"E-Commerce Eyewear Website"

A PROJECT REPORT

Submitted by

VISHVAM G. DHANANI

200020107084

In partial fulfilment for the award of the degree of

BACHELOR OF ENGINEERING

In

COMPUTER ENGINEERING

AHMEDABAD INSTITUTE OF TECHNOLOGY

AHMEDABAD

Gujarat Technological University, Ahmedabad.

AHMEDABAD INSTITUTE OF TECHNOLOGY

Near Vasantnagar Township, Gota-Ognaj Road, Ahmedabad, Gujarat 380060.

CERTIFICATE

This is to certify that the project report submitted along with the project entitled **"E-Commerce Eyewear Website"** has been carried out by **VISHVAM** under my guidance in partial fulfilment for the degree of Bachelor of Engineering in COMPUTER ENGINEERING, 8th Semester of Gujarat Technological University, Ahmadabad during the academic year 2022-23.

Prof. Darshana Patel	Dr. Dushyantsinh Rathod
Internal Guide	Head of Department

Maxgen Technologies Pvt.Ltd

Date: 3 Feb 2024

OFFER LETTER FOR INTERNSHIP

TO WHOMESOEVER IT MAY CONCERN

We are Pleased to confirm you that **Mr. Dhanani Vishvam Gaurangbhai**, Enroll no: 200020107084 Student of Ahmedabad Institute of Technology has been appointed for **React JS** Internship program in **Maxgen Technologies Pvt. Ltd.**

We wish him all the best to perform in this internship which is to be conducted from **16th Jan 2024**. (Duration: 3 to 4 Month)

For Maxgen Technologies Pvt Ltd

Hiral Gajjar
Manager – Human Resources

Web Development | E-Commerce | ERP | SEOServices | Industrial Training
website:- www.maxgentechnology.com website:- www.maxgentechnologies.com
9099039845 / 09909163651 / 7755926532 / 7778885892 / 8758888221

AHMEDABAD INSTITUTE OF TECHNOLOGY

Near Vasantnagar Township, Gota-Ognaj Road, Ahmedabad, Gujarat.

Gujarat 380060

DECLARATION

We hereby declare that the Internship / Project report submitted along with the Internship or Project entitled "E-Commerce Eyewear Website" submitted in partial fulfilment for the degree of Bachelor of Engineering in Computer Engineering to Gujarat Technological University, Ahmedabad, is a Bonafide record of original project work carried out by me at MaxgenTechnologies Pvt.Ltd. under the supervision of Nitin Patel and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of The Student: Sign of Student:

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ACKNOWLEDGEMENT

I wish to express our sincere gratitude to our External guide Mr. **Nitin Patel** for continuously guiding me at the company and answering all my doubts with patience. I would also like to thank my Internal Guide Prof. **Darshana Patel** for helping us through our internship by giving us the necessary suggestions and advice along with their valuable co-ordination in completing this internship.

I also thank our parents, friends and all the members of the family for their precious support and encouragement which they had provided in completion of our work. In addition to that, I would also like to mention the company personals who gave us the permission to use and experience the valuable resources required for the internship.

Thus, In conclusion to the above said, I once again thank the staff members of **MaxgenTechnologies Pvt. Ltd.** for their valuable support in completion of the internship.

Thank You,

VISHVAM DHANANI (200020107084)

ABSTRACT

This report proposes a system that utilizes Deep Learning to provide customers with personalized product recommendations for eyewear items based on user-uploaded images. In a vast infrastructure, it may not be feasible for customers to visit every shop, which makes the recommendation system an ideal solution to enhance the shopping experience. The proposed system also provides the availability of the recommended products and their alternative options within the same infrastructure. By leveraging state-of-the-art Deep Learning techniques, the system can accurately suggest products that match the user's preferences.

The proposed system has the potential to revolutionize the way customers shop for eyewear products by providing an efficient and personalized shopping experience.

LIST OF FIGURES

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CHAPTER-1 Overview of The Company

Company Name: Maxgen Technologies Pvt. Ltd.

Address **:** 303 shoppers plaza 4, Chimanlal Girdharlal Rd, Ahmedabad.

Contact No. 9099039845

E-mail Id **:** ahmedabad@maxgentechnologies.com

Website **:** https://maxgentechnologies.com/

About Us:

At Maxgen Technologies Pvt. Ltd., we've imbibed a culture of people first and customer-centricity. My colleagues and I understand how craftsmanship, team spirit, trust, and an unwavering work ethic can make magic happen. Technology is at the heart of everything we do. When you approach us with your business challenge, apart from looking at the obvious solutions, we want to go beyond the brief, always. We also look at how we can peel the layers and marry what you want with what your end-user needs.

To that effect, every person on my team takes learnings in their stride to continuously evolve and hone their talents, their intuition, and the value that they bring. And it is my mission to create a space where they give nothing but their best.

Vision:

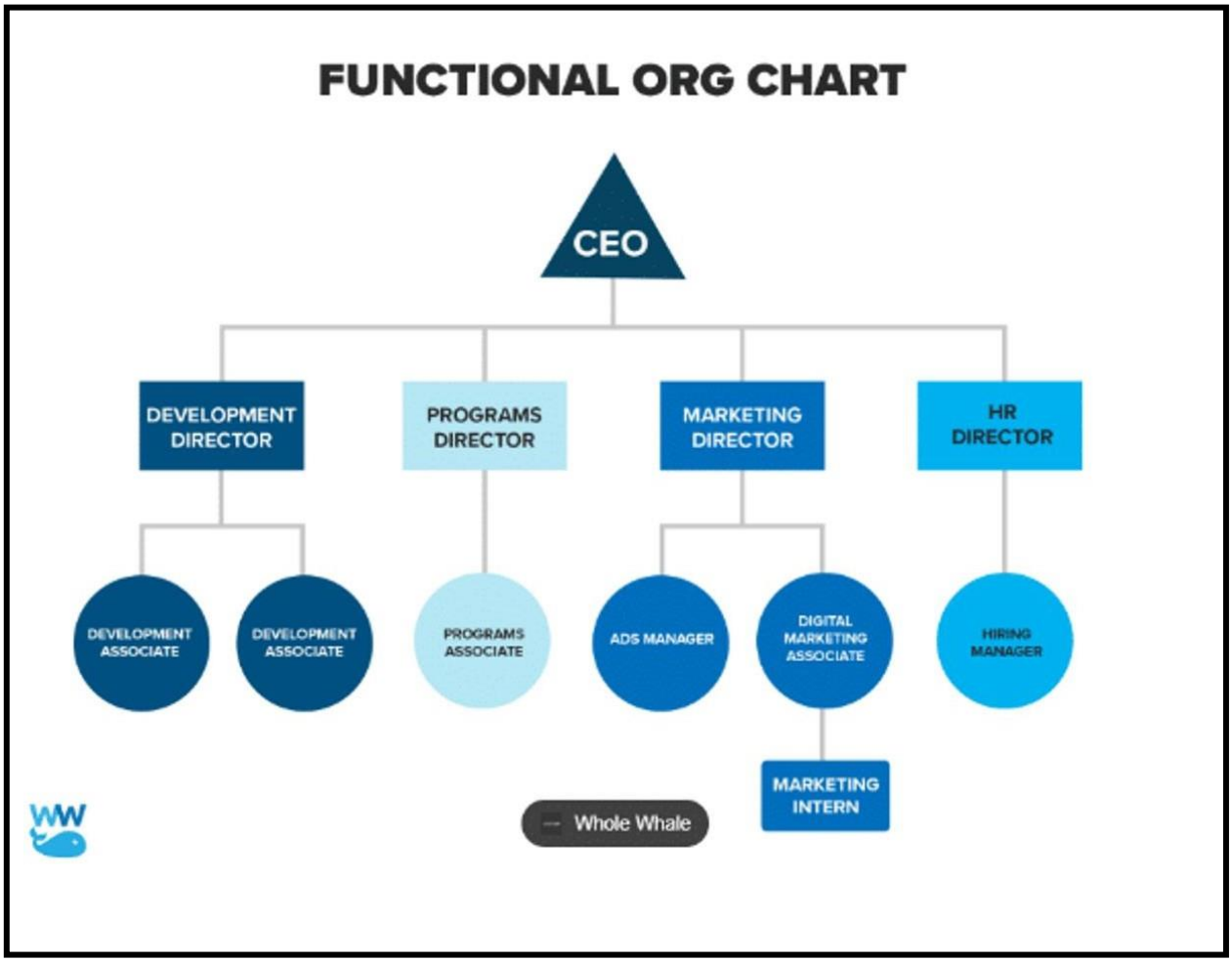
Digital Solutions that transform Business.

