CHAPTER 1
INTRODUCTION

1.1 Introduction to Internship:

The internship experience in Web Design and Development has been a pivotal journey, offering a dynamic blend of practical learning and hands-on application of theoretical knowledge. Over the course of the internship, I have had the privilege to immerse myself in the realm of Web application development, specifically focusing on the MERN Stack. This report serves as a comprehensive reflection on the experiences, challenges, and accomplishments encountered during the internship period. Through collaboration with seasoned professionals and engaging in real-world projects, this internship has provided invaluable insights into the intricacies of Web application development, equipping me with a robust skill set essential for navigating the ever-evolving landscape of mobile technology. This report aims to delineate the key milestones achieved, lessons learned, and the impact of this immersive learning experience on my personal and professional growth.

1.2. Technologies helping in Internship:

The internship experience in web application development has been a transformative journey, bolstered by a diverse array of technologies that have collectively shaped my proficiency in this dynamic field. Leveraging React.js as the library for web and native user interfaces, alongside frameworks like Next.js for server-side rendering, Express.js for building RESTful APIs, and a NoSQL database program, MongoDB, I delved into the intricacies of crafting intuitive and robust web applications. Visual Studio Code served as the integrated development environment (IDE), providing a seamless workflow for coding and debugging.

Embracing the MERN (MongoDB, Express.js, React.js, Node.js) stack for full-stack development, I navigated through the complexities of each component, understanding their roles and interactions within the system. MongoDB provided a flexible and scalable database solution, while Express.js streamlined the development of server-side logic and RESTful APIs. React.js facilitated the creation of dynamic and interactive user interfaces, enabling efficient rendering and state management. Node.js served as the backend runtime environment, fostering the execution of JavaScript code outside the browser.

Through collaborative endeavors with seasoned professionals and immersive engagement with real-world projects, I've not only honed my technical prowess but also cultivated a mindset primed

for continuous innovation and adaptation in the ever-evolving landscape of web development. This report endeavors to encapsulate the pivotal role of these technologies in facilitating my growth and proficiency during the internship period.

1.3. Opportunities:

Internships present a myriad of opportunities for individuals seeking to kickstart their careers. Firstly, interns gain invaluable hands-on experience in their chosen field, applying theoretical knowledge to real-world scenarios. This practical exposure not only enhances technical skills but also cultivates problem-solving and critical thinking abilities. Networking opportunities abound during internships, allowing individuals to establish connections with professionals and mentors who can provide guidance and potentially open doors to future employment. Successful internships often lead to job offers, as employers value the demonstrated commitment and competence of interns. Moreover, interns have the chance to explore different aspects of their chosen industry, refining their career aspirations and making informed decisions about their professional paths. Overall, internships serve as a crucial stepping stone, offering a blend of skill development, networking, and career exploration that can significantly shape an individual's trajectory in the workforce.

CHAPTER 2
ABOUT THE COMPANY

2.1. INTRODUCTION:

Internship Studio emerges as a groundbreaking online platform, founded on the principle of democratizing access to internship opportunities for students across diverse fields. Their mission is to remove the barriers preventing students from pursuing their passions by offering comprehensive internship programs that require no prior experience. Recognizing the scarcity of such inclusive opportunities, they proudly present flagship "Kick-Starter Internship" programs.

contact@internshipstudio.com

2.2 DOMAIN(S) OF COMPANY:

- Android Development
- Web Development
- Java Development
- Ethical Hacking
- Machine Learning
- Artificial Intelligence
- WordPress
- Software Testing
- PowerBI
- Python
- Tableau
- Artificial Intelligence

CHAPTER 3
INTERNSHIP DOMAIN

Internship Domain: Web Design and Development

Area of Internship: Web Application Development

3.1 Domain Details:

Web application development encompasses the creation, design, and implementation of software applications specifically optimized for use on web browsers and web-based platforms. This domain delves into various aspects of web development, including front-end development for crafting intuitive user interfaces (UI), back-end development for server-side logic and database management, integration of APIs and services, testing, and deployment on web servers or cloud platforms.

1. User Interface (UI) Design: Interns will learn to design intuitive and visually appealing user interfaces using HTML, CSS, and modern UI libraries like React.js for front-end development. Understanding user interaction patterns and best practices in UI design is crucial for creating engaging and user-friendly web applications.

2. Backend Development: Interns will delve into backend development by implementing features such as data storage, retrieval, and manipulation using MongoDB as a NoSQL database solution and Express.js for building RESTful APIs. They will also learn to use Node.js as the runtime environment for server-side logic.

3. Integration of APIs and Services: Interns will gain experience in integrating various APIs and services to enhance the functionality of their web applications. This could include integrating payment gateways, authentication services, social media APIs, or other third-party services to provide additional features and capabilities.

4. Testing: Understanding the importance of testing is paramount in web development. Interns will learn various testing techniques, including unit testing for backend logic,

integration testing for API endpoints, and user interface testing using tools like Jest and Enzyme for React.js applications.

5. Deployment: Interns will explore the process of deploying web applications to web servers or cloud platforms using tools like Heroku or AWS. They will learn to prepare production builds, configure server environments, and adhere to best practices for web application deployment.

By immersing themselves in the domain of web development using the MERN (MongoDB, Express.js, React.js, Node.js) stack, interns will acquire the necessary skills and knowledge to conceptualize, develop, and deploy innovative web applications that cater to the diverse needs and preferences of users on the web platform.

