SEMESTER TRAINING REPORT

ON

SHOP Zone

A Report Submitted
In partial fulfillment for the degree of

Bachelor of Technology
in
Computer Science & Engineering

Submitted By:

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GLOBAL GROUP OF INSTITUTES, AMRITSAR
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DECLARATION

I declare that this project report titled **SHOP ZONE** submitted in partial fulfillment of the degree of B. Tech in Computer Science Engineering is a record of original work carried out by me under the supervision of **Er. Bhavneet Singh** and has not formed the basis for the award of any other degree or diploma, in this or any other Institution or University. In keeping with the ethical practice in reporting scientific information, due acknowledgements have been made wherever the findings of others have been cited.

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CERTIFICATE

ACKNOWLEDGEMENT

I would like to express my gratitude and appreciation to all who gave me the possibility complete this project.

I received a lot of help from several people to complete this project. I would want to thank everyone who helped with this project. I want to thank my Head of Department Dr. Meenakshi Sharma, who taught me a lot about this project. Their suggestions and remarks were helpful in finishing this project.

Also, I would like to express my deep and sincere gratitude towards Thinknext Technologies Private Limited and my training teacher Mr. Abhay Singh for providing me the opportunity to do this project and providing invaluable guidance throughout this training. His dynamism, vision, sincerity and motivation have deeply inspired me. He has taught me the methodology to carry out the project and to present the project works as clearly as possible. It was a great privilege and honor to work and study under his guidance. I am extremely grateful for what he has offered me. I would also like to thank him for his empathy.

I am appreciative that the college administration gave me such a huge opportunity. I think I'll take part in more of these kinds of activities in the future. I certify that this project is authentic and that I am solely responsible for its creation. Finally, I'd want to thank my parents and friends for their insightful criticism and support while I completed this project.

Name: Bikram Kumar Yadav

Roll No: 2130257

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COMPANY PROFILE

ThinkNEXT Technologies - A Brief Overview

ThinkNEXT Technologies is an ISO 9001:2015 certified multinational company with a strong focus on cutting-edge technology solutions. Established in 2011, the company has been at the forefront of innovation, providing a wide range of services including:

- **Web Development**
- **Digital Marketing**
- **Mobile App Development**
- **ERP Solutions**
- **Industrial Training and Internships**

Our Mission: To empower individuals and organizations through technology, fostering growth and innovation.

Our Vision: To be a global leader in providing cutting-edge technology solutions, delivering exceptional value to our clients.

Our Values:

- Innovation: Continuously exploring new technologies and approaches.
- Quality: Delivering high-quality solutions and services.
- Customer Focus: Understanding and meeting the needs of our clients.
- Integrity: Maintaining honesty and transparency in all our dealings.
- Teamwork: Fostering collaboration and cooperation among our team.

Our Commitment to Training and Internships: ThinkNEXT is dedicated to nurturing the next generation of tech talent. Our industrial training and internship programs offer hands-on experience in real-world projects, equipping participants with the skills and knowledge necessary to succeed in the competitive job market. By choosing ThinkNEXT, you gain access to industry experts, state-of-the-art infrastructure, and a supportive learning environment.

Why ThinkNEXT ?

- Offline/Online Stipend Based or Free Internship/Training from 8 Times National Level Award Winner Company.
- Industrial Training from Business Excellence Award 2023 at Bengaluru for "Best Digital Marketing and Industrial Training Company of the Year" from M. Satish Reddy (Member of Karnataka Legislative Assembly).
- Industrial Training from Indian Iconic 2024 Award from Bollywood Actress Amisha Patel for "Best Web Development and Digital Marketing Company" at New Delhi.
- Industrial Training from Iconic Business Summit Award 2021 for "Most Trusted Digital Marketing and Industrial Training Company of the Year" from Bollywood Film Actress & Politician Jaya Prada and Miss Universe Romania Anca Verma at New Delhi.
- Industrial Training from Nation's Business Pride Award 2021 from Shri Faggan Singh Kulaste (Union Minister of State for Steel) for Best Digital Marketing and Industrial Training Company.
- Only Company in Chandigarh region which is Google, Facebook, Microsoft and Hubspot Certified.

CHAPTER-1
INTRODUCTION TO PROJECT

SHOP ZONE: An E-commerce Website for Shopping

SHOP ZONE website is an online shopping store where customer can buy products and service over the internet. It's a digital equivalent of a physical store where customer can browse products, placed orders and make payments. This website is used to sell and buy a variety of electronic products such as mobile phone, camera, digital watch and laptop of various brands. After order placed by the customer, the customer will get a notification of on which date his/her products will deliver. With ecommerce, people can shop from anywhere, anytime, without the constraints of store hours or geographical locations. This 24/7 availability makes it easy for customers to find what they need, whether they're at home, at work, or on the go. Customer can find comparison sites helpful since they show you a ton of options all in one place. Shopping online gives you access to a bigger range of products than you'd find in physical stores. You can easily check out different brands, styles, and models, making sure you find exactly what you're looking for without being limited by what's in stock at a local store. Shopping online makes it easy to compare product information and prices across different sites so you can get the best deals. That's why online shoppers use price comparison tools to make sure they're getting the most value for their money. Online stores often track user browsing habits and past purchases to suggest personalized products. This makes shopping more enjoyable and also boosts buyer confidence since they're more likely to feel understood and valued. Shoppers feel more confident in their purchases with a customized online experience. This project will play a important role for providing reliable shopping environment to customer.

1.1 Aim & Objectives of this project

- **Product catalog:** A list of products organized into categories.
- **Product descriptions:** Detailed information about the product, including features and benefits.
- **Images:** High-quality images of the product from different angles.
- **Customer reviews:** Social proof that can help potential buyers make decisions.
- **Order management:** A system to track orders, manage inventory, and process shipments.
- **Customer support:** Multiple channels for assistance, such as email, live chat, or phone support.

1.2 Project Requirements for Shop Zone

To effectively develop and implement SHOP ZONE, the following requirements must be considered:

Functional Requirements:

1. **User Registration and Login:**
    - Allow users to create accounts with basic information (name, email, password).
    - Implement secure login and password recovery mechanisms
2. **Product Catalog:**
    - Display a wide range of electronic products, categorized by type (mobile phones, laptop, camera etc.).

- Provide detailed product descriptions, including company information, origin, and certifications. Allow users to search and filter products based on keywords, categories, and price range.

3. **Shopping Cart:**
   - Enable users to add products to their cart.
   - Calculate the total cost, including taxes and shipping charges.
   - Allow users to modify quantities and remove items from the cart.
4. **Checkout Process:**
   - Collect shipping address, billing address, and payment information.
   - Offer multiple payment options (credit card, debit card, net banking, digital wallets).
   - Provide secure payment gateways.
5. **Order Tracking:**
   - Generate unique order numbers for each order. Provide real-time order tracking information.
   - Send order confirmation and shipping notifications via email and SMS.
6. **Customer Support:**
   - Offer multiple customer support channels (email, phone, live chat).
   - Provide timely and efficient customer service.
7. **Reviews and Ratings:**
   - Allow users to rate and review products.
   - Display average product ratings and customer reviews.
8. **Wishlist Feature:**
   - Enable users to save products to a wishlist for future reference.
9. **Promotions and Discounts:**
   - Implement coupon codes, discounts, and loyalty programs.
10. **Secure Payment Gateway:**
    - Integrate with secure payment gateways to protect customer data.

