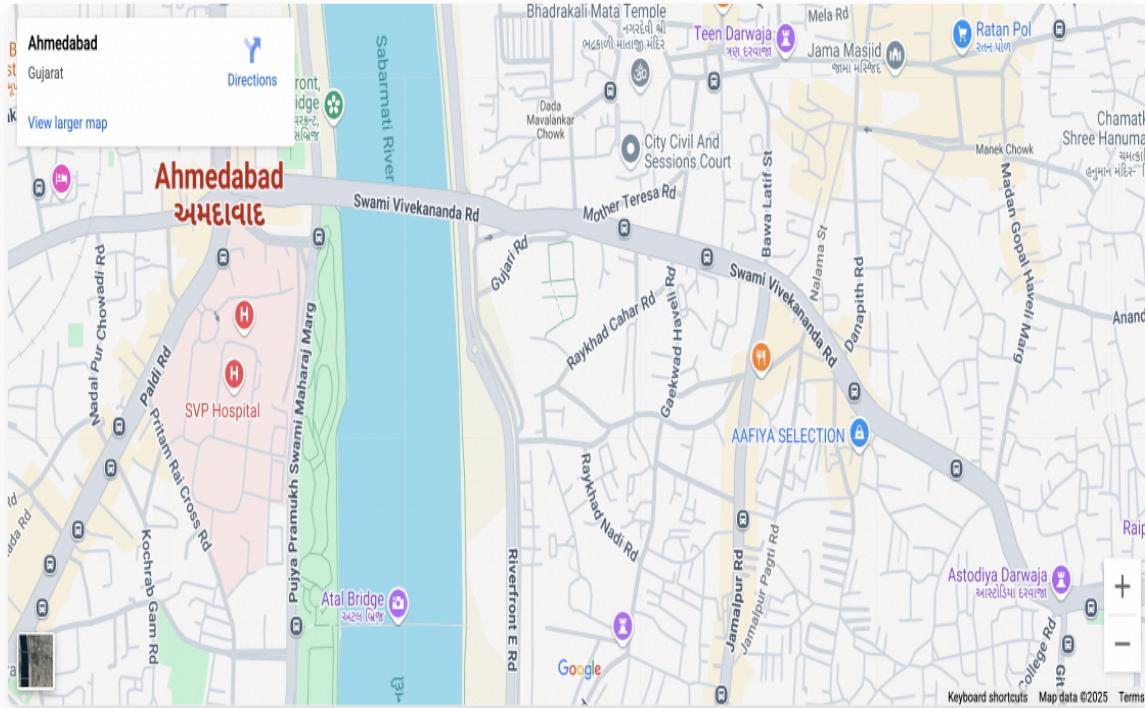
Sort by: Relavent ▾

CATEGORIES				
<input type="checkbox"/> Men <input type="checkbox"/> Women <input type="checkbox"/> kids	Boho Plain Palazzos . Rs 650	Woolen Longline Jacket Rs 1500	Tailored Trousers Rs 700	Superhero Logo Te Rs 450
TYPE				
<input type="checkbox"/> Topwear <input type="checkbox"/> Bottomwear <input type="checkbox"/> Winterwear	Distressed Skinny Jeans Rs 1350	Casual Solid T-Shirt Rs 500	Floral Bliss Cotton T-shirts Rs 800	Henley Long Sleeve T-Shirt Rs 750

FIG 5.6 : CollectionPage

 ZipShop
HOME COLLECTION ABOUT CONTACT

[Welcome,charley!](#)



CONTACT US —



Our Store

Hno:Dailict college,Reliance Cross Rd,
Ahemedabad,Gujarat

Tel: +919537904484
Email: admin@zipshop.com

Careers at Zipshop

Learn more about our teams and job openings.

[Explore Jobs](#)

FIG 5.7 : ContactUsPage

FILTERS

CATEGORIES

- Men
- Women
- Kids

TYPE

- Topwear
- Bottomwear
- Winterwear

MY WISHLIST

Sort by: Relevant

Boho Plain Palazzos . Rs 650	Tailored Trousers Rs 700	Floral Bliss Cotton T-shirts Rs 800	Distressed Skinny Jeans Rs 1350

ZipShop

Welcome to ZipShop, your one-stop shop for the latest trends and top-quality products. We're committed to providing you with an exceptional shopping experience, offering a wide range of products at unbeatable prices.