Maxgen Technologies Pvt. Ltd. is young and dynamic company. Maxgen Technologies Pvt. Ltd., built Webpages and Applications for wide domain areas and industries like Business, Fitness, E-commerce, and Sales Force. Our expert team members provide the best services for your organization.

Our quality is customized service, high-quality solutions, market oriented and understanding of client's requirements. Our extensive work for the mobile application development in Android, iOS and Flutter, specialized e-commerce, marketing, business and social.

Your work & time is precious for us&we ensure it is built by our web designing and development experts.

1.1 Organization Chart



CHAPTER-2 Overview of Different Departments

- Maxgen Technologies Pvt. Ltd. is all about innovative excellence and it's a place where we can create new ideas in a beautiful coding environment. It's a place where we learn about new things and can follow our passion successfully.

- There are many things that Maxgen Technologies Pvt. Ltd. has to offer.
    - Python Internship
    - Django Internship
    - Machine Learning & Data Science Internship
    - PHP Web Development Internship
    - Java Internship
    - React.js Internship
    - Android Internship
    - Software Testing Internship
    - Flutter Internship
    - AWS Solution Architect Internship
    - Data Analytics Internship

2.1. Brief about the work being carried out in each Department:

1.Python Internship:

Python is a widely used high-level, general-purpose, interpreted, dynamic programming language. Its design philosophy emphasizes code readability, and its syntax allows programmers to express concepts in fewer lines of code than would be possible in languages such as C++ or Java. The language provides constructs intended to enable clear programs on both a small and large scale. Python supports multiple programming paradigms, including object-oriented, imperative and functional programming or procedural styles. It features a dynamic type system and automatic memory management and has a large and comprehensive standard library. Python interpreters are available for installation on many operating systems, allowing Python code execution on a wide variety of systems.

2.Django Internship:

Django is a Python-based web application framework that is free and open source. A framework is simply a collection of modules that facilitate development. They're grouped together and allow you to build apps orwebsites from scratch rather than starting from scratch.

3.Machine Learning & Data Science Internship:

Machine learning (ML) refers to a system's ability to acquire, and integrate knowledge through large-scale observations, and to improve, and extend itself by learning new knowledge rather than by being programmed with that knowledge.

Your data science internship should teach you how to systematically organize machine-learning projects. This might also include deploying your model into production, although this is frequently performed by a DevOps team.

4. PHP Web Development Internship:

A PHP developer is responsible for writing server-side web application logic. PHP developers usually develop back-end components, connect the application with the other (often third-party) web services, and support the front-end developers by integrating their work with the application.

5. Java Internship:

Your responsibilities as in intern include learning how to test, code, and document changes for enhancements and new functionality of software programs, participating in peer reviews, and helping to design methods to implement strategic ideas created by the team you are working with.

6. React.js Internship:

You need to be able to build a dynamic, robust, and responsive UI for the application. You'd have to work closely with the rest of the development team on writing, testing and debugging the app.

7. Android Internship:

Your primary focus will be the development of Android applications and their integration with back-end services. You will be working along-side other engineers and developers working on different layers of the infrastructure.

8. Software Testing Internship:

As a Software Testing intern, you will collaborate with professionals in your team and enhance your IT career. As well as developing your communication and management skills, an Internship in this field of Software Testing will help you gain experience in functional testing, exploratory testing and test strategy.

9. Flutter Internship:

Develop and contribute to native mobile applications using Flutter framework. Design and implement user interfaces for various app features. Test and debug code to ensure high quality and performance.

10. AWS Solution Architect Internship:

AWS internships for students give you an exciting way to explore the cloud industry and build real-world skills and connections that will benefit you now and throughout your career. From day one, you'll work and learn alongside outstanding experts and leaders.

11.Data Analytics Internship:

Create documentation for each data request or research project. Maintain and update dashboard datasets in Tableau or Cognos BI. Interpret the findings and provide conclusions. Attending regularly scheduled staff meetings and training sessions.

CHAPTER-3 Introduction to Project

3.1 Project Summery

The goal of this project is to provide personalized product recommendations based on user uploaded images, rather than relying on their purchase history. The conventional recommendation systems fail to cater to users' immediate needs and preferences, as users are often inspired by something they see and wish to find similar products.

3.2 Project Purpose:

The purpose of this project is to develop a recommender system that caters specifically to the fashion industry, leveraging the tendency of humans to be visually drawn towards attractive eyewear products. With the advent of recommender systems in various domains, it has become imperative for retail industries to invest in the latest technology to enhance their business. Fashion has been an integral part of society for centuries and continues to be so in modern times.

3.3 Project Objective:

The objective of this project is to develop a robust and efficient recommender system for the fashion industry that leverages image-based recommendations, instead of relying solely on a user's previous purchases or browsing history. The project aims to overcome the limitations of conventional recommendation systems and assist users, particularly women, in making informed decisions when it comes to their clothing choices.

3.4 Scope:

- Development of an algorithm that suggests alternative products to the user.
- Integration of Deep Learning algorithms to analysis the uploaded images and recommend fashion products that match the user's preferences.

3.5 Technology

The development of the proposed fashion recommender system will involve the use of several cutting-edge technologies, including:

1. **Deep learning:**

The system will use neural networks to process the user-uploaded images and extract relevant features, which will be used to generate personalized recommendations.

2. **Computer Vision:**

The system will use computer vision techniques to analyse the user-uploaded images, recognize patterns, and identify clothing attributes such as colour, pattern, and style.

3. **Nearest neighbour algorithms:**

The system will utilize nearest neighbour algorithms to identify eyewear products that are similar to the user-uploaded images.

4. **Web development:**

The system will be developed using web development technologies such as HTML, CSS, and JavaScript to create an interactive and userfriendly interface for user. our Project is also use with the help of the React.js in Development of the Frontend Technology.

3.6 Project Management:

Managing projects in React.js involves applying project management principles within the context of developing web applications using the React.js library. Here's a breakdown of how project management principles can be applied specifically to React.js projects:

1. Define Project Scope: Clearly define the objectives, features, and functionalities of the React.js project. This includes understanding client requirements, user stories, and any technical constraints.

2. Create a Project Plan: Develop a comprehensive project plan outlining tasks, timelines, dependencies and resource allocation. Use project management tools like Trello, Asana, or Jira to create and manage tasks.

3. Set Up Version Control: Utilize version control systems like Git and platforms like GitHub or GitLab for collaborative development. Establish branching strategies and workflows to manage code changes effectively.

4. Agile Development: Adopt Agile methodologies like Scrum or Kanban for iterative development and continuous improvement. Break down the project into manageable sprints or tasks, and conduct regular stand-up meetings, sprint planning, and retrospectives.

5.Documentation: Maintain thorough documentation for code, APIs, components, and project architecture. Document project requirements, design decisions, and technical specifications to facilitate collaboration and onboarding of new team members.

6.Feedback: Solicit feedback from stakeholders, users, and team members throughout the development process. Incorporate feedback into future iterations and prioritize features based on user needs and business objectives.

CHAPTER-4 System Analysis

4.1 Study of Current System

In today's world, shopping in a physical infrastructure is typically done by browsing the products displayed on shelves or racks, selecting the desired items, and bringing them to a checkout counter for payment. Customers may also interact with sales associates who can provide information about products, help with sizing or fit, and assist with purchases.

While some stores may offer a loyalty program or other incentives for repeat customers, the shopping experience in a physical infrastructure typically does not involve personalized recommendations based on the customer's individual preferences or history. Instead, customers rely on their own knowledge and intuition when selecting products to purchase.

4.2 Problem of Current System

1. Limited selection:

Physical stores may have limited space to display products, which can limit the selection available to customers.

2. Difficulty finding products:

Customers may have difficulty finding the products they are looking for, especially if they are not familiar with the store layout or if the store is crowded.

3. Out of stock items:

The store may be out of stock on certain items, which can be frustrating forcustomers who have already invested time and effort in shopping.

4. Sizing and fit issues:

Customers may struggle to find products that fit properly, especially when it comes to clothing or footwear.

5. Wait times:

Customers may experience long wait times at checkout or when interacting with sales associates, especially during busy periods.

6.Slow Loading Times:

One of the most common issues is slow loading times, which can occur due to large file sizes, excessive HTTP requests, server issues, or inefficient code.

4.3 Requirements of a New System

1. Increased selection:

By leveraging machine learning and deep learning algorithms, fashion recommendation systems can recommend a wider selection of products than what is available in-store, helping customers discover new products and styles.