CHAPTER 4
INTERNSHIP DETAILS

4.1 Roles and Responsibilities:

During my internship as a Web Developer, I was entrusted with a range of responsibilities that provided me with valuable learning opportunities. These responsibilities can be categorized into three key areas:

4.1.1. Development:

- Code Contribution: I actively participated in writing clean and efficient code using JavaScript, adhering to best practices and coding standards. This involved tasks like implementing features, fixing bugs, and contributing to code reviews.
- Utilization of Development Tools: I effectively utilized Visual Studio Code, Node.js, and npm to build, deploy, and test web applications, ensuring a smooth development workflow.
- Understanding and Implementing APIs: I gained experience in integrating various APIs to provide specific functionalities within the web application, potentially working with APIs for user authentication, data retrieval, or other relevant features.

4.1.2. User Interface (UI) Design and Development:

- Designing User Interfaces: I participated in the design of user interfaces using tools like React.js, focusing on creating intuitive, user-friendly, and visually appealing interfaces for the application.
- Implementing UI Elements: I translated UI designs into functional code, ensuring proper layout, responsiveness, and user interaction across various browsers and screen sizes.

4.1.3. Testing and Debugging:

- Conducting Thorough Testing: I played a role in testing the web application across different browsers and devices to identify and report any bugs or functionality issues.
- Debugging and Troubleshooting Issues: I actively participated in debugging processes, utilizing tools and techniques to identify the root cause of issues and propose solutions.

By fulfilling these roles and responsibilities, I gained valuable hands-on experience in various aspects of web development, contributing to the overall success of the project while significantly enhancing my technical skillset.

4.2 Project Overview:

The project has the following pages:

- Home page: This is the landing page of the website, which displays the logo, the navigation bar, the banner, and some featured products and services. It also provides links to other pages, such as shop, cart, login, etc.
- Shop page: This is the page that displays the products, such as sneakers, boots, sandals, etc. It also allows the user to filter and sort the products by different criteria, such as price, size, color, brand, etc. It also shows the product details, such as name, price, image, description, etc. and allows the user to add or remove the product from the cart.
- Product page: This is the page that displays the products related to clothing, such as shirts, pants, jackets, etc. It also allows the user to filter and sort the products by different criteria, such as price, size, color, brand, etc. It also shows the product details, such as name, price, image, description, etc. and allows the user to add or remove the product from the cart.
- Cart page: This is the page that displays the items in the cart, along with their quantity, price, and total amount. It also allows the user to update or delete the items from the cart. It also provides a button to proceed to the checkout and payment process.
- Login page: This is the page that displays the login and sign-up forms for the user. It also uses jwt-Token to authenticate the user based on their email and password.

4.3 Description of the project:

Shopify is an ecommerce website that allows them to buy shoes, clothing, equipment, and other products and services. The website is built using the MERN stack, which is a popular technology stack for web development. The website has a user-friendly and attractive design, and offers features such as user authentication, product catalog, shopping cart, checkout, payment, order tracking, reviews, etc. and ensures its security and performance. The website is a project that demonstrates the skills and knowledge of the MERN stack and web development in general. The website also provides a platform for sports lovers to connect and share their passion. The website is a project that can be evaluated based on the quality and functionality of the website design and development, and the use and integration of the MERN stack.

4.4 Scope of project:

The scope of the project is to create an ecommerce website using the MERN stack, which is a popular technology stack for web development. The scope of the project includes the following aspects:

- The design and development of the frontend of the website, which includes the components and routes for the pages, such as home, shoes, clothing, equipment, cart, login, etc. The frontend will use React and CSS to create dynamic and responsive user interfaces that showcase the products and services offered by the website. The frontend will also use a React feature called context api to share data across the component tree without passing props manually.
- The design and development of the backend of the website, which includes the database, the server, and the API. The backend will use MongoDB, Express, and Node.js to store and manipulate the data, such as the product catalog, the user information, the order history, etc. The backend will also use jwtToken to implement the user authentication and authorization system, which will verify and authorize the user based on their email and password.
- The integration of external APIs, such as Google Maps, Stripe, Mailchimp, etc. to enhance the functionality and user experience of the website. The integration of external APIs will allow the website to provide features such as displaying the location of the nearest store, processing the payment securely, sending the confirmation email, etc.
- The deployment and hosting of the website on a cloud platform, such as Heroku, AWS, etc. and ensuring its security and performance. The deployment and hosting of the website will allow the website to be accessible and available to the users online. The security and performance of the website will be ensured by using encryption, SSL certificates, caching, load balancing, etc.
- The documentation and presentation of the project, which includes the project overview, the project objectives, the project scope, the project methodology, the project results, the project evaluation, the project challenges, the project limitations, the project future work, etc. The documentation and presentation of the project will use appropriate tools and formats, such as markdown, LaTeX, PowerPoint, etc.

CHAPTER 5

Phases and Technologies

5.1 Phases:

5.1.1. Planning Phase:

In the planning phase, the project objectives, scope, requirements, and methodology are defined and documented. The project objectives are to create an ecommerce website for sports enthusiasts using the MERN stack, to demonstrate the skills and knowledge of the MERN stack and web development in general, and to provide a platform for people to browse, buy, and review their favorite products and services. The project scope includes the design and development of the frontend and backend of the website, the integration of external APIs, the deployment and hosting of the website, and the documentation and presentation of the project. The project requirements include the functional and non-functional requirements of the website, such as the user authentication, product catalog, shopping cart, checkout, payment, order tracking, reviews, etc. The project methodology includes the tools and techniques used for the project management, such as the agile approach, the scrum framework, the git version control, etc.