COMPANY

Home
About us
Delivery
Privacy policy

INFORMATION

Privacy Policy
Refund Policy
Shipping Policy
Terms & Condition

GET IN TOUCH

Hno:Dalilic college,Reliance Cross Rd,
Ahemedabad,Gujarat
382007
+91 9537904484
Contact@zipshop.com

Payment Methods: VISA, Mastercard, ₹, G Pay

in, Instagram, Facebook, YouTube

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FIG 5.8 :WishlistPage

ABOUT US

Quality Assurance:
We meticulously select and vet each product to ensure it meets our stringent quality standards.

Convenience:
With our user-friendly interface and hassle-free ordering process, shopping has never been easier.

Exceptional Customer Service:
Our team of dedicated professionals is here to assist you the way, ensuring your satisfaction is our top priority.

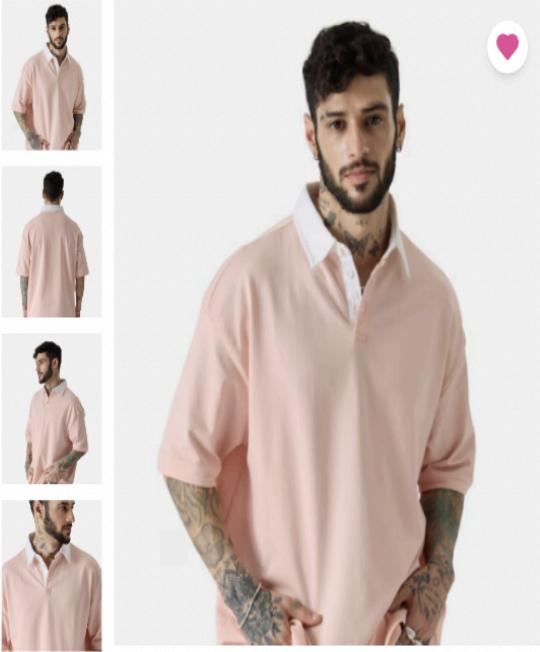
WHY CHOOSE US

FIG 5.9 :AboutUsPage

 ZipShop

HOME COLLECTION ABOUT CONTACT

Q    Welcome,charley!



Classic Polo Tee

 (122)

Rs 1000

Cotton-rich fabric with a smart collar—great for a semi-casual look.

Select Size

M S L

ADD TO CART

100% Original product.
Cash on delivery is available on this product.
Easy return and exchange policy within 7 days.

Description

Reviews (2)

An e-commerce website is an online platform that facilitates the buying and selling of products or services over the internet. It serves as a virtual marketplace where businesses and individuals can showcase their products, interact with customers, and conduct transactions without the need for a physical presence.

E-commerce websites typically display products or services along with detailed descriptions, images, prices, and any available variations (e.g., sizes, colors).

RELATED PRODUCTS —



Henley Long Sleeve T-Shirt

Rs 750



Classic Polo Tee

Rs 1000

FIG 5.10 : SingleProductPage

GUJARAT TECHNOLOGICAL UNIVERSITY

34

VADODARA INSTITUTE OF ENGINEERING

ZipShop

HOME COLLECTION ABOUT CONTACT

YOUR CART —

	Classic Polo Tee	Rs 1000	M	-	2	+	Remove
--	------------------	---------	---	---	---	---	--------

CART TOTALS —

Subtotal	Rs 2000
Shipping Fee	Rs 100
Total	Rs 2100

PROCEED TO CHECKOUT

FIG 5.11 :CartPage

ZipShop

HOME COLLECTION ABOUT CONTACT

DELIVERY INFORMATION —

First name	Last name
Email address	
Street	
City	State
Zipcode	Country
Phone	

CART TOTALS —

Subtotal	Rs 2000
Shipping Fee	Rs 100
Total	Rs 2100

PAYMENT METHOD —

stripe Razorpay CASH ON DELIVERY

PLACE ORDER

FIG 5.12 : PlaceOrder

ZipShop

HOME COLLECTION ABOUT CONTACT

MY ORDERS —

Product Image	Product Name	Quantity	Size	Date	Payment Method	Status	Cancel Order	Track Order
	Henley Long Sleeve T-Shirt	1	S	Fri Apr 18 2025	Razorpay	Order Placed	<button>Cancel Order</button>	<button>Track Order</button>
	Classic Polo Tee	2	M	Fri Apr 18 2025	COD	Order Placed	<button>Cancel Order</button>	<button>Track Order</button>

ZipShop

Welcome to ZipShop, your one-stop shop for the latest trends and top-quality products. We're committed to providing you with an exceptional shopping experience, offering a wide range of products at unbeatable prices.