2. Improved product discovery:

Fashion recommendation systems can help customers find the products they are looking for more easily, either by recommending similar products to the ones they have shown interest in, or by providing a search feature that allows them to filter products by various attributes such as colour, size, or style.

3. Availability of products:

A fashion recommendation system can provide real-time information on product availability, ensuring that customers are not disappointed by out-of-stock items.

4. Reduced wait times:

Fashion recommendation systems can provide a seamless and personalized shopping experience, eliminating the need for customers to wait in long lines at checkout or for assistance from sales associates.

5. Personalized recommendations:

By leveraging machine learning algorithms, fashion recommendation systems can provide personalized recommendations to customers based on their individual preferences and help them find products that match their unique styleand tastes.

4.4 Feasibility Study

1.Project Description:

Provide a clear description of the project, including its objectives, scope, and expected outcomes. Define the problem the project aims to solve or the opportunity it seeks to capitalize on.

2.Market Analysis:

Conduct market research to understand the demand for the product or service the project intends to offer. Identify target customers, competitors, market trends, and potential risks.

3.Technical Feasibility:

Assess whether the project can be technically implemented. Evaluate the availability of resources, technology requirements, and any technical challenges or constraints that may arise.

4.Financial Feasibility:

Determine the financial viability of the project by estimating costs, revenues, and potential returns on investment. Prepare financial projections, including income statements, cash flow forecasts, and return on investment (ROI) analysis.

Based on the feasibility study, it can be determined whether the project is viable and worth pursuing. If the results of the feasibility study are positive, the project can proceed to the next phase of development, which typically involves creating a detailed project plan and timeline, identifying key stakeholders, and developing a budget. If the results of the feasibility study are negative, the project may need to be revised or abandoned.

4.5 Functional Requirements

1. Image recognition:

The system should be able to recognize and classify images of eyewer products uploaded by users.

2. Product recommendation:

The system should provide personalized recommendations to users based on their uploaded images.

3. Availability check:

The system should be able to check the availability of recommended products in the infrastructure.

4. Alternative suggestions:

The system should provide alternative product suggestions to users in case the recommended products are unavailable.

5.User interface:

The system should have a user-friendly interface that is easy to use and navigate.

4.6 Non-Functional Requirements

Non-functional requirements of a fashion recommendation system project:

1.Performance: The system should be able to process a large number of images and provide recommendations quickly.

2. Accuracy: The system should provide accurate recommendations based on user preferences.

3. Security: The system should be secure and protect user data and privacy.

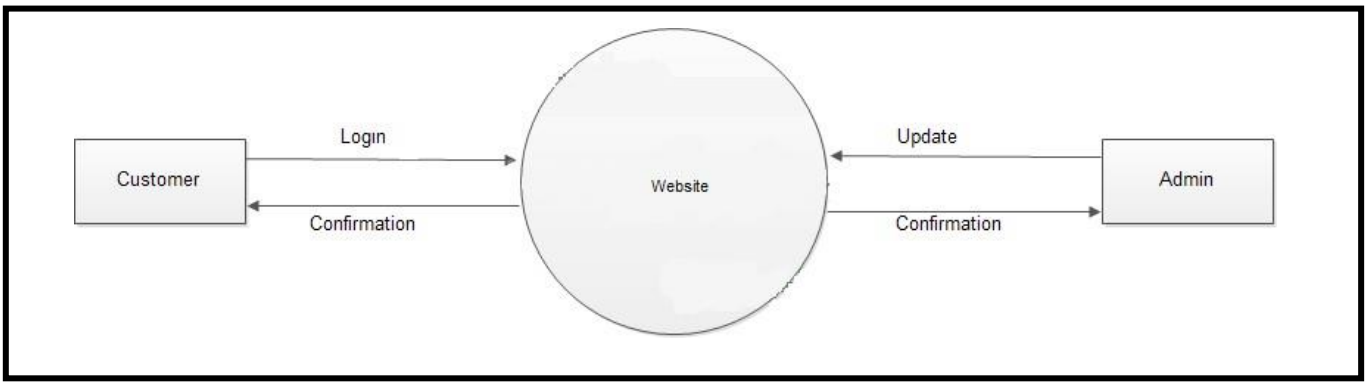
4. Scalability: The system should be able to handle increasing amounts of data and users as the system grows.

5. Reliability: The system should be reliable and minimize downtime or errors.

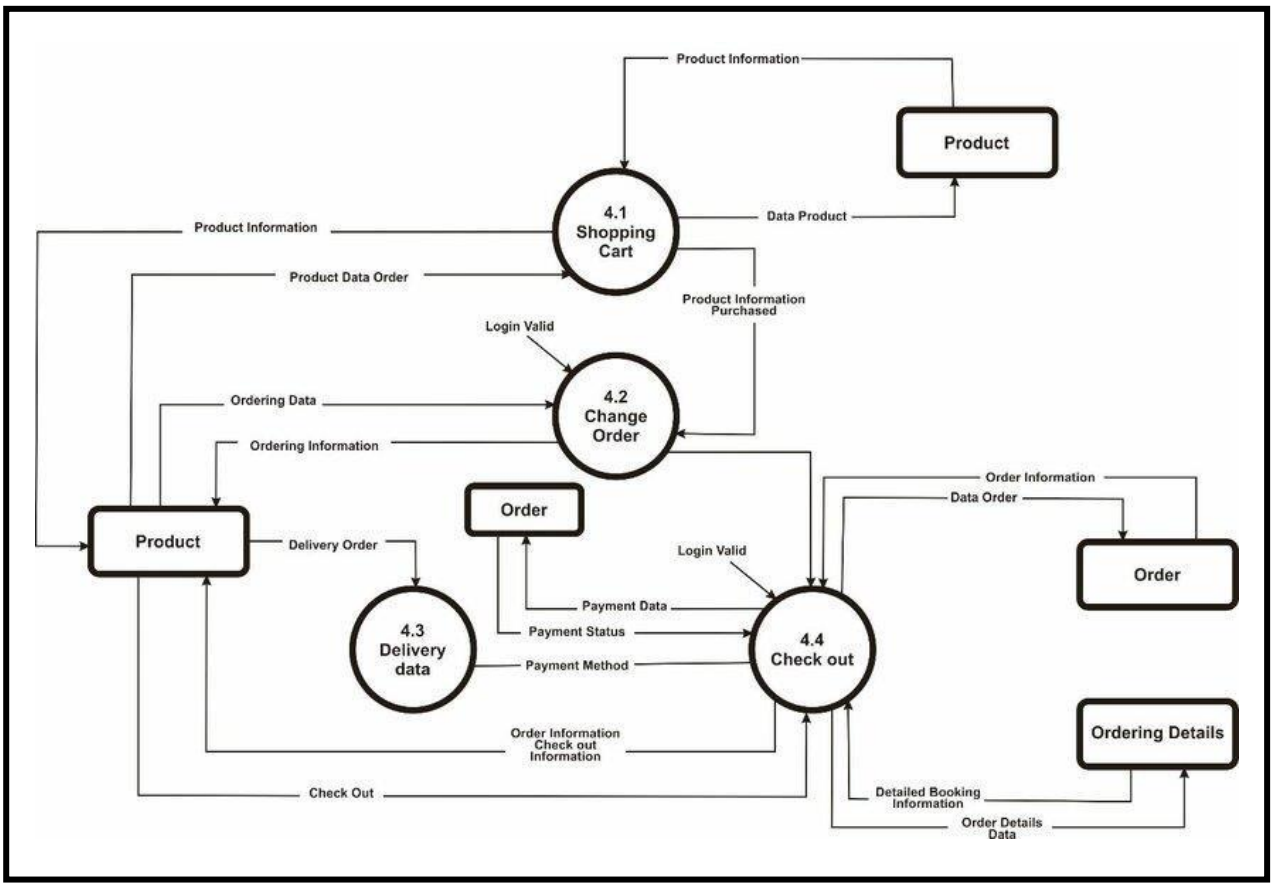
6. Usability: The system should be easy to use and navigate, with clear instructions and feedback for users. These requirements will guide the design, development, and testing of the fashion recommendation system, ensuring that it meets the needs and expectations of users and stakeholders.