Non-Functional Requirements:

1. **Performance:**
   - Ensure fast loading times and responsive website performance.
   - Optimize website for mobile devices.
2. **Security:**
   - Implement robust security measures to protect user data and prevent cyberattacks.
   - Use strong encryption for sensitive information.
3. **Scalability:**
   - Design the system to handle increasing traffic and data volume.
4. **Usability:**
   - Create a user-friendly interface with intuitive navigation.
   - Provide clear and concise information.
5. **Accessibility:**
   - Adhere to accessibility standards to accommodate users with disabilities.

CHAPTER-2
SOFTWARE AND HARDWARE USED

2.1 Hardware:

While the specific hardware requirements can vary based on project complexity and personal preferences, a typical setup for MERN stack development might include:

- **Computer:** A modern laptop or desktop with a decent processor (Intel Core i5 or higher), sufficient RAM (8GB or more), and ample storage (SSD recommended).

- **Stable Internet Connection:** A reliable internet connection is crucial for accessing online resources, downloading dependencies, and deploying applications.

2.2 Software:

Here are the essential software components for MERN stack development:

1. **Code Editor:**
    - **Visual Studio Code:** A popular, open-source code editor with extensive customization options and a wide range of extensions for MERN stack development**.**

2. **Node.js and npm (Node Package Manager):**
    - **Node.js:** A JavaScript runtime environment that allows you to execute JavaScript code outside of a web browser.
    - **npm:** A package manager for Node.js, used to install and manage dependencies for your project.

3. **MongoDB:**
    - A NoSQL database that stores data in a flexible, JSON-like format.
    - MongoDB Compass: A graphical user interface for managing and visualizing MongoDB databases.

4. **Browser:**
    - **Google Chrome:** A popular web browser with developer tools for debugging and inspecting web applications.

5. **Additional Tools:**
    - **Postman:** A tool for testing APIs and making HTTP requests.
    - **React Developer Tools:** A Chrome extension for inspecting React components.
    - **Redux DevTools:** A Chrome extension for debugging Redux applications.

By having these software and hardware components in place, we can efficiently develop and test MERN stack applications locally before deploying them to production.

CHAPTER-3
TECHNOLOGY USED

3.1 What is MERN Stack?

MERN Stack is a collection of powerful technologies and robust, used to develop scalable master web applications comprising backend, front-end, and database components. It is JavaScript that is used for the faster and easier development of full-stack web applications. MERN Stack is a technology that is a user-friendly full-stack JavaScript framework for building applications and dynamic websites.

Fig. 1.0 Mern-Stack

MERN Stack consists of four main components or can say four main technologies:

1. **M** stands for **MongoDB (Database),** mainly used for preparing document database and is a NoSQL (Non-Structured Query Language) Database System
2. **E** stands for **Express,** mainly used for developing Node.js web framework
3. **R** stands for **React,** mainly used for developing a client-side JavaScript framework
4. **N** stands for **js,** mainly used for developing the premier JavaScript web server

3.2 Why should we choose MERN Stack for building Mobile and Web applications?

1. **Cost-effective:** MongoDB, Express.js, React.js, and Node.js are used in MERN Stack is built on JavaScript that makes it cost-effective and within less cost investment user will able to get the better results or output.
2. **SEO friendly:** Here, SEO (Search Engine Optimization) friendly means that Google, Yahoo and other search engines can search each page on the website efficiently and easily, interpret and correlate the content effectively with the searched text and easily index it in their database. As whenever websites are created using MERN technologies, then it is always SEO friendly.
3. **Better performance**: Better performance refers to the faster response between backend and front-end and database, which ultimately improves the website speed and yields better performance, thus providing a smooth user experience.
4. **Improves Security:** It mainly concerns the security of applications generated using MERN; her web application security refers to various processes, methods or technologies used for protecting web servers and various web applications, such as APIs (Application user interface) from the attack by internet-based threats.

5. **Provide the fastest delivery:** Any Web applications and mobile applications created by using MERN Stack are built much faster, which also helps to provide faster delivery to our clients.
6. **Provides faster Modifications:** MERN stack technologies supports quick modifications as per the client's request in the mobile and web applications.
7. **Open Source:** All the four technologies that are involved in MERN are open-source. This feature allows developers to get solutions to queries that may evolve from the open portals during development. As a result, it will be ultimately beneficial for a developer.
8. **Easy to switch between client and server:** MERN is very simple and fast because it is written in only one language. And also, it is very easy to switch between client and server.

3.3 Architectural Structure of MERN Stack and its working?

MERN has a 3-tier Architecture system mainly consisting of 3 layers -
These layers are as follows:

1. Web as front-end tier
2. Server as the middle tier
3. Database as backend tier

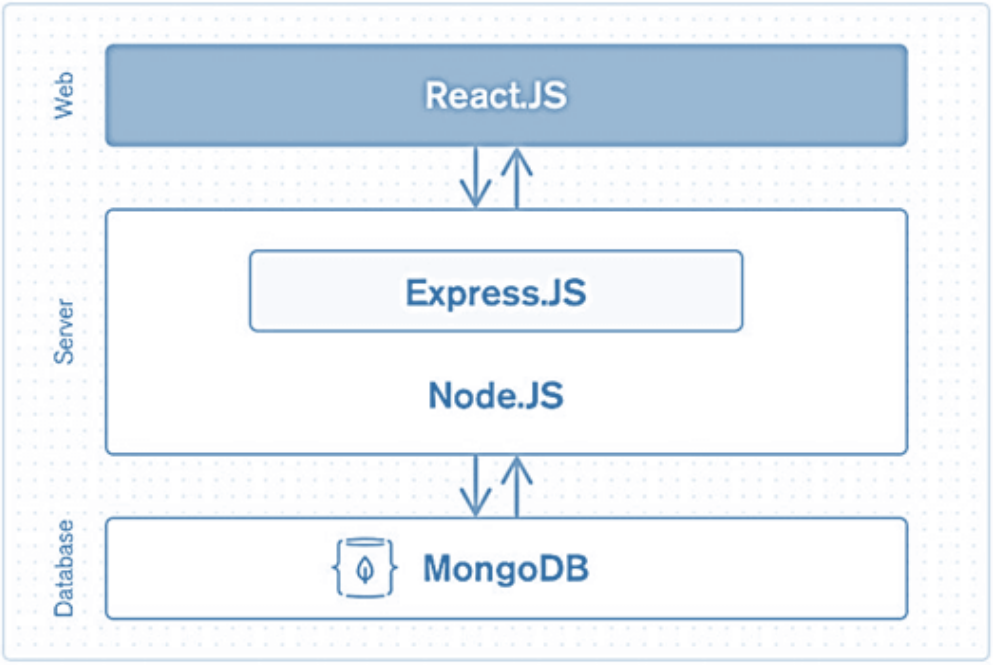

Fig. 1.1 Architecture-of-Mern-Stack

We already know that it comprises 4 components, i.e., MongoDB, Express.js, React, Node.js.