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GET IN TOUCH

Hno:Dailict college,Reliance Cross Rd,
Ahemedabad,Gujarat
382007
+919537904484
Contact@zipshop.com

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FIG 5.13 : OrderHistory

Admin Panel

Email Address

Password

Login

FIG 5.14 : AdminLogin

Add Items

List Items

Orders

Users

Upload Image

Product name

Type here

Product description

Write content here

Product category Men

Sub category Topwear

Product Price 25

Product Sizes S M L XL XXL

Add to bestseller

ADD

FIG 5.15 : AddProduct

All Products List

Image	Name	Category	Price	Action
	Boho Plain Palazzos .	Women	Rs650	
	Woolen Longline Jacket	Women	Rs1500	
	Tailored Trousers	Men	Rs700	
	Superhero Logo Te	Kids	Rs450	
	Distressed Skinny Jeans	Men	Rs1350	
	Casual Solid T-Shirt	Women	Rs500	
	Floral Bliss Cotton T-shirts	Women	Rs800	
	Henley Long Sleeve T-Shirt	Men	Rs750	
	Classic Polo Tee	Men	Rs1000	

FIG 5.16 : ProductList

User Details

NAME	EMAIL	CONTACT	ACTION
hitenpatel	hitenpatel@gmail.com	1234567890	Delete
john	john@gmail.com	6789054456	Delete
Smith	smith@gmail.com	1234567890	Delete
alice	alice123@gmail.com	1234567890	Delete
xyz	xyz@gmail.com	1234567890	Delete
richapatel8404	richapatel8404@gmail.com	8140463741	Delete
charley	charley@gmail.com	6789345690	Delete

FIG 5.17 : Userlist

Order Page

Filter by status: All			
	Henley Long Sleeve T-Shirt x 1 S CHARLEY GOHIL B36 sastang society, opp baps school, atladara, vadodara, Vadodara, Gujarat, India, 3900012 09537904484	Items : 1 Method : Razorpay Payment : Done Date : 18/04/2025	Rs850.00 Order Placed
	Classic Polo Tee x 2 M CHARLEY GOHIL b36 sastang society, vadodara, Gujarat, India, 390012 9537904484	Items : 1 Method : COD Payment : Pending Date : 18/04/2025	Rs2100.00 Order Placed

FIG 5.18: OrderPage

CHAPTER 6 :IMPLEMENTATION

6.1 Implementation Platform / Environment

The ZipShop e-commerce platform is implemented using the MERN stack (MongoDB, Express.js, React.js, Node.js) to ensure a modern, scalable, and efficient application.

Development Environment:

- **Frontend:** React.js (JavaScript, JSX)
- **Backend:** Node.js with Express.js
- **Database:** MongoDB (NoSQL)
- **Authentication:** JWT (JSON Web Token)
- **Hosting:**
 - Frontend: Vercel / Netlify
 - Backend: AWS / DigitalOcean
 - Database: MongoDB Atlas
- **Version Control:** Git & GitHub\
- **Package Manager:** npm / yarn
- **Security Protocols:** SSL/TLS encryption, bcrypt for password hashing
- **Development Tools:**
 - VS Code for coding
 - Postman for API testing
 - Redux Toolkit for state management

6.2 Process / Program / Technology / Modules Specification(s)

Process Flow:

1. User Registration/Login: Secure user authentication via JWT.
2. Product Browsing & Search: Users browse products, apply filters, and search items.
3. Cart & Wishlist Management: Users can add/remove items to/from cart & wishlist.
4. Checkout & Payment: Secure transactions via Razorpay/Stripe.
5. Order Management: Admin can manage orders (Processing, Shipped, Delivered).
6. Admin Panel: Product and order management dashboard for admins.

Technology Stack:

- Frontend: React.js (React Router, Redux Toolkit)
- Backend: Node.js, Express.js
- Database: MongoDB with Mongoose ODM
- Security: JWT, bcrypt, CORS, Helmet

Modules Specification:

1. User Module: Handles authentication, profile management, wishlist & cart.
2. Product Module: Manages product CRUD operations, categories, filtering.
3. Order Module: Tracks orders, payment processing, and delivery updates.
4. Admin Module: Enables product and order management with analytics.