CHAPTER-5 SYSTEM DESIGN

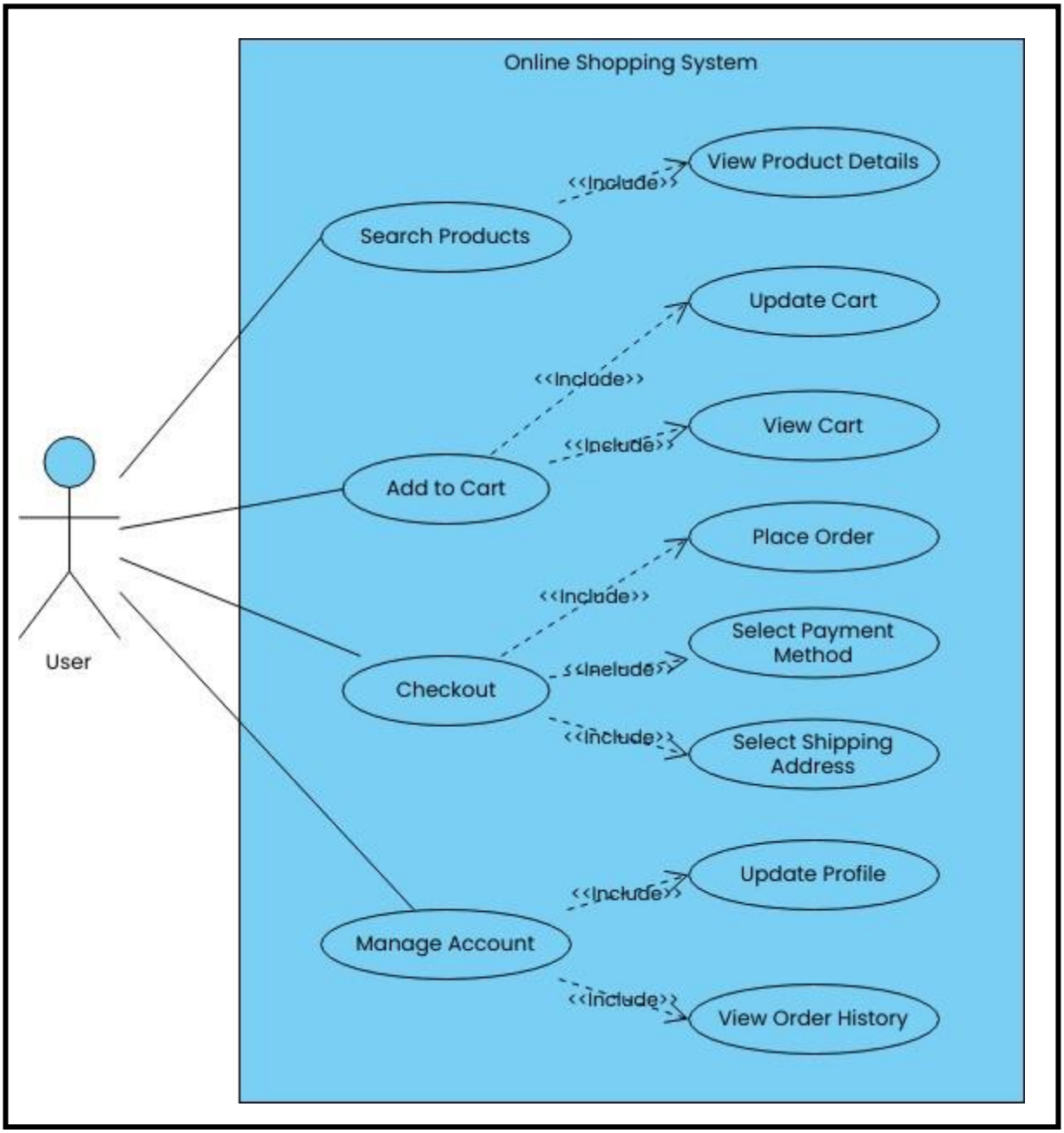
5.1 Context Diagram



5.2 Data Flow Diagram

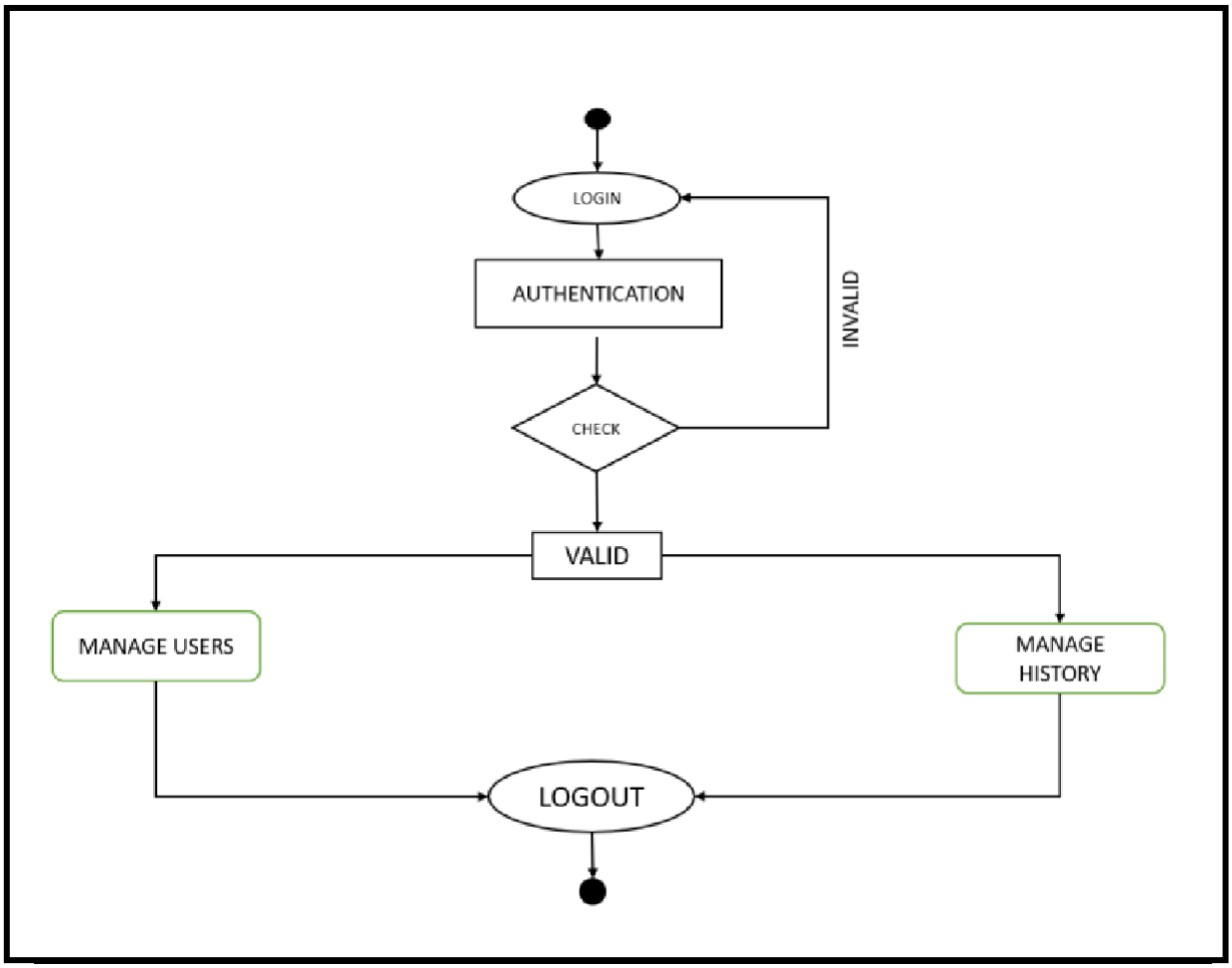


5.3 Use-case Diagram

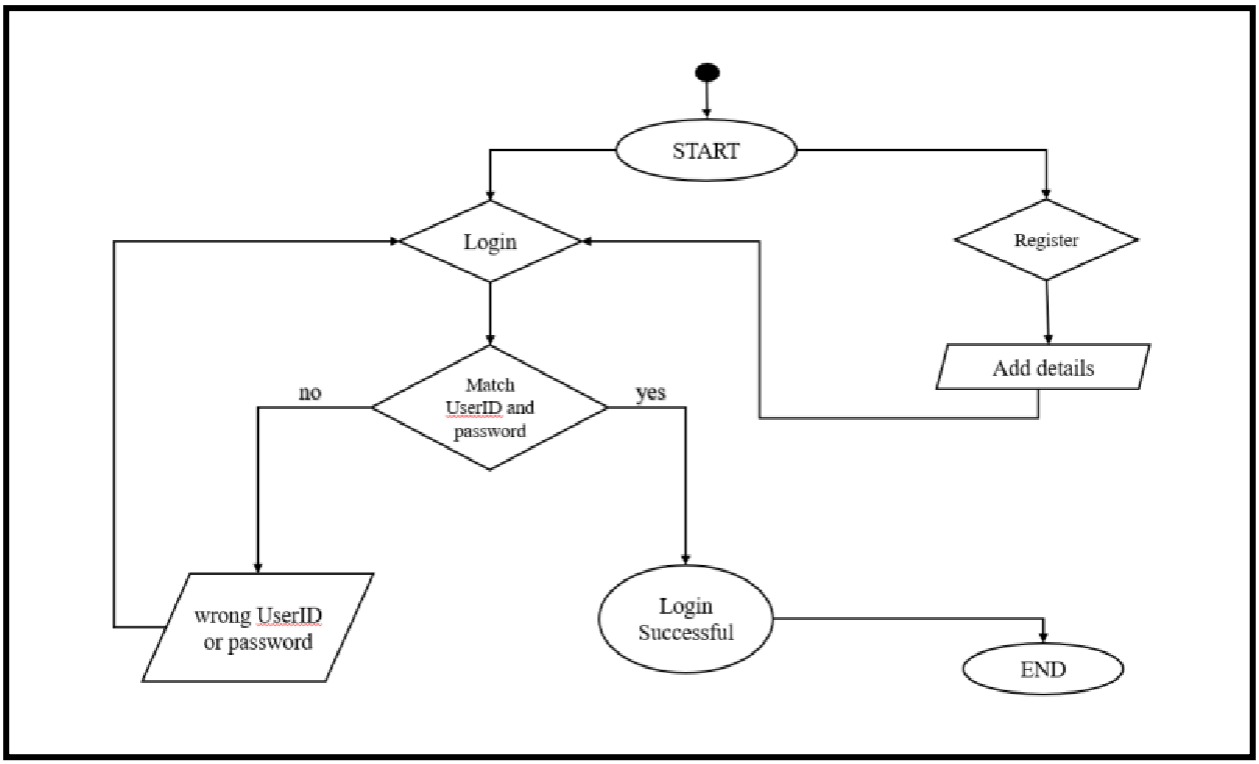