Now let us understand in more detail about these three tiers which are mentioned above

i. **Web or front-end tier -** The top tier of the MERN stack is mainly handled by React.js. It is one of the most prominent used open-source front-end JavaScript libraries used for building Web applications. It is famous for creating dynamic client-side applications. React will help you construct complex interfaces by using single components. It also connects those complex interfaces to data available on the backend server. React is used to create mobile applications (React Native) and web applications. React allows the reusability of code and can easily support it, which has many benefits and is much time saver. It permits users to create large web applications that can easily change the data of the page even without reloading the page**.**

ii. **Server or middle-tier -** It is just next level from the top layer and is mainly handled by two components of the MERN stack, i.e., Express.js and Node.js. These two's components handle it simultaneously because Express.js maintained the Server-side framework, running inside the Node.js server. Express.js is one of the widely used backend development JavaScript Frameworks. It allows developers to spin up robust APIs (Application Programming Interface) and web servers much easier and simpler. It also adds helpful functionalities to Node.js HTTP (HyperText Transfer Protocol) objects. Whereas on the other hand, Node.js plays a very important role in itself. It is an open-source server environment, and it is a cross-platform runtime environment for executing JavaScript code outside a browser. Node.js continuously uses JavaScript; thus, it's ultimately helpful for a computer user to quickly create any net service or any net or mobile application.

3.4 Major Components of MERN Stack

Let us understand one by one about the four technologies or components that play a major role in forming MERN Stack:

I. **MongoDB**

Fig. 1.2 MongoDB

- Mongo DB is the most popular NoSQL (NoSQL or Non Structured Query Language) database, an open-source document-oriented database.
- The term 'NoSQL' typically means a non-relational database that does not require a fixed schema or proper relational tables to store the necessary data in it. MongoDB stores the data in a different format other than the relational tables, consisting of rows and columns.
- It implies that MongoDB is not based on the table-like relational database structure. On the other hand, it provides an altogether different mechanism for the retrieval and storage of data.
- The storage format in which the data is stored is known as BSON, which stands for Binary JavaScript Object Notation; its binary structure encodes length and type of information, which allows it to be parsed much more quickly.

- MongoDB uses BSON when storing documents in collections.
- It allows a highly scalable and flexible document structure.
- It is very faster as compared to RDBMS due to its efficient storage and indexing techniques.
- In MongoDB, complex join operations are not available; hence, it cannot support complex transactions.
- MongoDB uses JavaScript for coding as a language which is one of the great advantages.
- It is Schemaless as any data stored which is stored in a separate document.
- In MongoDB, there is no concept of relationships or table formations, as this is happening in RDBMS (Relational Database Management System), in which tables have a certain relation between them.
- It also supports a flexible document model, which is very fast for any developer to create.
- MongoDB is one of the important types of NoSQL Databases. It is more scalable and provides excellent performance if we notice that it will reach its scaling limit whenever a database runs on a single server.
- MongoDB is a NoSQL database that scales by adding more and more servers and increases productivity with its flexible document model.

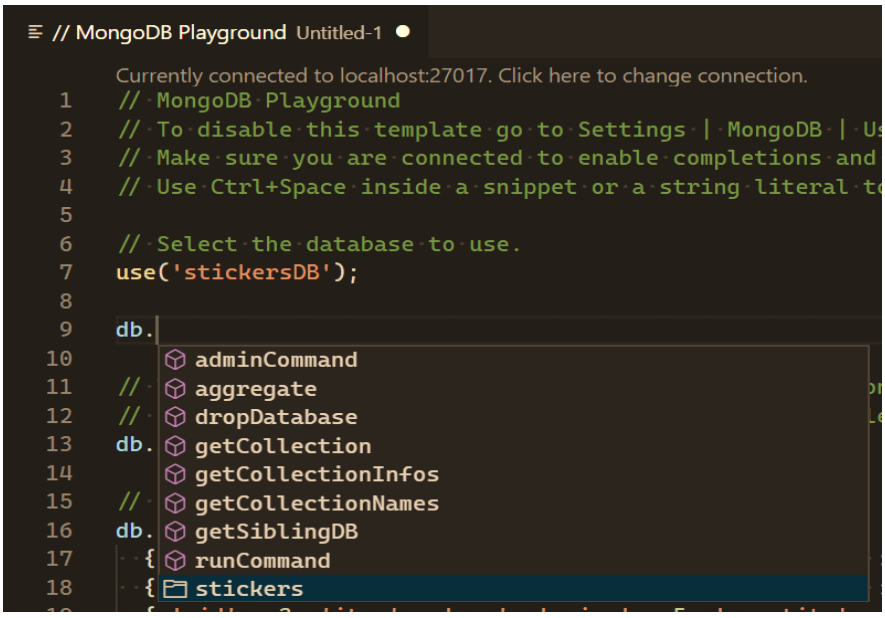

Fig. 1.3 MongoDB-Scheme

Some important features of MongoDB -

- **Schema-less Database:** MongoDB's schema-less design allows for great flexibility. A single collection can hold diverse documents with varying fields and values. This eliminates the need for rigid, predefined structures, making it easier to adapt to evolving data models.
- **Indexing:** MongoDB's indexing feature significantly improves query performance. By creating indexes on specific fields, the database can quickly locate and retrieve relevant data, reducing query execution time.
- **Document Oriented:** MongoDB stores data in flexible, JSON-like documents, each identified by a unique object ID. This document-oriented approach allows for efficient data storage and retrieval, eliminating the need for rigid table structures.

- **Faster -** MongoDB is very fast compared with relational database (**RDBMS**), which is document-oriented. Each data item has its index value, making it easier for us to retrieve any data without wasting time writing queries and making logic accordingly.
- **Scalability:** MongoDB is more scalable with the help of sharding. It provides horizontal scalability. Here the term sharding means distributing data on multiple servers; in this, a large amount of data has been divided into multiple small data chunks with the help of shard key. These types of **data chunks** are evenly distributed across shards that reside across many physical servers.
- **High Performance:** MongoDB has very high performance and has data persistency as compared to other databases due to the presence of its great features like **indexing, scalability, replication**, etc.
- **Replication and Highly Available -** MongoDB ensures high availability and data durability through replication. Multiple copies of data are stored on different servers, allowing for automatic failover in case of server failures. This redundancy safeguards data integrity and minimizes downtime
- **Aggregation:** This feature of MongoDB is quite similar to the SQL GROUPBY clause. This GROUPBY clause performs various operations on the grouped data to get the unique or computed
- **Simple Environment Setup -** MongoDB has a very simple environment setup. One can easily set up MongoDB in their system without applying much effort.

II. Express

Fig. 1.4 ExpressJs

- Express is a JavaScript server-side framework that runs within js.
- It is one of the best backend development JavaScript Frameworks.
- It provides the developer with a platform to create and maintain robust servers.
- Express is used for building and designing web and mobile applications easily and quickly.
- Express is used to provide server-side logic for mobile and web applications, and as such, it is used all over the place.
- It allows developers to spin up robust APIs (Application Programming Interface) and web servers much easier and simpler.
- Express makes robust web servers easier to organize your application's functionality with routing and middleware.
- It also adds helpful functionalities to Node.js HTTP (HyperText Transfer Protocol) objects.
- It is an important component of the MERN and MEAN Stack and is used to build fast, maintainable, and robust productions web applications.