5.1.2. Designing Phase:

In the designing phase, the architecture and layout of the website are designed and documented. The architecture includes the components and routes of the website, such as home, shoes, clothing, equipment, cart, login, etc. The layout includes the wireframes and mockups of the website, which show the appearance and arrangement of the elements on the web pages, such as the logo, the navigation bar, the banner, the product details, etc.

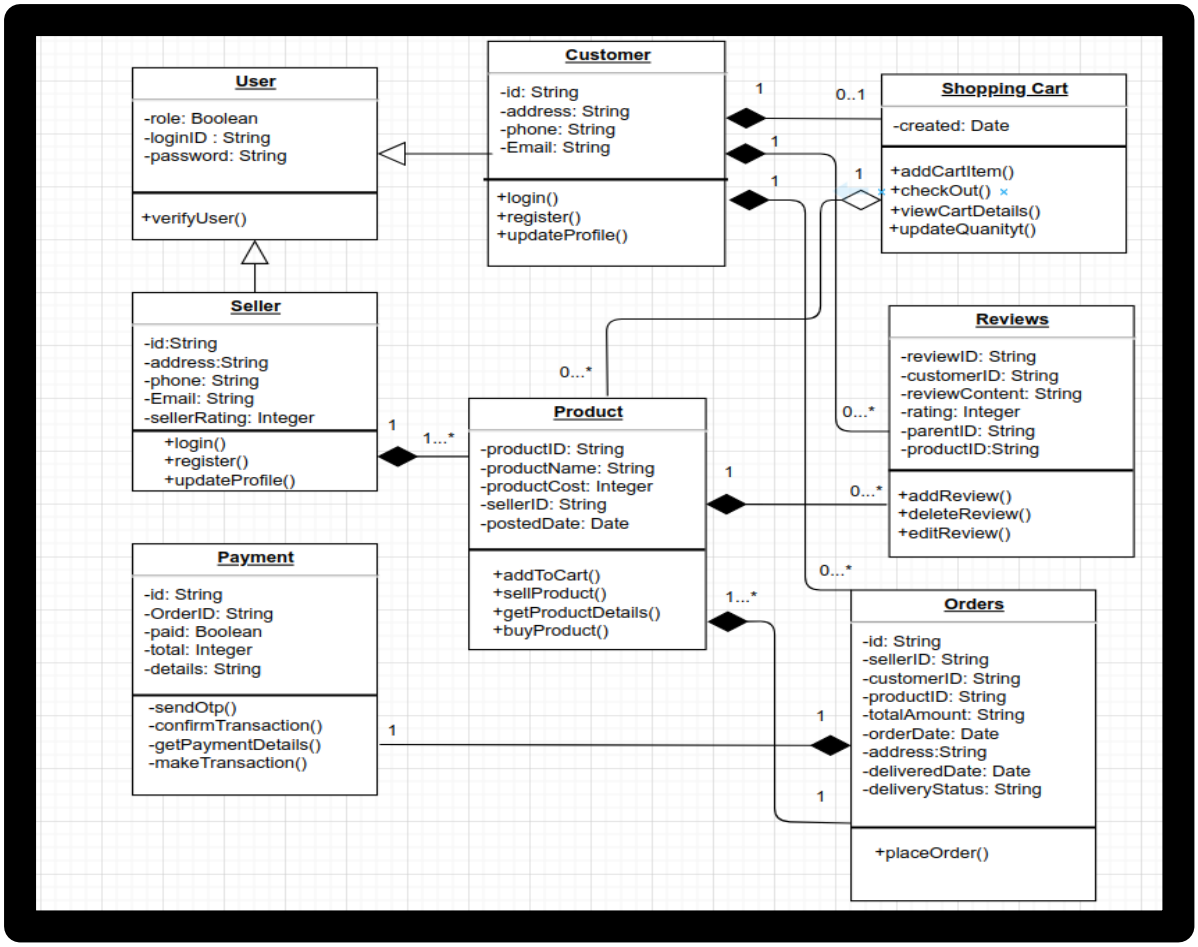

Fig. 5.1. UML Diagram

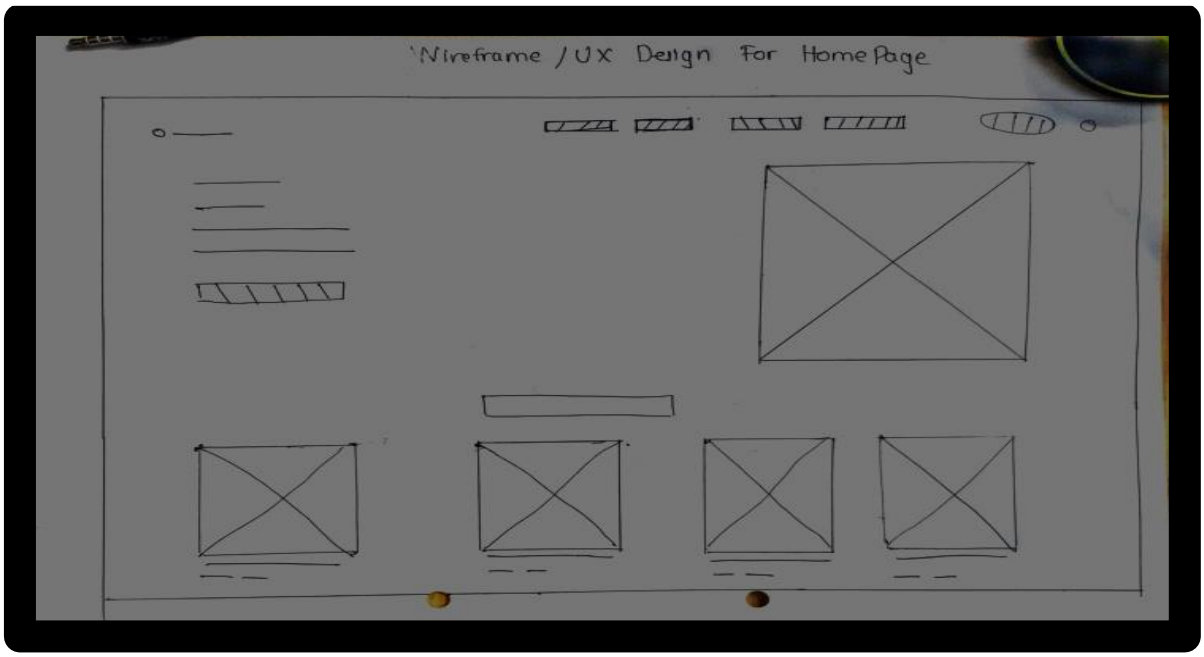

Fig. 5.2. Wireframe for Homepage.

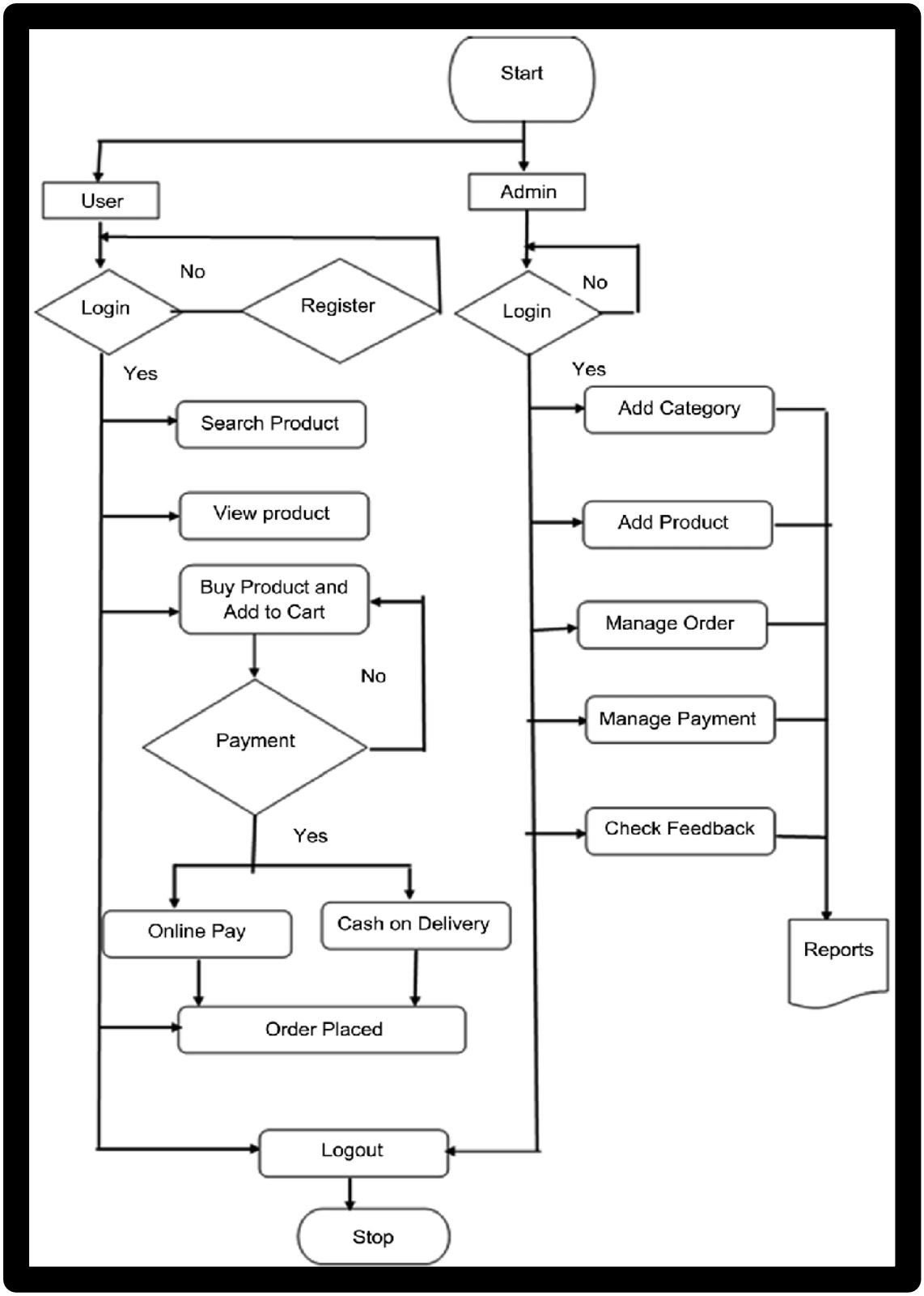

Fig. 5.3. Working Flowchart of Website.

5.1.3. Developing Phase:

In the developing phase, the frontend and backend of the website are developed and implemented. The frontend uses React and CSS to create dynamic and responsive user interfaces that showcase the products and services offered by the website. The frontend also uses a React feature called context api to share data across the component tree without passing props manually. The backend uses MongoDB, Express, and Node.js to store and manipulate the data, such as the product catalog, the user information, the order history, etc. The backend also uses jwtToken to implement the user authentication and authorization system, which verifies and authorizes the user based on their email and password.