6.3 Findings / Results / Outcomes

After successful implementation, the ZipShop platform achieved the following:

1. User-friendly Interface: React-based UI ensures seamless user experience.
2. Secure Authentication & Transactions: JWT, bcrypt, and SSL/TLS ensure data security.
3. Efficient Product Management: Admins can add/edit/delete products dynamically.
4. Order Processing & Tracking: Users can track their orders in real time.
5. Fast Performance & Scalability: MongoDB's NoSQL structure optimizes performance.
6. Smooth Deployment: Hosting on Vercel, AWS, and MongoDB Atlas ensured stability.

6.4 Result Analysis / Comparison / Deliberations

Feature	Traditional E-commerce	ZipShop (MERN)
Performance	Moderate (PHP, MySQL)	High (Node.js, MongoDB)
Scalability	Limited	High (Cloud-based MongoDB)
Security	Basic	Advanced (JWT, bcrypt, SSL)
Development Speed	Slower (Monolithic)	Faster (Component-based React)
User Experience	Basic UI	Interactive UI with React
Admin Control	Manual Product Updates	Dynamic Admin Panel

Table 6.1 Result Analysis

CHAPTER 7 : TESTING

7.1 TESTING PLAN / STRATEGY

Testing is an essential phase to ensure the ZipShop e-commerce platform functions as expected. The strategy includes:

1. Unit Testing: Testing individual components (React UI, API endpoints).
2. Integration Testing: Ensuring seamless interaction between frontend, backend, and database.
3. Functional Testing: Checking user authentication, cart operations, payment processing, etc.
4. Performance Testing: Evaluating app speed and response times under high traffic.
5. Security Testing: Testing JWT authentication, SQL Injection, and SSL/TLS encryption.
6. Usability Testing: Verifying UI/UX for a smooth shopping experience.

7.2 TEST RESULTS AND ANALYSIS

During the testing phase of the ZipShop eCommerce project, I thoroughly evaluated each component to ensure it met the specified requirements. Whenever a component did not perform as expected, I refined and adjusted it to it to achieve the desired functionality. After completing unit testing, I integrated various components and verified that they operated seamlessly together.

Once the frontend and backend were successfully connected, I proceeded with system testing to validate the ove -rall functionality of the application, ensuring it delivered the expected outcomes. Finally, acceptance testing was conducted from a user's perspective to confirm that the platform met all requirements and provided a smooth sho -pping experience.

Throughout the process, I collaborated with my mentor, who offered valuable insights on optimizing Performance and improving system efficiency. Based on his feedback, I implemented the necessary enhancements to refine the platform before finalizing the project.

Testing is a crucial phase in the ZipShop eCommerce project to ensure all functionalities work as expected. Various tests, including unit testing, integration testing, system testing, and user acceptance testing (UAT), were conducted to validate the system's performance, security, and reliability.

Below is a detailed breakdown of test cases and their outcomes:

7.2.1 Test Cases

Test ID	Test Condition	Expected Output	Actual Output	Remark
TC-01	User Registration (Valid Input)	Successfully creates a new user and stores data in the database	Success – New user created and stored in MongoDB	Passed
TC-02	User Registration (Existing Email)	Displays an error message: "Email already exists"	Displays correct error message	Passed
TC-03	Login with Correct Credentials	Redirects user to the homepage and generates JWT token	User logged in successfully	Passed
TC-04	Login with Incorrect Password	Displays "Invalid email or password" error	Displays correct error message	Passed
TC-05	Add Product to Cart (Logged-in User)	Product should be added to cart and updated in the database	Product added successfully	Passed
TC-06	Add Product to Cart (Not Logged-in User)	Displays "Please log in to continue" message	Displays correct message	Passed
TC-07	Remove Product from Cart	Product should be removed from cart	Product removed successfully	Passed
TC-08	Place Order with Valid Details	Order should be created and stored in MongoDB	Order successfully placed	Passed
TC-09	Place Order without Payment Method	Displays "Please select a payment method" error	Displays correct error message	Passed
TC-10	Admin Login	Admin should be able to access the dashboard	Admin logged in successfully	Passed
TC-11	Fetch Product Details	Displays product details including name, price, & images	Correct details displayed	Passed
TC-12	Payment Gateway	Payment should be processed	Payment completed	Passed

	Integration	successfully	successfully	
TC-13	Unauthorized Access to Admin Panel	Displays "Access Denied" message	Correct error message displayed	Passed
TC-14	Logout Functionality	User should be logged out and redirected to the homepage	Logout successful	Passed
TC-15	Page Load Performance	Page should load within 2-3 seconds	Pages load within expected time	Passed
TC-16	Database Connection Test	App should connect to MongoDB successfully	Connection successful	Passed

Table 7.1 Testing Analysis

Test Results and Analysis

1. **All core functionalities were tested**, including user authentication, product management, cart operations, and order placement.
 2. **Error handling was verified**, ensuring proper messages were displayed for invalid inputs.
 3. **Security tests confirmed** that unauthorized users cannot access restricted areas.
 4. **Performance testing ensured** that all pages load quickly, and API responses were optimized.
 5. **Integration testing validated** seamless communication between frontend (React) and backend (Node.js with Express).
 6. **Payment transactions were successfully tested** with simulated test environments for Stripe/Razorpay.
- Database queries were optimized**, ensuring smooth interactions between the application and MongoDB.