Some important features of Express -

- Express makes Node.js web and mobile application development much easier and faster.
- Express has a very simple environment setup. One can easily set up Express in their system and configure it without applying much effort.
- Express is very easy to connect with Databases like MongoDB.
- Based on HTTP methods and URLs, Express allows you to define the routes of your application.
- Routing mainly aims to describe code that needs to be run in response to any request received by a server. Routing is generally done based on the sequence of URL patterns and the HTTP method, which is associated with the request.
- If you want to perform additional tasks and functions on any request and response, you can easily use various middleware modules present in Express.
- The request is a message that arrives at the server for requesting something, and a Response is a message sent by the server to a client in the form of the result of whatever the client asked for.
- If any error occurs and you want to handle it, you can easily handle it by using error handling middleware.
- Middleware is used somewhere during the lifecycle of request or response in the form of code. It is mainly used to add functionalities or augment the behaviour of the webserver.
- Express also facilitates you to create a REST API (Representational State Transfer Application Programming Interface)
- The REST APIs is also known as RESTful API, It mainly conforms to the constraints of REST architectural style, and it also allows for interaction with RESTful web services. The main advantage of REST API is that it provides great flexibility; it uses HTTP requests to access and use data.
- The data flow into a website structure can easily facilitate by using the two template engines, EJS and Jade, provided by Express.
- Express has a gigantic suite of third-party add-ons so that developers can use it to provide better functionality, helps to increase the security level, and improve speed.
- It is very efficient and scalable; one can easily access it from anywhere and use it simultaneously on different systems, and very fast.
- It is Single-threaded and Asynchronous.
- It also has the biggest community for Node.js.
- With its built-in router, it promotes code reusability.
- If we want to understand the architecture behind web servers and their working along with the organization, then learning Express is the best option.

III. React

Fig. 1.5 React

- React is one of the most popular open-source front-end JavaScript libraries used for building Web applications.
- Before using react, it has some prerequisites that one should follow, that you must download Node packages in your system with their latest versions. Also, you must have an understanding of HTML, CSS and JavaScript.
- It is used to build user interfaces, especially for a single page web application.
- It is not a JavaScript framework. It is just a JavaScript library developed by Facebook to solve problems we could not solve earlier using other libraries while building web and mobile applications.
- React is also used for making a grip over the view layer for mobile and web applications.
- It allows us to create reusable UI (User Interface) components.
- It was first created by software engineer Jordan Walke, who works for Facebook.
- React was first deployed in the Facebook news feed.
- It allows developers to create large web applications that can easily change the data of the page even without reloading the page.
- The main objective of reacting is that it only works on user interfaces in the application, whether mobile or web.
- It is very fast, simple and scalable.
- React is also used with a combination of other JavaScript libraries or frameworks.
- There are a lot of open-source platforms that are also used to make the front-end web and mobile applications easier, like Angular js in MVC, but still, React replaces the Angular from the MEAN stack. Now, most developers are using the MERN stack in which react is used; the main reason is that it is very fast and has more advantages over other front-end frameworks.

Some important features of React

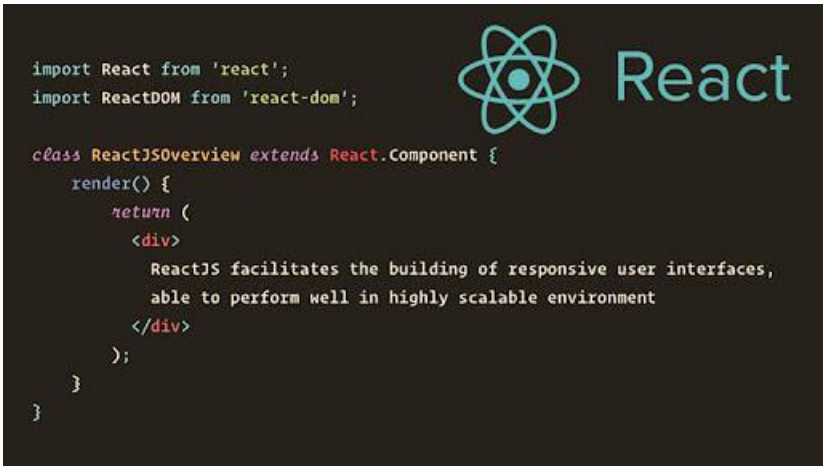

Fig. 1.6 React-Code

- **Easy to learn** - One of the great advantages of using react as it is very easier for a beginner to learn it and make web and mobile applications using this front-end framework. Anyone with a piece of previous basic knowledge in programming can easily understand React compared to Angular. Angular is referred to as a ' Domain Specific Language ', so it is implied that it is quite difficult to understand it. For Learning React, you need the basic knowledge of CSS and HTML.
- **Simple** - React is one of the simplest open-source JavaScript front-end frameworks for building web and mobile applications. It uses the component-based approach, uses plain and simple JavaScript, and a well-defined lifecycle, which makes react much simpler and easier. So that one can easily learn it and build professional mobile and web applications. It uses a simple syntax named JSX, which allows learners or developers to mix HTML with JavaScript to make it easier for them to apply and use it for making efficient web and mobile applications. However, it is not required to use JSX, you can either use plain JavaScript, but as compared to JSX, JSX is the much better option over it due to its simplicity and easier syntax.
- **Data Binding** - React uses an application architecture known as Flux to control data flow to components via one control point called the dispatcher. It uses one-way data binding, which is easier to debug self-contained components of large React applications.
- **Native Approach** - React is used to create mobile applications (React Native) and web applications. React allows the reusability of code and can easily support it, which has many benefits and is much time saver. So simultaneously, at the same time, we can make IOS, Web applications and Android.
- **Performance** - React has very fast performance due to the immutability of data. As the name suggests, we can predict that the immutable data structures never change and allows you to compare direct object references instead of doing deep-tree comparisons. The above reason ultimately affects the performance of reacting and makes it faster.
- **Testability** - React is very easy to test; whatever applications we are generating from the react, whether mobile or web applications, it is much easier for us to test it on react. There are some state functions in the react, where various react views are treated as these functions of the states, and we can easily manipulate with the state we pass to the react view.

IV. Node.js

Fig. 1.7 NodeJS

- js is an open-source server environment, and it is a cross-platform runtime environment for executing JavaScript code outside a browser.
- js is not a programming language, and even it is not a framework.
- It is often used for building and developing numerous backend services like net applications, mobile applications.
- Massive corporations principally utilize it in production like Uber, PayPal, Netflix,
- It may be a free ASCII text file platform and may be utilized by anybody.
- It will run on numerous operative systems like Windows, Mac, Linux, Unix, etc.
- It is incredibly simple to urge started with it and may even be used for agile development and prototyping.
- It provides extremely ascendable and really quick services to the users.
- It is incredibly consistent and may be used as an ASCII text file cleaner.
- It continuously uses JavaScript; thus, it's ultimately helpful for a computer user to quickly create any net service or any net or mobile application.
- It provides a massive system for any ASCII text file library.
- It contains a Non-blocking or, can say, Asynchronous nature.