5.1.4. Testing Phase:

In the testing phase, the website is tested and evaluated based on the quality and functionality of the website design and development, and the use and integration of the MERN stack. The testing includes the unit testing, integration testing, system testing, and user acceptance testing of the website, which check the correctness, completeness, reliability, usability, security, and performance of the website. The evaluation includes the feedback and suggestions from the users, peers, and mentors, which help to improve the website and the skills of the developer.

5.2. Technologies:

Technology	Description	Purpose
MongoDB	A NoSQL database that stores data in JSON-like documents.	To store and manipulate the data, such as the product catalog, the user information, the order history, etc.
Express.js	A web framework that handles routing, middleware, and server-side logic.	To simplify the development process and handle the requests and responses between the frontend and the backend.
ReactJS	A front-end library that creates user interfaces using components and state management.	To create dynamic and responsive user interfaces that showcase the products and services offered by the website.
Node.js	A runtime environment that executes JavaScript code outside the browser.	To enable the development of scalable and efficient web applications.
JWT-token	A standard method for securely transmitting information between parties as a JSON object.	To implement the user authentication and authorization system, which verifies and authorizes the user based on their email and password.

Table 5.4. Tech Stack.

CHAPTER 6

Results

The project has successfully created an ecommerce website using the MERN stack, which is a popular technology stack for web development. The website has a user-friendly and attractive design, and offers features such as user authentication, product catalog, shopping cart, checkout, payment, order tracking, reviews, etc.