CHAPTER 8: CONCLUSION AND DISCUSSION

8.1 OVERALL ANALYSIS OF INTERNSHIP /PROJECT VIABILITIES

The ZipShop eCommerce project was developed using the MERN stack, ensuring a scalable, efficient, and user-friendly online shopping platform. Throughout the project and internship, various aspects such as technical feasibility, financial viability, and long-term sustainability were analyzed to assess its overall effectiveness.

Technical Viability:

The project successfully utilized MongoDB for database management, Express.js and Node.js for backend operations, and React for an interactive frontend. The system was designed to handle user authentication, product management, order processing, and payment integration, ensuring a smooth and secure experience. Extensive testing confirmed the reliability and functionality of all components.

Operational Viability:

The structured development approach, including agile methodologies, version control with Git, and cloud deployment, ensured seamless execution. Regular discussions with mentors and iterative testing helped refine the project, making it robust and efficient.

Financial Viability:

As an open-source, full-stack solution, the project was built with cost-effective technologies, minimizing development expenses. The potential for monetization through product sales, advertisements, and subscription model increases its business feasibility.

Future Scalability:

The modular architecture allows easy expansion by integrating features like AI-based recommendations, multi-vendor support, and enhanced analytics. The project is well-positioned for growth and adaptation to evolving market needs.

Overall, the ZipShop project proves to be highly viable, showcasing technical robustness, operational efficiency, cost-effectiveness, and future scalability. The use of the MERN stack ensures a seamless and efficient platform, capable of handling user interactions, secure transactions, and dynamic content. It is cost-effective development using open-source technologies that reduces expenses while maintaining high performance. Additionally, it is a scalable architecture allowing for future enhancements like AI-driven recommendations, multi-vendor support, and analytics, making it a practical, adaptable, and competitive eCommerce solution in the digital marketplace.

8.2 PROBLEM ENCOUNTERED AND POSSIBLE SOLUTIONS

During the development of ZipShop eCommerce, several challenges were encountered, each requiring strategic solutions:

1. Database Optimization Issues:

- **Problem:** Managing large datasets efficiently while ensuring fast response times.
- **Solution:** Implemented MongoDB indexing and optimized queries to improve database performance.

2. Authentication & Security Risks:

- **Problem:** Ensuring secure user authentication and preventing unauthorized access.
- **Solution:** Implemented JWT-based authentication, bcrypt for password hashing, and SSL encryption for secure data transmission.

3. Frontend-Backend Integration Challenges:

- **Problem:** Synchronizing API responses with the frontend for a seamless user experience.
- **Solution:** Used Redux for state management and performed API testing using Postman to debug issues efficiently.

4. Payment Gateway Integration:

- **Problem:** Handling secure payment transactions.
- **Solution:** Integrated Razorpay/Stripe with proper validation and security protocols.

5. Deployment and Hosting Issues:

- **Problem:** Ensuring smooth deployment on cloud services.
- **Solution:** Used AWS/Heroku/Vercel for hosting, along with Docker for containerization, ensuring scalability and reliability.

8.3 SUMMARY OF INTERNSHIP / PROJECT WORK

The ZipShop eCommerce project was developed using the MERN stack, providing a secure, scalable, and efficient shopping platform. The project covered:

- Frontend: Built with React.js, ensuring a responsive UI
- Backend: Developed using Node.js and Express.js, managing API requests efficiently.
- Database: MongoDB handled product, user, and order data with optimized queries.
- Security Measures: Included JWT authentication, SSL encryption, and secure payment integration.
- Testing & Debugging: Unit testing, system testing, and user acceptance testing were conducted to ensure reliability .
- Deployment: The project was hosted using cloud services, ensuring high availability and scalability.

The internship provided hands-on experience in full-stack development, database management, API security, and deployment strategies. It also enhanced problem-solving, teamwork, and project management skills, essential for real-world development.