Some important features of Node -

- **Easy Scalability:** Js is highly scalable because it uses a single-threaded model with event looping. The server usually responds in a non-blocking way due to the help of the event mechanism. It also makes the server very scalable instead of traditional servers that create limited threads to handle requests. Node.js uses a single-threaded program, and this program will be able to provide service to many requests.
- **Fast:** The event loop in Node.js handles all asynchronous operations, so Node.js acts like a fast suite, and all the operations in Node.js are performed quickly like network connection, reading or writing in the database, or file system. It runs on the V8 engine developed by Google.
- **Easy to learn and debug code**: Js is quite easy to learn and debug because it uses JavaScript for running code of web-based projects and various web and mobile applications. If you have excelled in front-end developing and have a good command of JavaScript, you can easily build and run the application on Node.js and explore more as much you can; it depends on your capability.
- **Real-time web apps:** Js plays a key role in making real-time web applications. And If you are building a mobile or a web application, you can also use PHP, although it will take the same time duration as when you use Node.js.

- **Caching Advantage:** Js provides the caching property in which a single module is cached. Sometimes you do not need to re-execute the same lines of code because it has already been cached using Node.js**.**
- **Data Streaming:** In Node.js, hypertext transfer protocol (HTTP) requests and responses area unit thought-about as 2 separate events. They're knowledge streams, thus once you method a file at the time of loading, it'll scale back the time and create it quicker once the info is given within the style of transmissions. It additionally permits you to stream audio and video files at lightning speed.
- **Object-Oriented Approach:** A huge complaint against Node.js was its JavaScript heritage, which frequently involved many procedural spaghetti codes. Frameworks like Coffee Script and Typescript solved these issues but came as a bolt-on for those who seriously cared about coding standards. With the release and general adoption of ES6, Classes are built into the framework, and the code looks syntactically similar to C#, Java and SWIFT.
- **Event-Driven and Asynchronization-** All Apis of the Node.js library area unit asynchronous, that is, non-blocking. It suggests that a Node.js based mostly server ne'er waits for associate API to come back knowledge. The server moves to the consequent API once line it, and a notification mechanism of Events of Node.js helps the server to urge a response from the previous API decision.
- **Corporate Support:** There are a lot of famous companies like PayPal, Wal-Mart, Microsoft, Google that are using Node.js for building the applications. Node.js uses JavaScript, so most companies are combining front-end and backend Teams into a single unit.

Advantages of MERN Stack

There are a lot of advantages of MERN Stack, some of them are mentioned below -

1. For a smooth development of any web application or mobile app, it supports MVC (Model View Controller) architecture; the main purpose of this architecture is to separate the presentation details with the business logic.
2. It covers all the web development stages starting from front-end development to backend development with JavaScript.
3. It is an open-source framework mainly used to develop web-based or mobile applications and is supported by the community.
4. It is very fast and efficient compared to MEAN Stack and mostly suitable for small applications, whereas MEAN Stack is suitable for developing large applications.

3.5 Tailwind CSS: A Utility-First CSS Framework

Tailwind CSS is a unique CSS framework that takes a utility-first approach to styling web pages. Unlike traditional CSS frameworks like Bootstrap, which provide pre-designed components, Tailwind CSS offers a vast collection of low-level utility classes. These classes can be combined to style elements directly in your HTML, without the need for writing custom CSS.

CHAPTER-4
RESULTS AND DISCUSSION

4.1) SIGN UP & LOGIN Page for both admin and customer

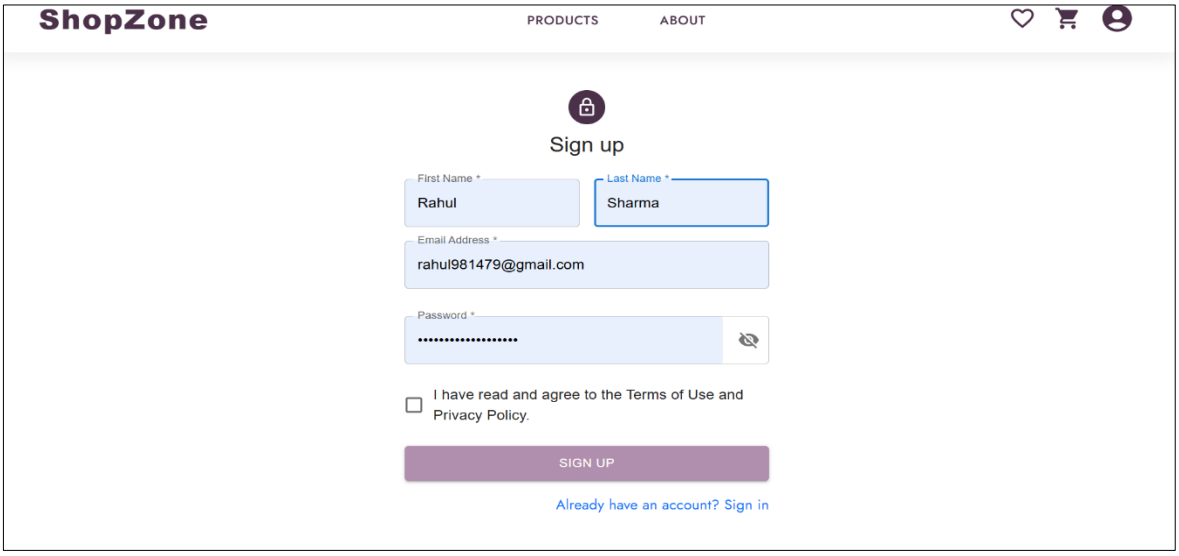

Fig. 1.8 SIGN UP

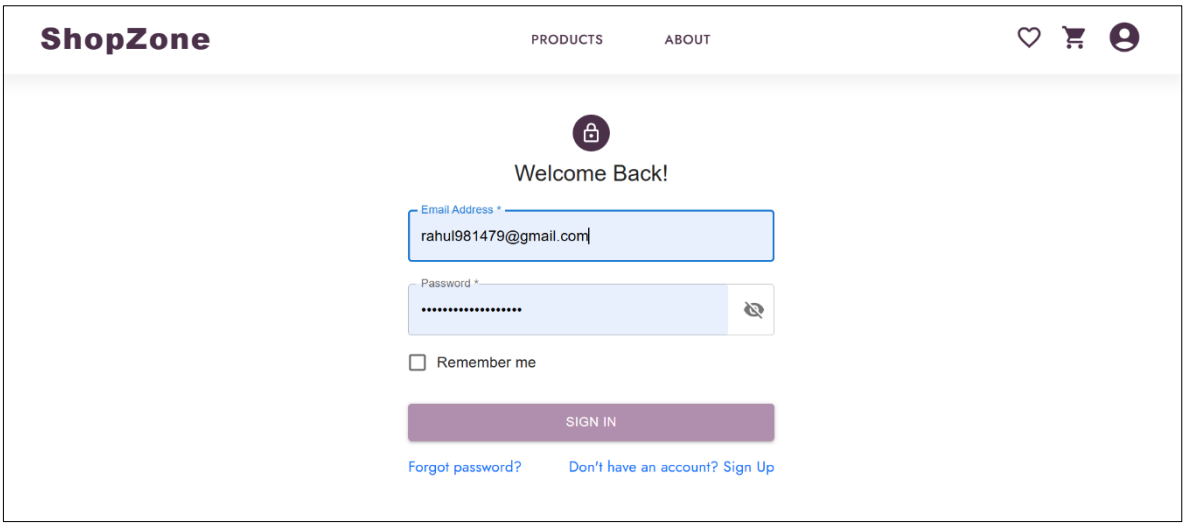

Fig. 1.9 LOGIN

This is sign up & login page of this project. Old user can easily enter the website but new user have to registered first then able to enter the website. The admin also enter through this login page to make necessary updation.