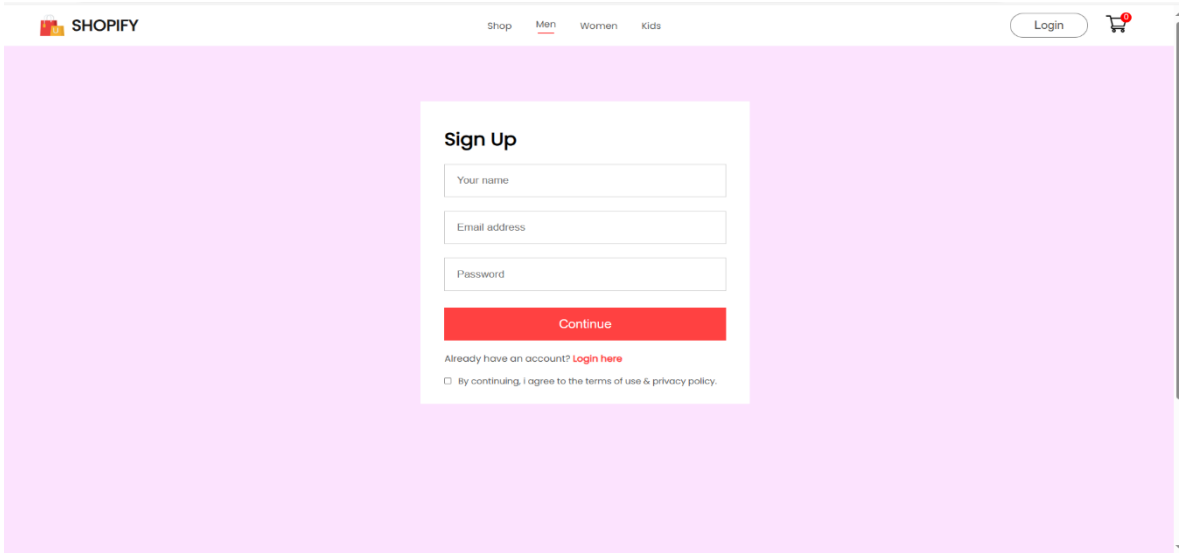

Fig 6.1. Sign Up Page

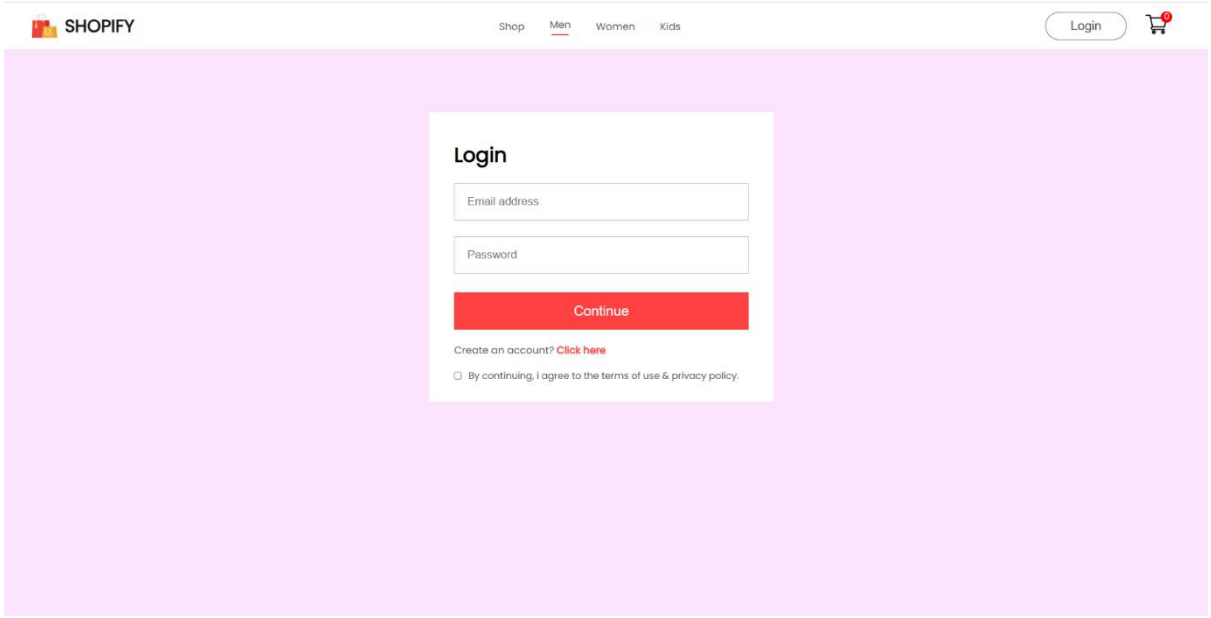

Fig. 6.2. Sign In Page

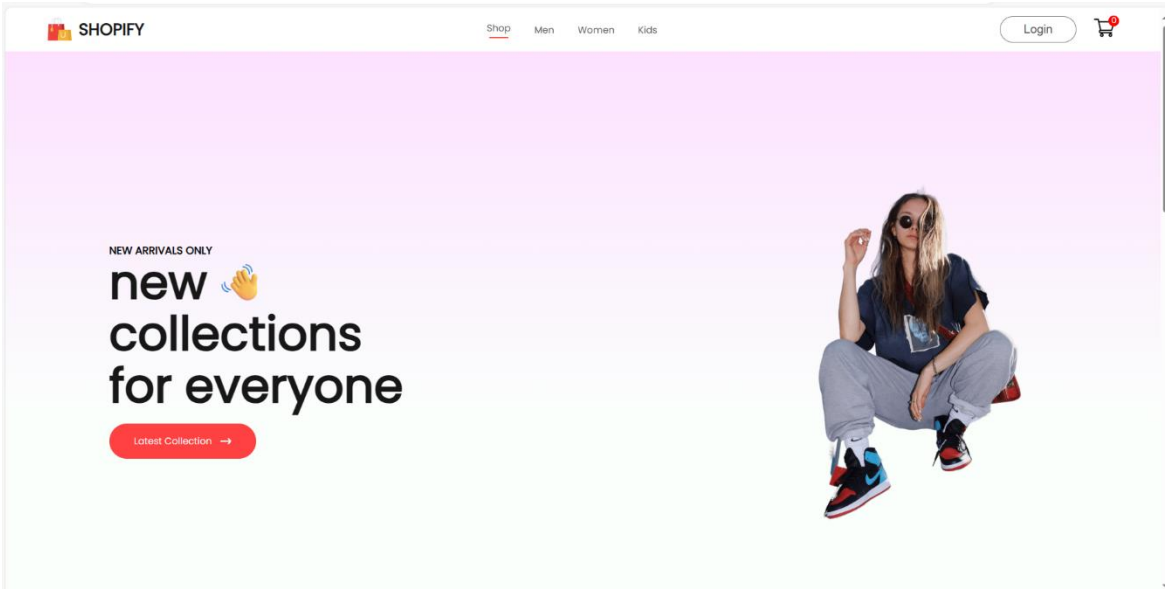

Fig. 6.3. Home Page

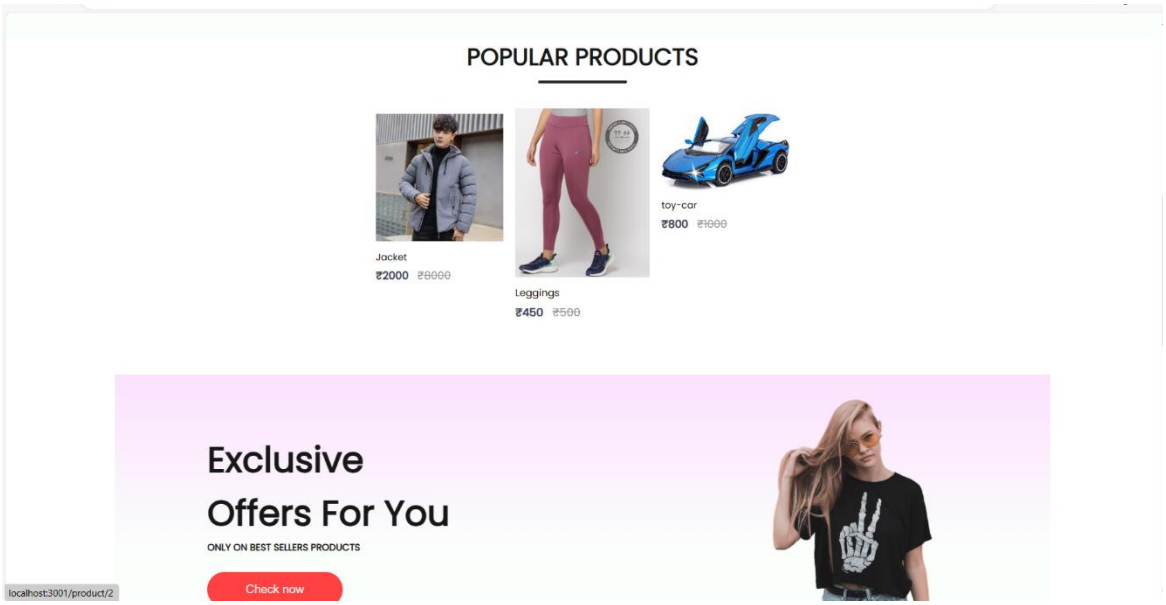

Fig. 6.4. Shop Page

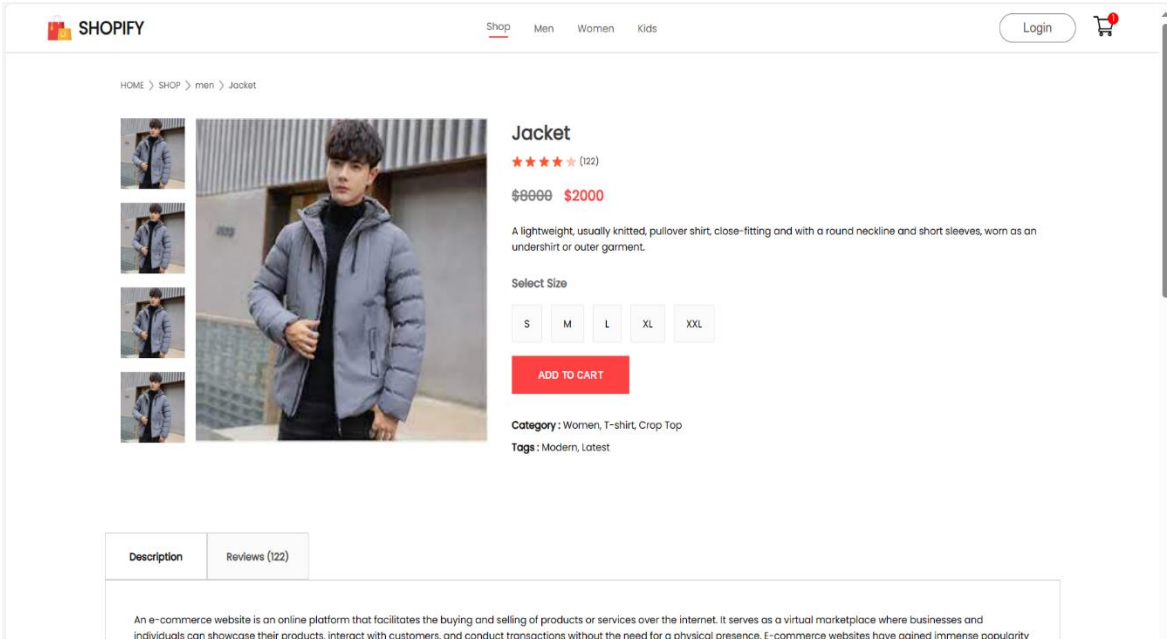

Fig. 6.5. Single Product View Page

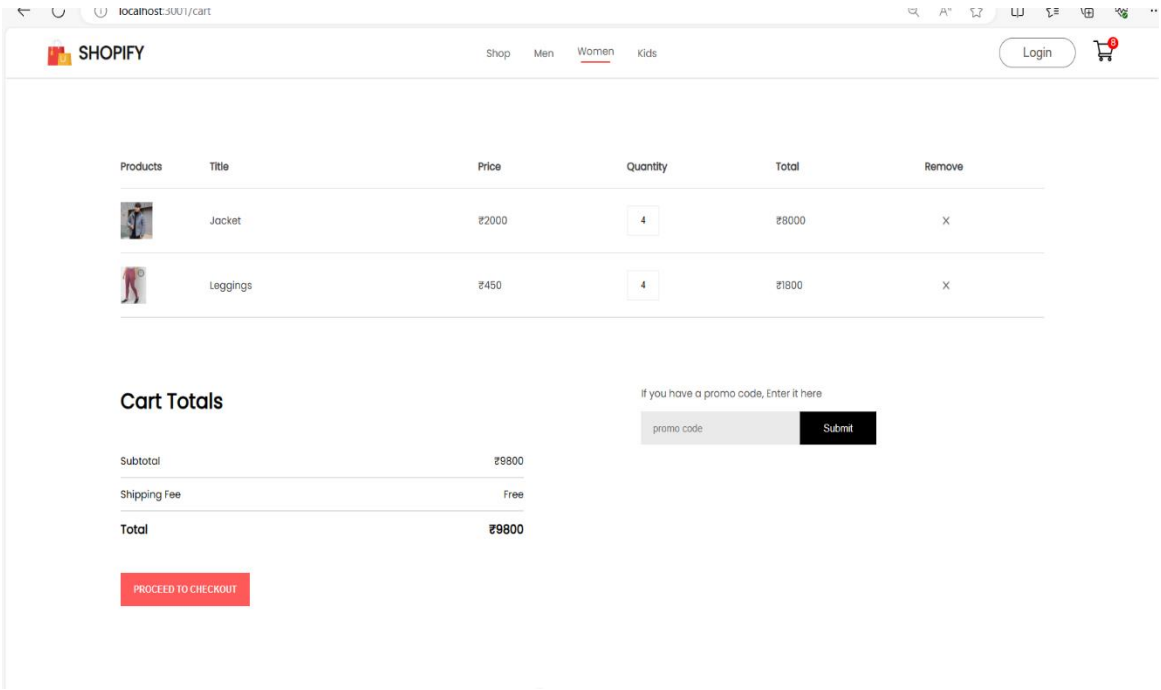

Fig. 6.6. Cart Page

CHAPTER 7
Internship Outcomes

7.1 Information of Knowledge Gain:

My internship at **Internship Studio** as a Web Developer proved to be an enriching and invaluable experience. Through my active participation in the assigned projects and daily tasks, I achieved a multitude of positive outcomes that have significantly impacted my professional development:

1. Enhanced Technical Skills:

- Proficiency in JavaScript: I acquired a strong foundation in JavaScript, enabling me to write clean, efficient, and maintainable code for web applications using the MERN stack.
- Mastery of React.js: I developed advanced skills in utilizing React.js, the front-end library of choice, to build modern, visually appealing, and responsive user interfaces.
- Expertise in Web Development Tools: I became proficient in using Visual Studio Code, Node.js, and npm, effectively navigating the entire web development process from code writing to testing and deployment.