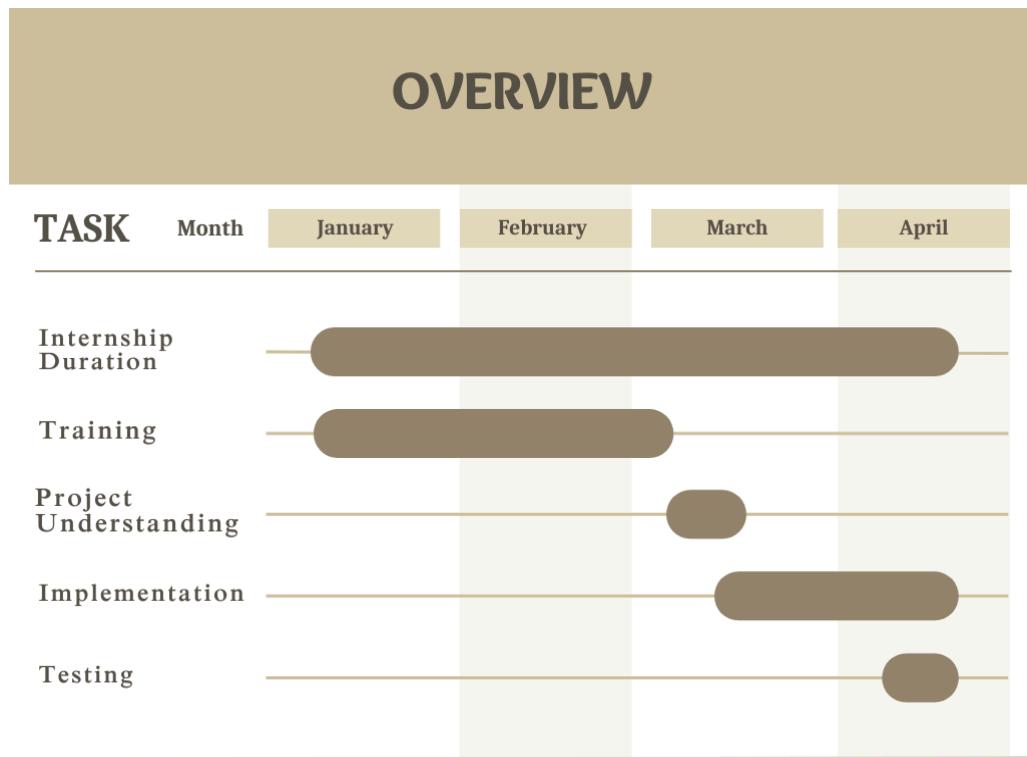


Fig 8.3.1 Internship Overview Chart

8.4 LIMITATIONS AND FUTURE ENHANCEMENTS

Limitations:

- Limited AI Features:** No personalized recommendations for users.
- Single Vendor Support:** The platform currently supports only one seller.
- Basic Search and Filtering:** The product search feature could be more advanced with natural language processing (NLP).
- No Real-time Order Tracking:** Users cannot track their orders in real-time.
- Forgot Password Limitation:** The platform lacks a secure and user-friendly password recovery process.

Future Enhancements:

- AI-powered Recommendations:** Implement machine learning for personalized product suggestions.
- Multi-Vendor Marketplace:** Expand ZipShop to allow multiple sellers, increasing product variety.
- Enhanced Search & Filtering:** Use AI-based search and filters with voice search capabilities.
- Real-time Order Tracking:** Integrate APIs for GPS-based order tracking.
- Progressive Web App (PWA):** Convert ZipShop into a PWA for a better mobile shopping experience.
- Subscription-Based Model:** Offer premium features, such as priority delivery and exclusive discounts.

These improvements will enhance ZipShop's usability, scalability, and overall shopping experience, ensuring it is long-term success.

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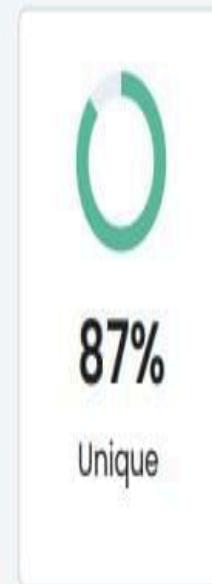
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PLAGIARISM REPORT



Date: 16-04-2025

Plagiarism Scan Report



Words	212
Characters	1580
Sentences	10
Paragraphs	20
Read Time	2 minute(s)
Speak Time	2 minute(s)