4.2) HOME PAGE FOR CUSTOMER

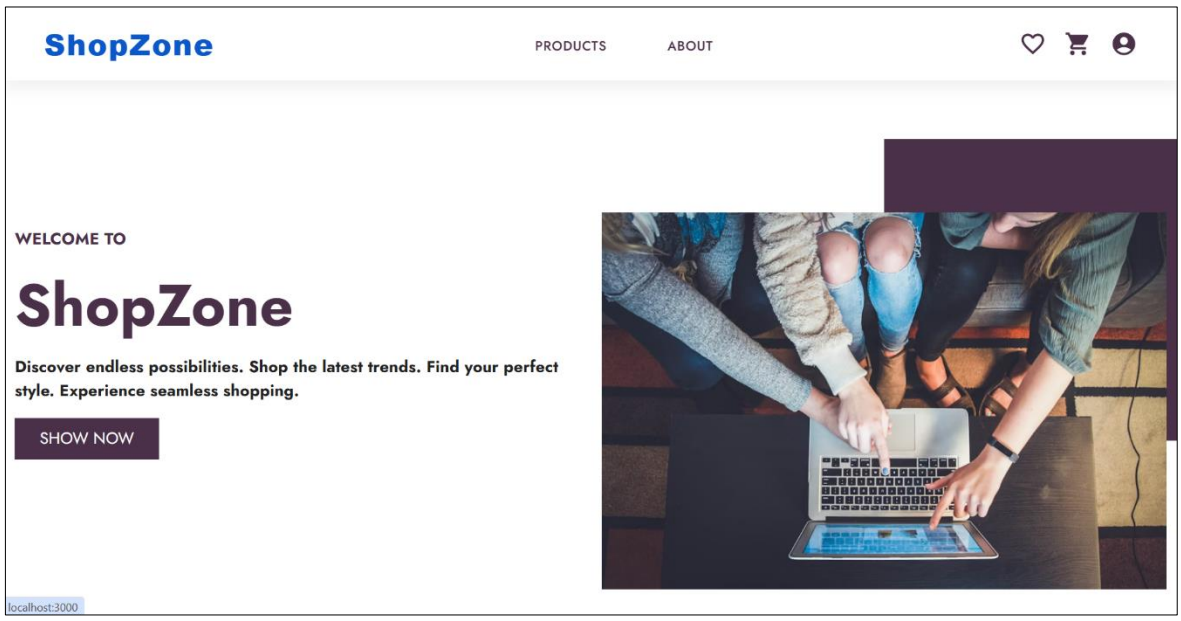

Fig. 2.0 Customer 's HOME PAGE

4.3) PRODUCT ORDER & ADD TO CART

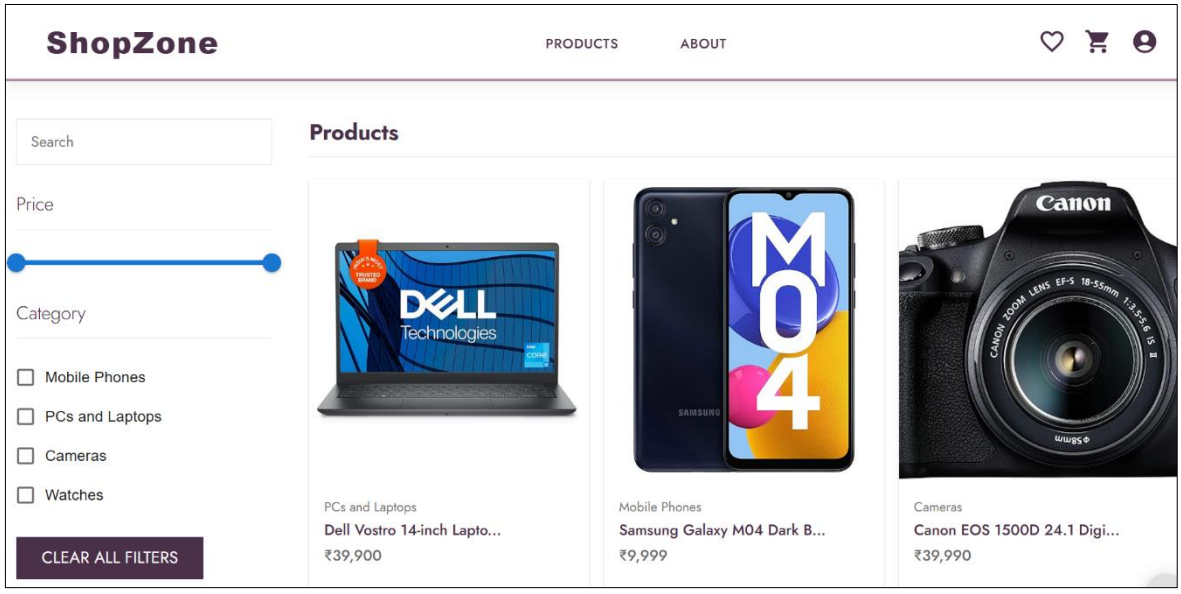

Fig. 2.1 PRODUCT ORDER

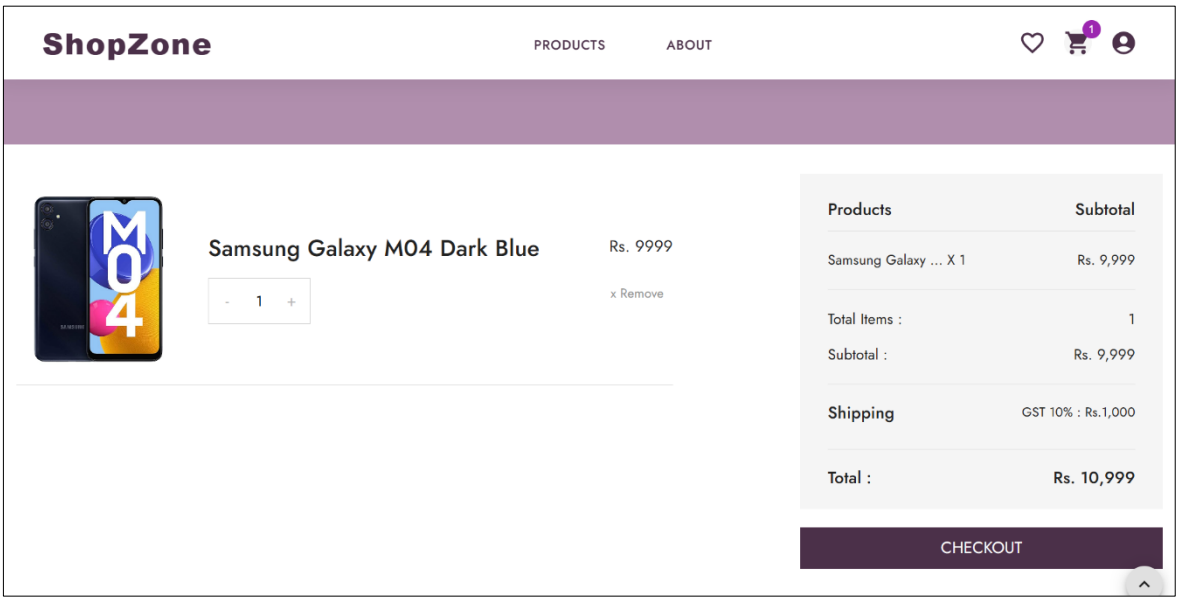

Fig. 2.2 ADD TO CART

4.4) HOME PAGE FOR ADMIN

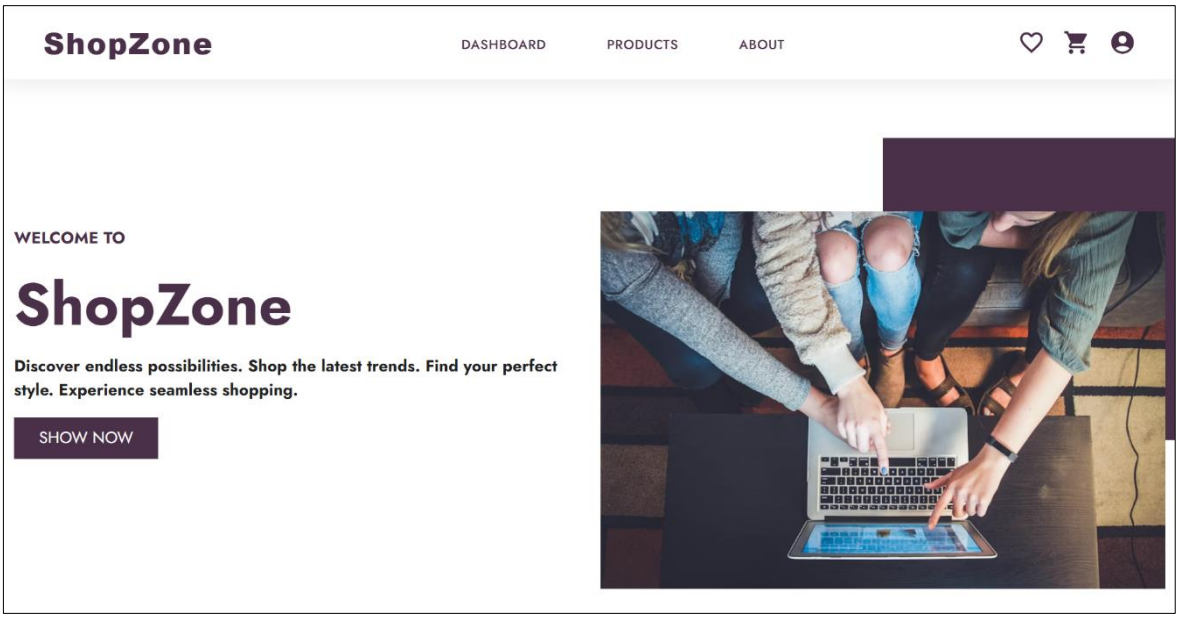

Fig. 2.3 ADMIN 'S HOME PAGE

4.5) ORDERED RECEIVED BY ADMIN

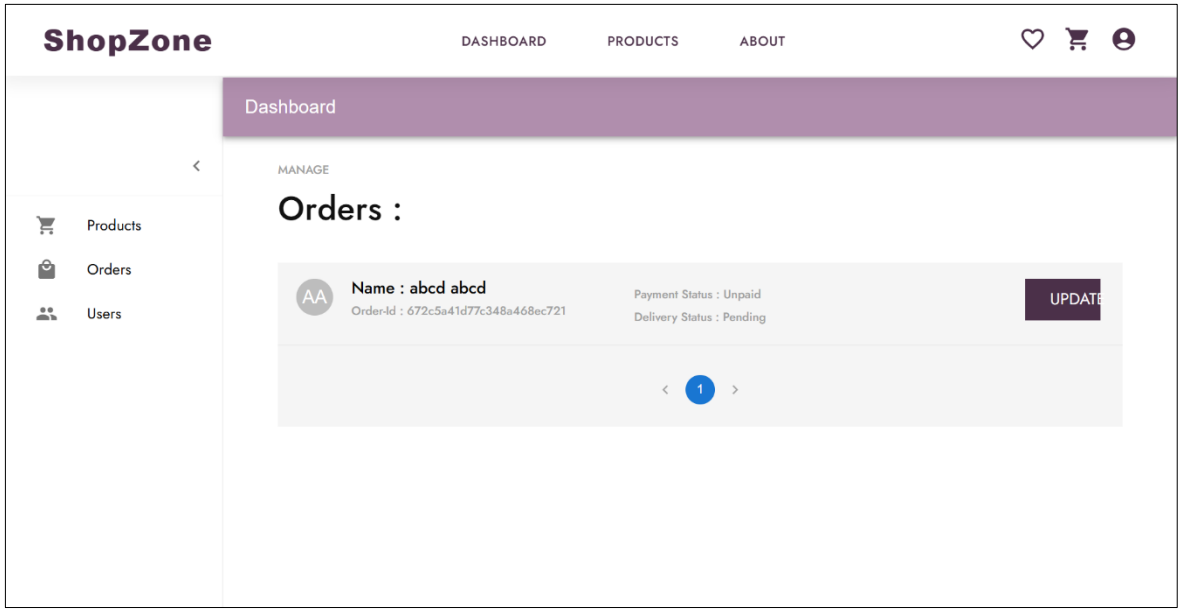

Fig. 2.4 ORDERED RECEIVED

4.6) PRODUCT UPDATION DONE BY ADMIN

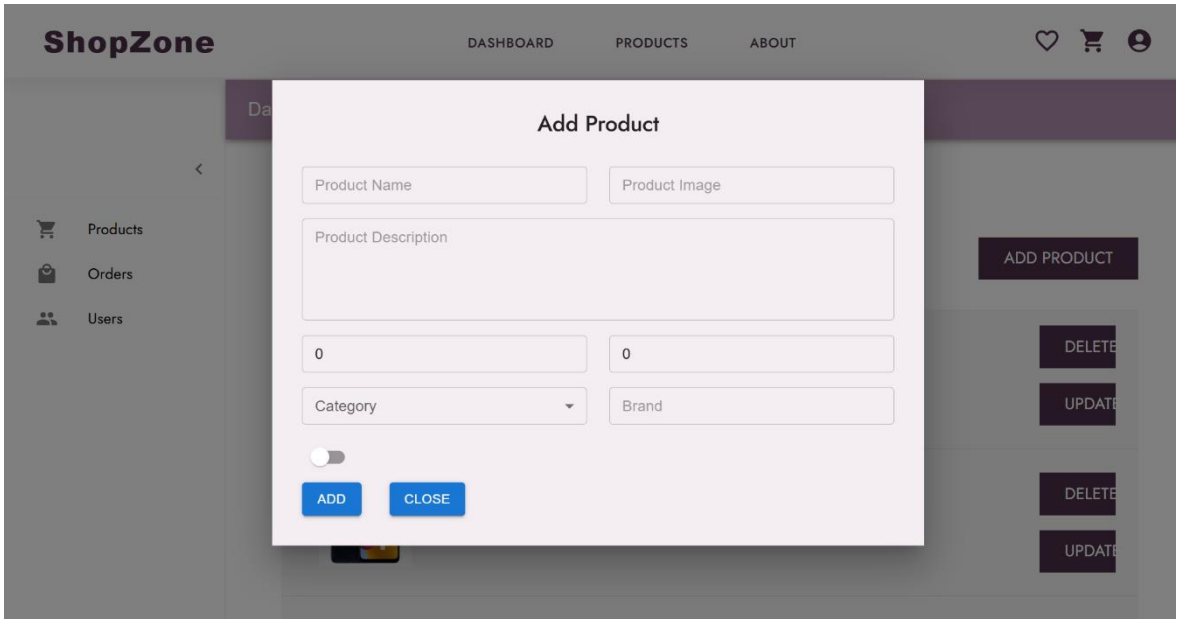

Fig. 2.5 PRODUCT UPDATION

4.7) DATA MANAGED BY MONGO DB DATABASE

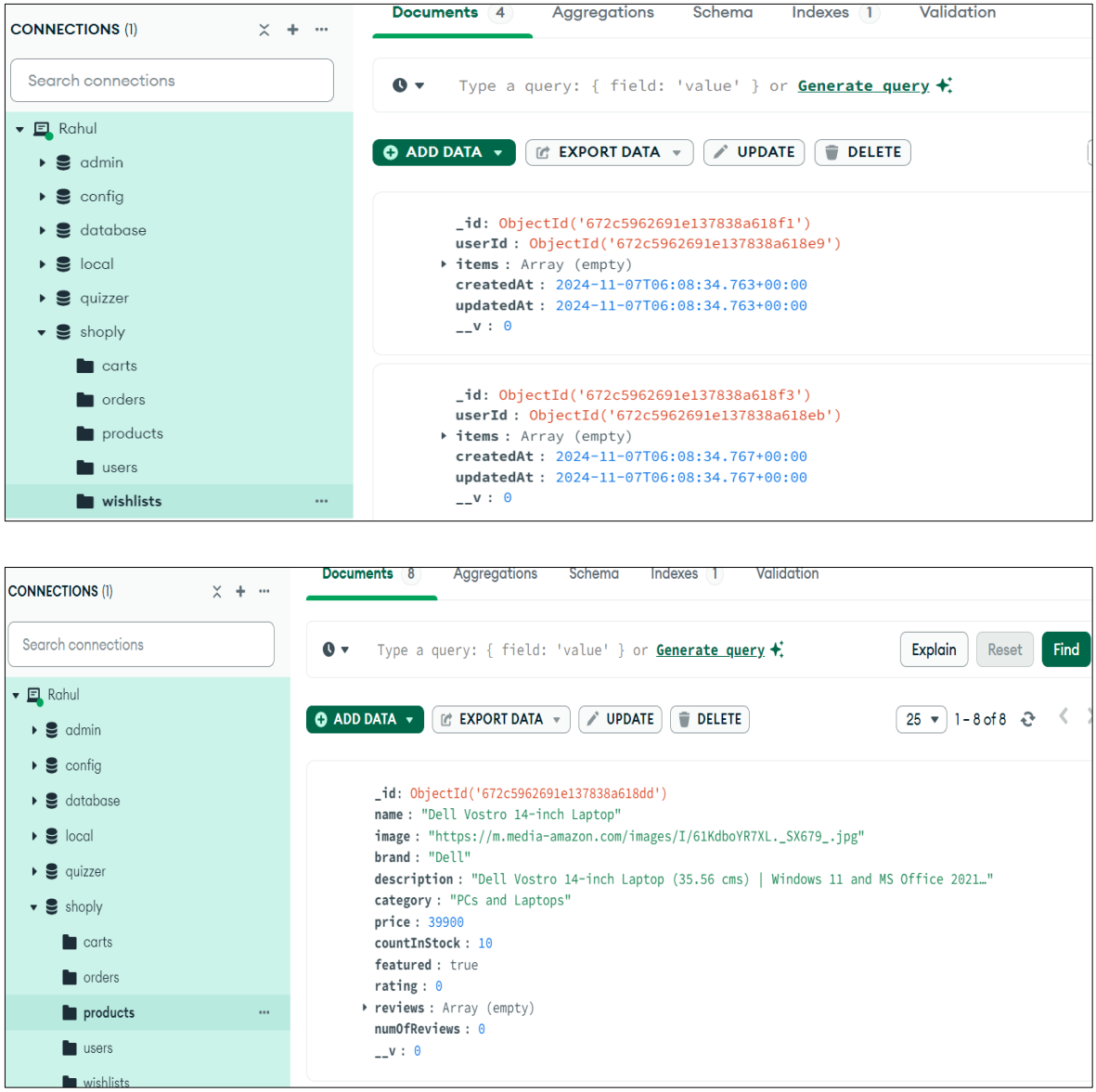

Fig. 2.6 MONGO DB DATABASE

CHAPTER-5
CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

Shop Zone emerges as a comprehensive and versatile project designed to streamline workflows, enhance collaboration, and boost overall team productivity. By providing a user-friendly interface, powerful features, and seamless integration capabilities, shop zone empowers teams to work more efficiently and deliver high-quality projects.