2. Practical Project Experience:

- Successfully Completed one major project: I applied my theoretical knowledge to practical settings, delivering projects such as e-commerce website.
- Gained Hands-On Experience: Each project provided opportunities to practice and enhance various skills, including front-end design, back-end logic implementation, database management, and API integration.
- Enhanced Problem-Solving Skills: I developed the ability to approach technical challenges, debug issues, and find creative solutions through project development.

3. Professional Development:

- Understanding of Industry Practices: I gained valuable insights into real-world workflow and best practices followed in professional web development environments using the MERN stack.
- Increased Confidence: Successfully completing the internship tasks and projects boosted my confidence and motivated me to pursue further development in the web development field.

Beyond these specific outcomes, the internship also equipped me with valuable soft skills such as time management, organization, and the ability to work independently while collaborating effectively within a team. These combined outcomes have significantly prepared me for future endeavors in the exciting and ever-evolving world of web development using the MERN stack.

CHAPTER 8

Attendance Record

Weeks	Activity Planned	Activity Completed Status
Week 1	Learned HTML, CSS, JavaScript	Learned about the HTML Tags, there uses and different CSS properties for the styling.
Week 2	Learn ReactJS, Bootstrap, MongoDB.	Learned how to create dynamic and responsive user interfaces using react and bootstrap. And to store and manipulate data using MongoDB.
Week 3	Learn Express.js, Node.js	Learned the concept of Express and Node.js
Week 4	Understand the problem statement.	Understood the problem statement and made planning and design of the final project.
Week 5	Complete the project which is an Ecommerce Website.	Created an Ecommerce Website using the MERN Stack, which is popular technology stack for web development.

Table 8.1. Record Sheet.

CHAPTER 9

Conclusion

The project has successfully created an ecommerce website using the MERN stack, which is a popular technology stack for web development. The project has achieved the following objectives:

- To design and develop a user-friendly and attractive website that showcases various products and services, such as shoes, clothing, equipment, etc. and allows users to browse, buy, and review them.
- To implement features such as user authentication, product catalog, shopping cart, checkout, payment, order tracking, reviews, etc. using the MERN stack, which consists of MongoDB, Express, React, and Node.js.
- To demonstrate the skills and knowledge of the MERN stack and web development in general, such as designing and developing dynamic and responsive web applications, using and integrating the MERN stack, documenting and presenting the project, etc.

The project has followed a systematic and rigorous methodology, which includes the following phases:

- Planning: The project has defined and documented the project objectives, scope, requirements, and methodology, using appropriate tools and techniques, such as the agile approach, the scrum framework, the git version control, etc.
- Designing: The project has designed and documented the architecture and layout of the website, using wireframes and mockups, which show the position and size of the elements on the screen, such as text, buttons, images, menus, etc.
- Developing: The project has developed and implemented the frontend and backend of the website, using the MERN stack, which enables the creation of dynamic and responsive web applications. The project has also integrated external APIs, such as Google Maps, Stripe, Mailchimp, etc. to enhance the functionality and user experience of the website.
- Testing: The project has tested and evaluated the website based on the quality and functionality of the website design and development, and the use and integration of the MERN stack. The project has also received feedback and suggestions from the users, peers, and mentors, which have helped to improve the website and the skills of the developer.

The project has shown the potential and benefits of using the MERN stack for creating ecommerce websites, as it provides a powerful and versatile technology stack that allows building dynamic and responsive web applications. The project has also shown the interest and passion of the developer for web development and sports, as it reflects the personal interests and passions of the developer.

CHAPTER 10

Future Scope

The project has some limitations and challenges, which provide opportunities for future improvement and enhancement. Some of them are:

- The project could improve the user interface and user experience of the website, by adding more features and functionalities, such as search, filter, sort, wish-list, recommendation, etc. The project could also improve the design and appearance of the website, by using more colors, fonts, icons, animations, etc.
- The project could improve the security and performance of the website, by using more encryption, SSL certificates, caching, load balancing, etc. The project could also improve the scalability and reliability of the website, by using more cloud services, such as AWS, Firebase, etc.
- The project could improve the data and content of the website, by adding more products and services, such as coaching, training, events, etc. The project could also improve the quality and accuracy of the data and content, by using more data sources, such as APIs, web scraping, etc.
- The project could improve the impact and innovation of the website, by adding more features and functionalities, such as social media integration, gamification, personalization, etc. The project could also improve the social, economic, and environmental aspects of the website, by addressing the potential risks and threats, such as privacy, fraud, waste, etc.

CHAPTER 11

References

Web Links: -

Express - https://expressjs.com/en/guide/routing.html

Mongoose - https://mongoosejs.com/docs/documents.html

Node.js - https://nodejs.org/en/docs

React - https://react.dev/learn

YouTube Links: -

https://www.youtube.com/watch?v=eSh1FZDJEWU&list=PLu0W_9lII9agiCUZYRsvtGTXdxkzPyItg&index=64&ab_channel=CodeWithHarry

https://youtu.be/jbfuzcrfjqQ?si=m4099sqI9UcNdKep

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