The successful development and implementation of shop zone will contribute to the growth and success of organizations by improving project visibility, accelerating decision-making, and fostering a culture of innovation.

This project that I undertook was truly a very rewarding experience for me in more than one way. It has given a big thrust to my technical knowledge as prospective Software professional. It has also helped me enhance my skills on the personal front. I think I have exploited the opportunity that came my way to the fullest extent by increasing my technical know-how and also gaining the valuable work experience apart from studying the other subjects in our curriculum.

5.2 Future Scope

- **Wide Product Range:** Shopzone offers millions of products across categories like electronics, fashion, home goods, groceries, and more.
- **Convenient Shopping Experience:** Shop anytime, anywhere with an intuitive interface and personalized product recommendations.
- **Fast & Reliable Delivery:** Enjoy on-time deliveries with real-time tracking and updates for complete peace of mind.
- **Secure Payment Options:** Choose from multiple secure payment methods, including credit cards, UPI, wallets, and cash on delivery (COD).
- **Easy Returns & Exchanges:** Shopzone makes returns and exchanges hassle-free, ensuring a smooth shopping experience.

Bibliography:

➢ https://nodejs.org/docs/latest/api/
➢ https://react.dev/learn
➢ https://www.mongodb.com/docs/manual/
➢ https://expressjs.com/en/guide/routing.html
➢ https://axios-http.com/docs/intro
➢ https://www.npmjs.com/package/bcrypt
➢ https://jwt.io/introduction
➢ https://www.nodemailer.com/
➢ https://create-react-app.dev/docs/getting-started
➢ https://tailwindcss.com/docs/installation/framework-guides
➢ https://zod.dev/
➢ https://www.w3schools.com/html/html_intro.asp
➢ https.au/covers/original/9781585428960.jpg
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➢ https://th.bing.com/th/id/OIP.ref0e_qIaDg8bYOHKKA9jQHaE8?pid=ImgDet&rs=1
➢ https://th.bing.com/th/id/OIP.tLQllNLG7fl0waAn5nYzIAAAAA?pid=ImgDet&rs=1