5.4 Activity Diagram

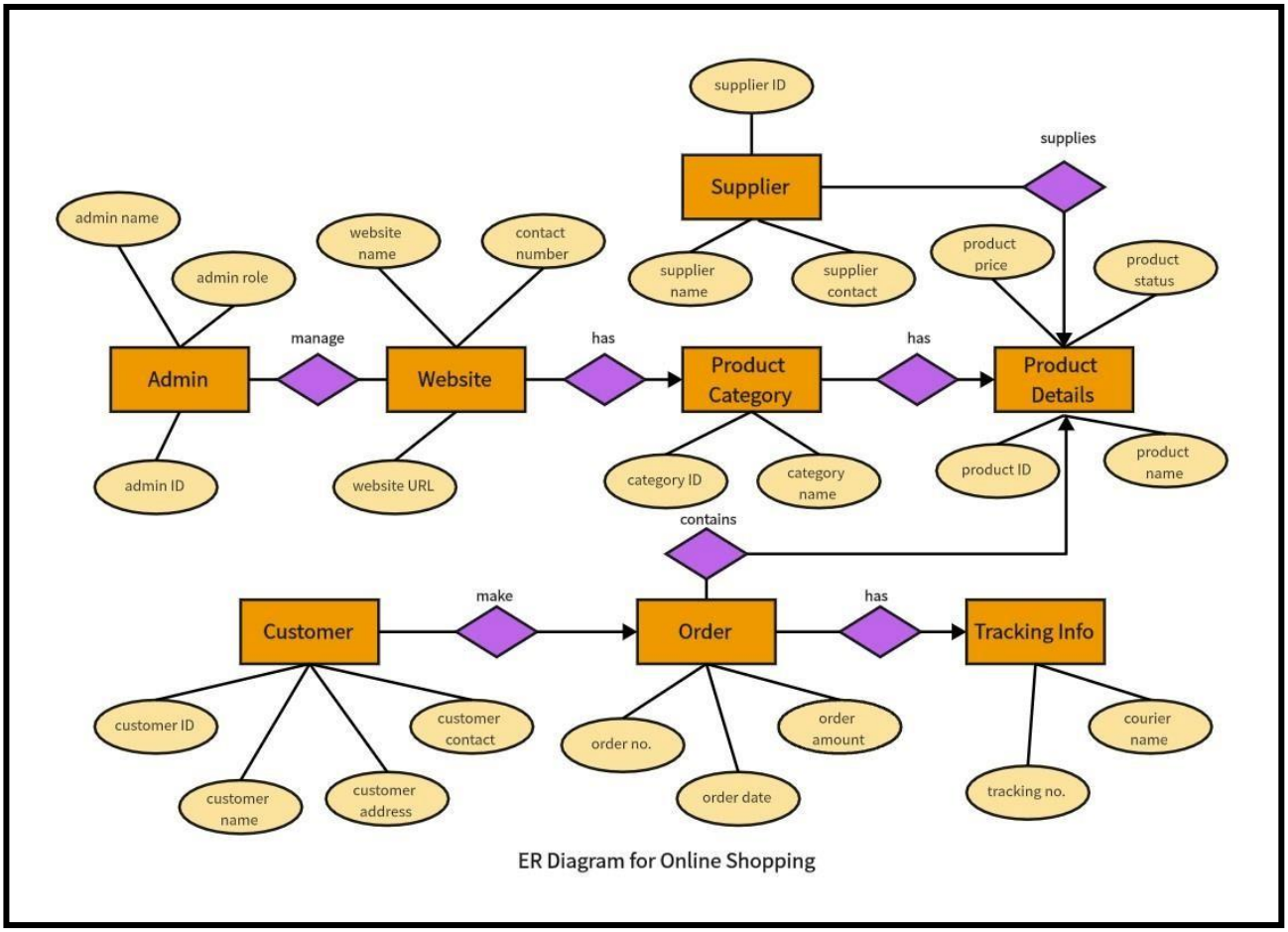
5.4.1. Admin:



5.4.2 User Login & Registration:



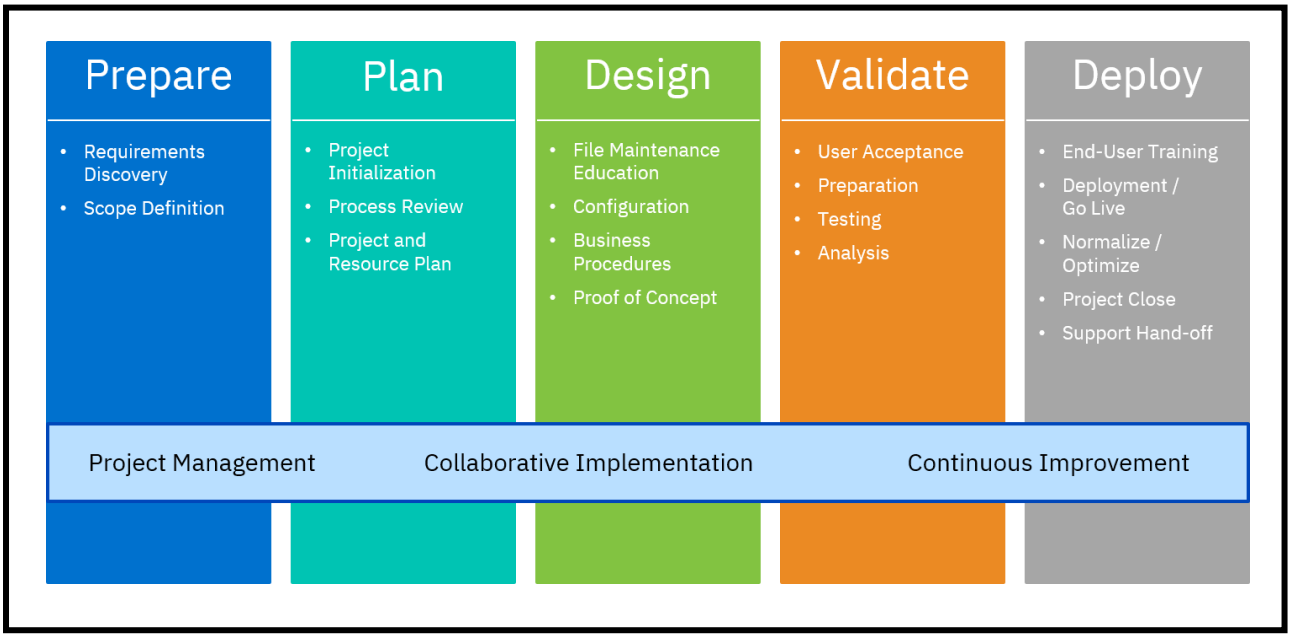
5.4.3. E-R Diagram:



ER Diagram for Online Shopping

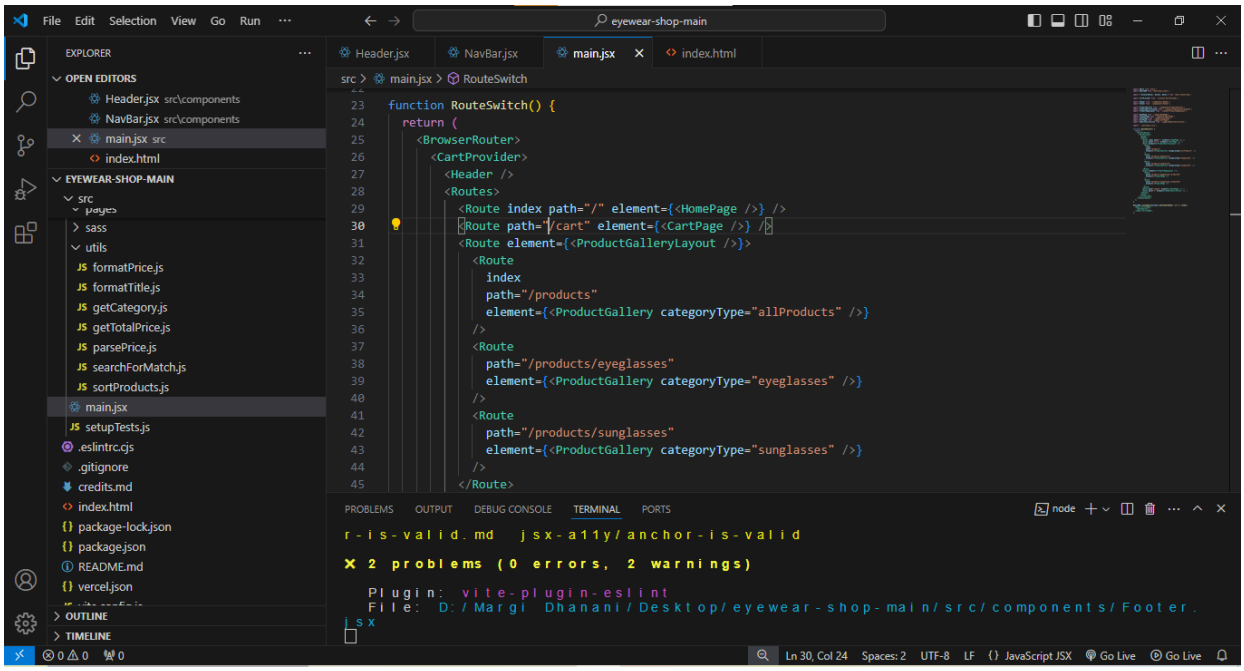
CHAPTER-6 IMPLEMENTATION

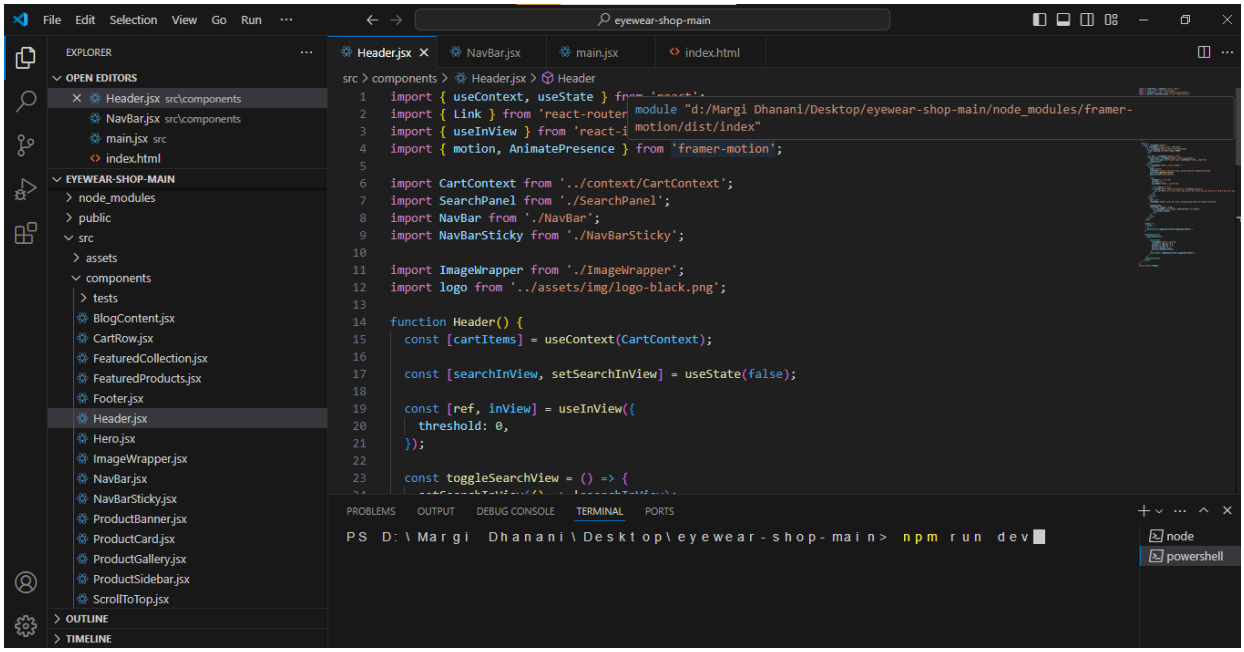
6.1 Implementation Method



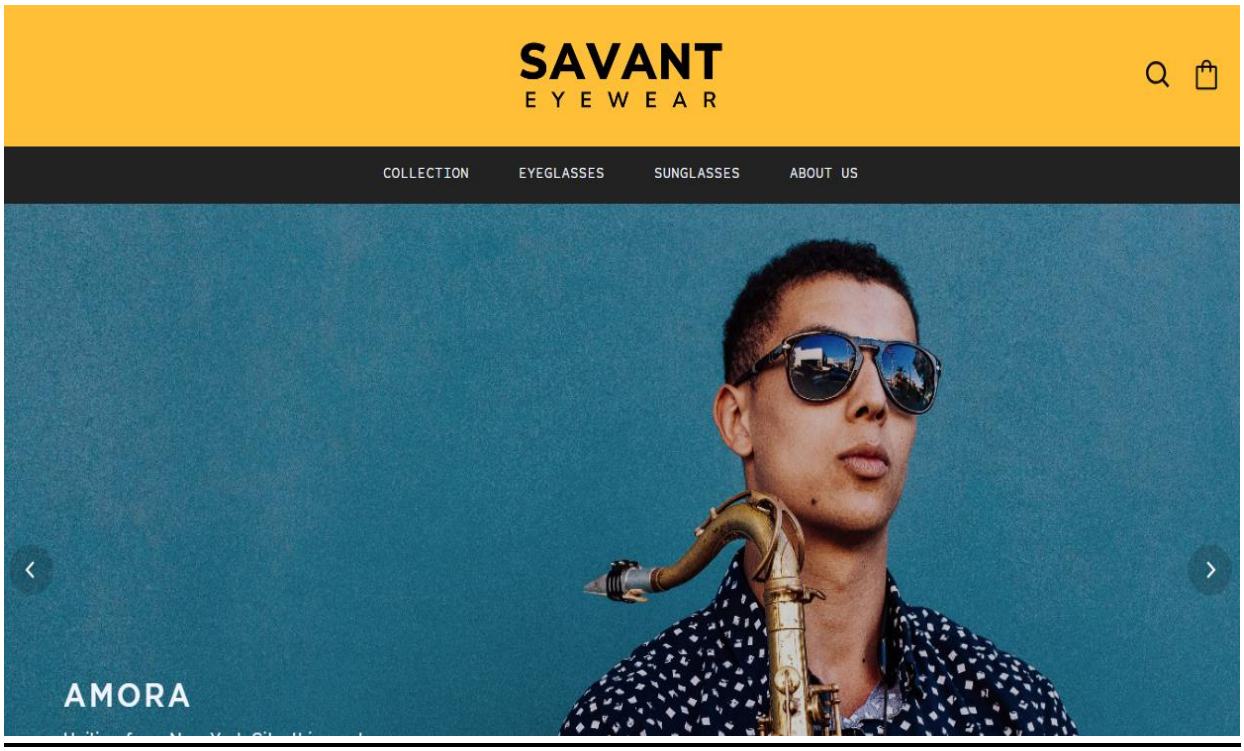
6.2 Project Screenshots

Tasks:

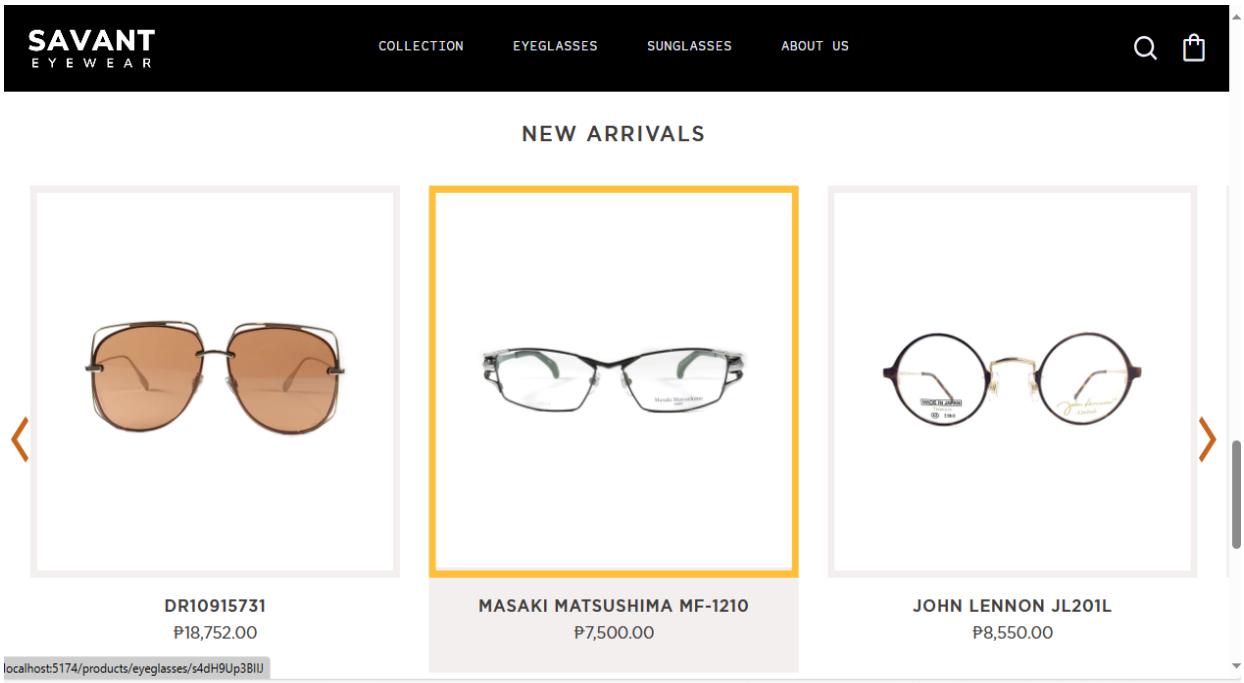


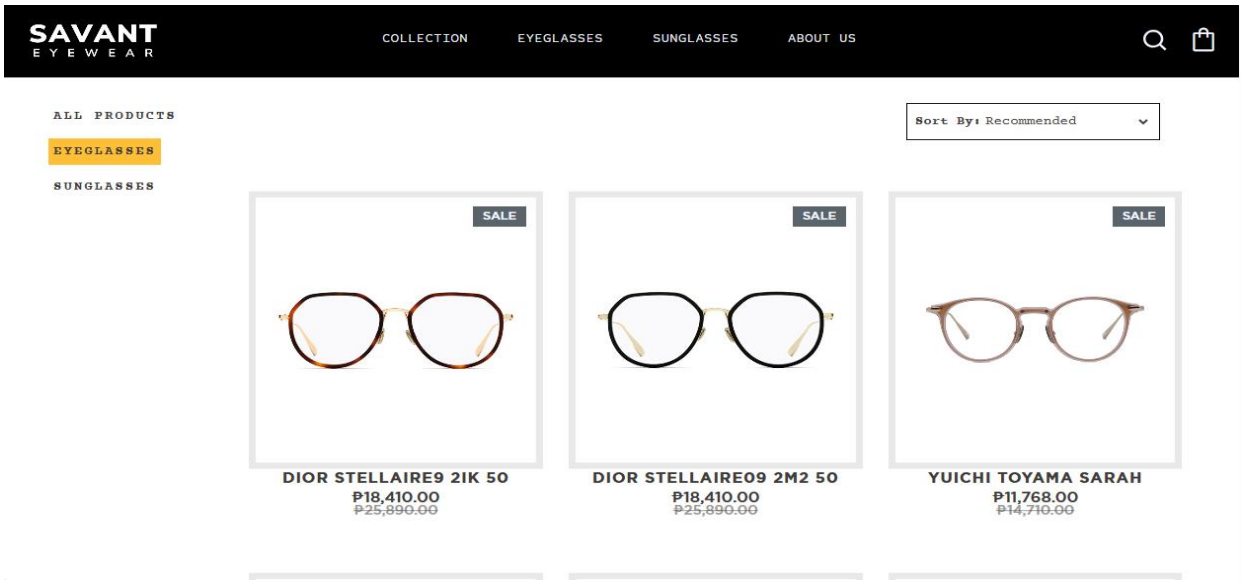


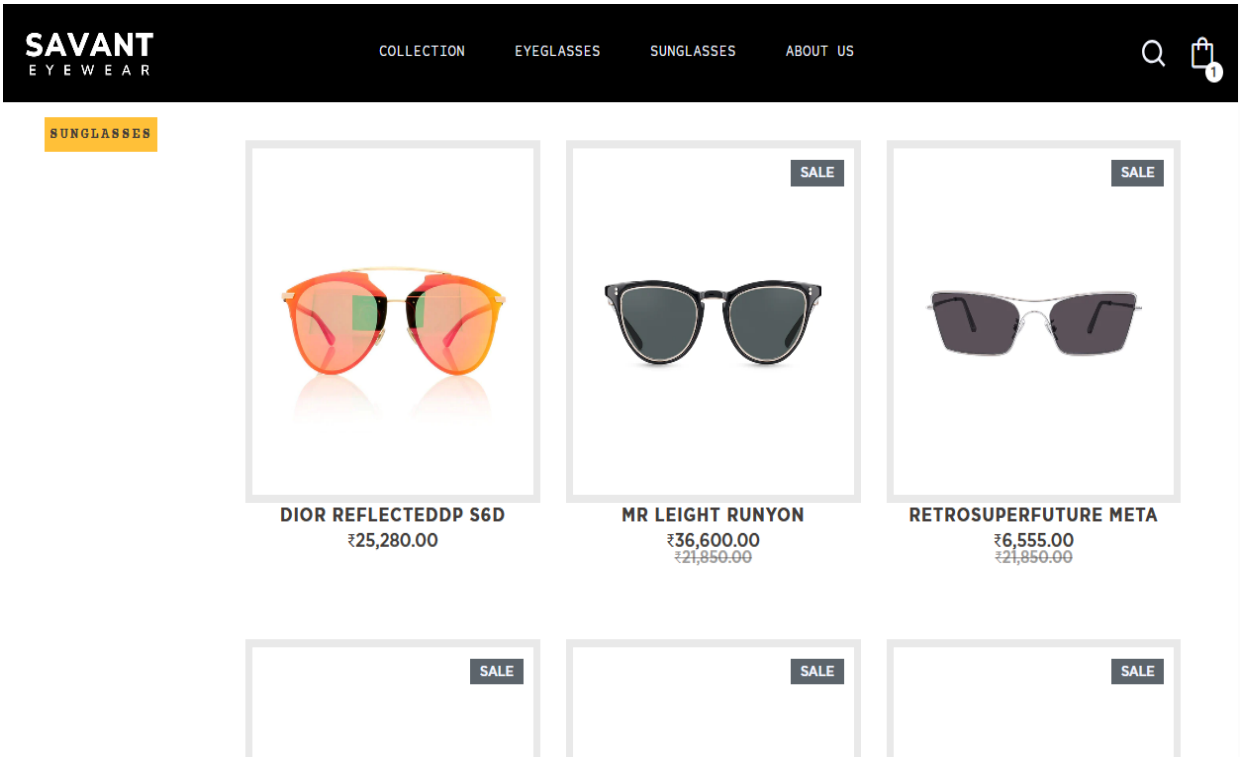
Front Page of Website:



Other Categories Photos:



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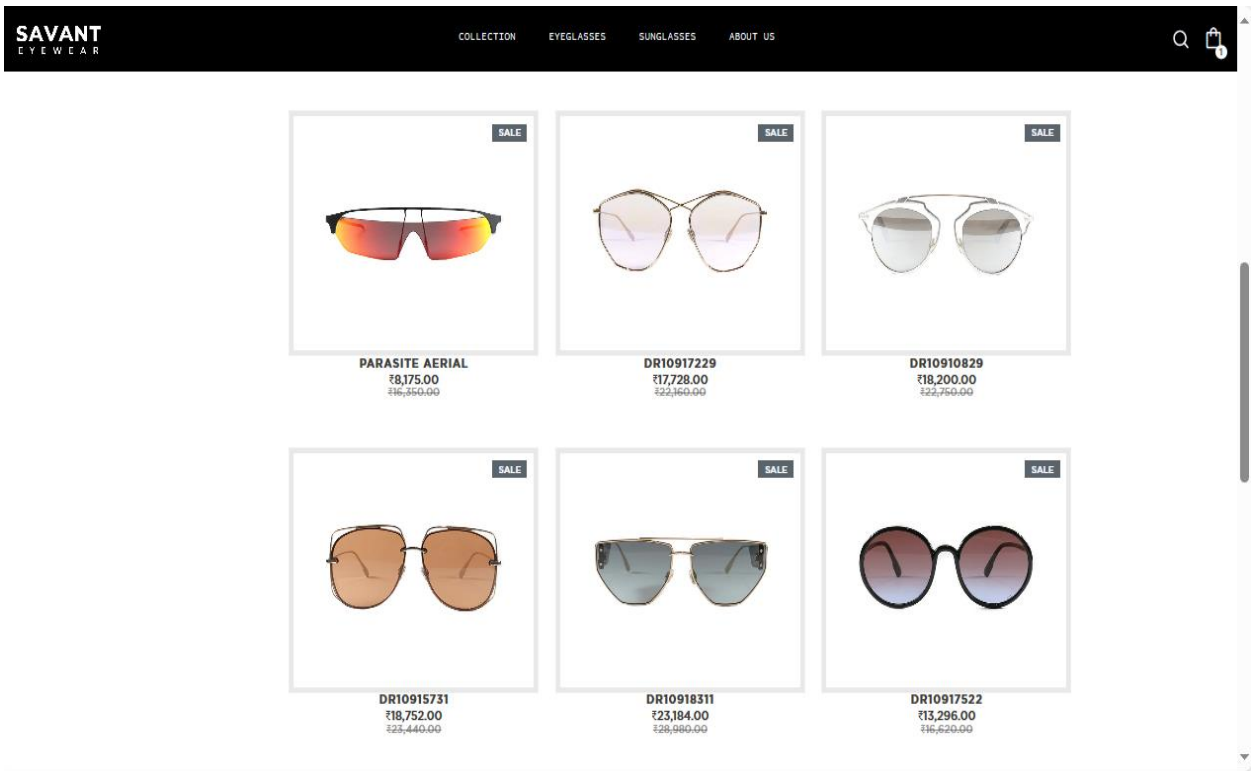
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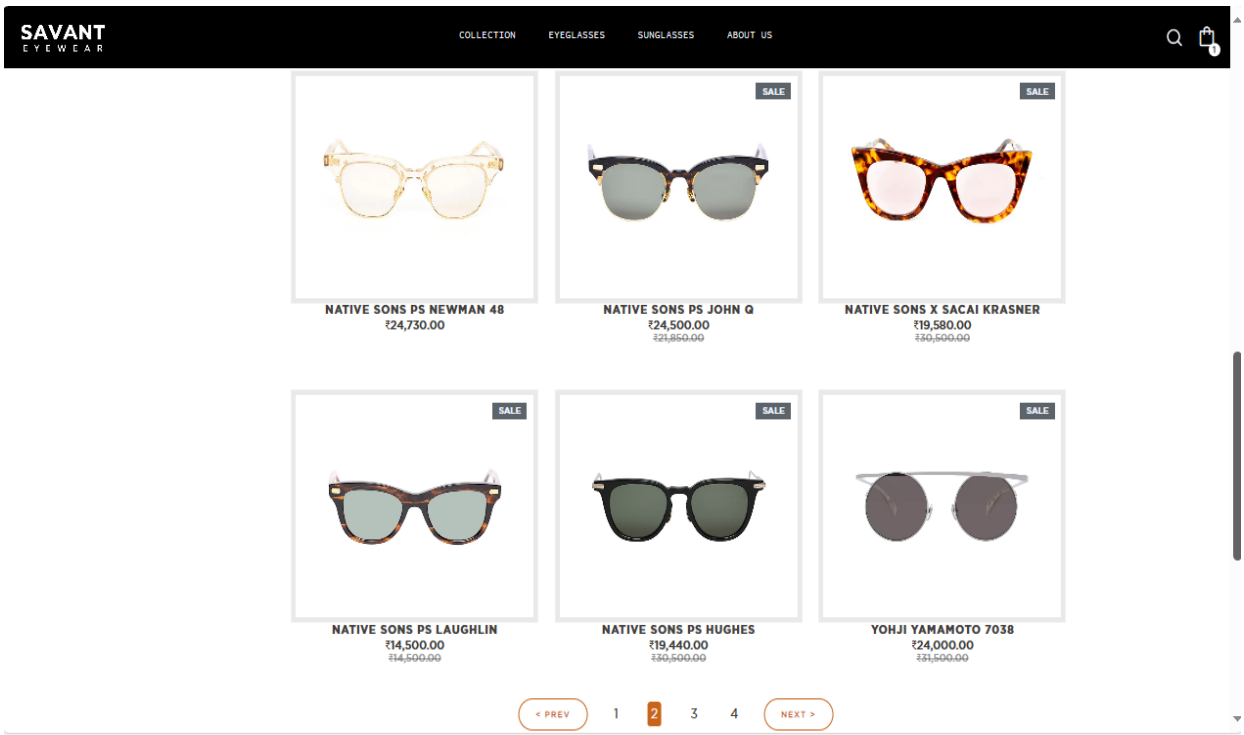
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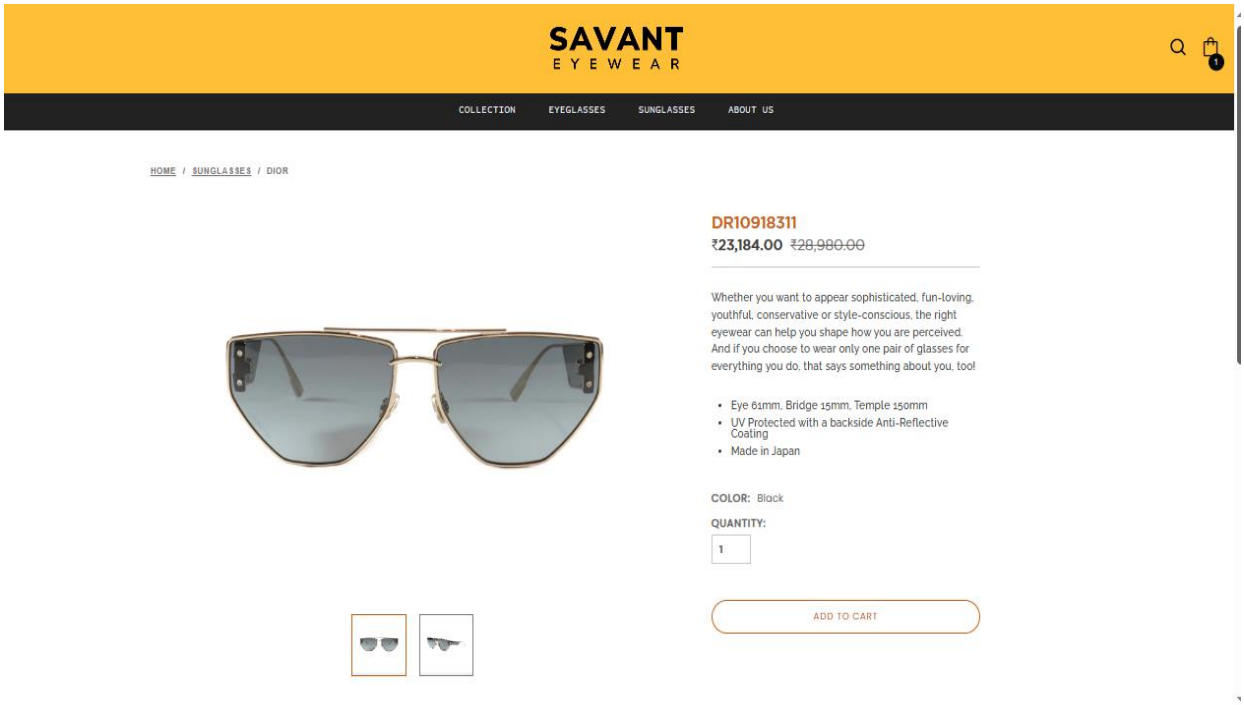
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HOME / SUNGLASSES / DIOR
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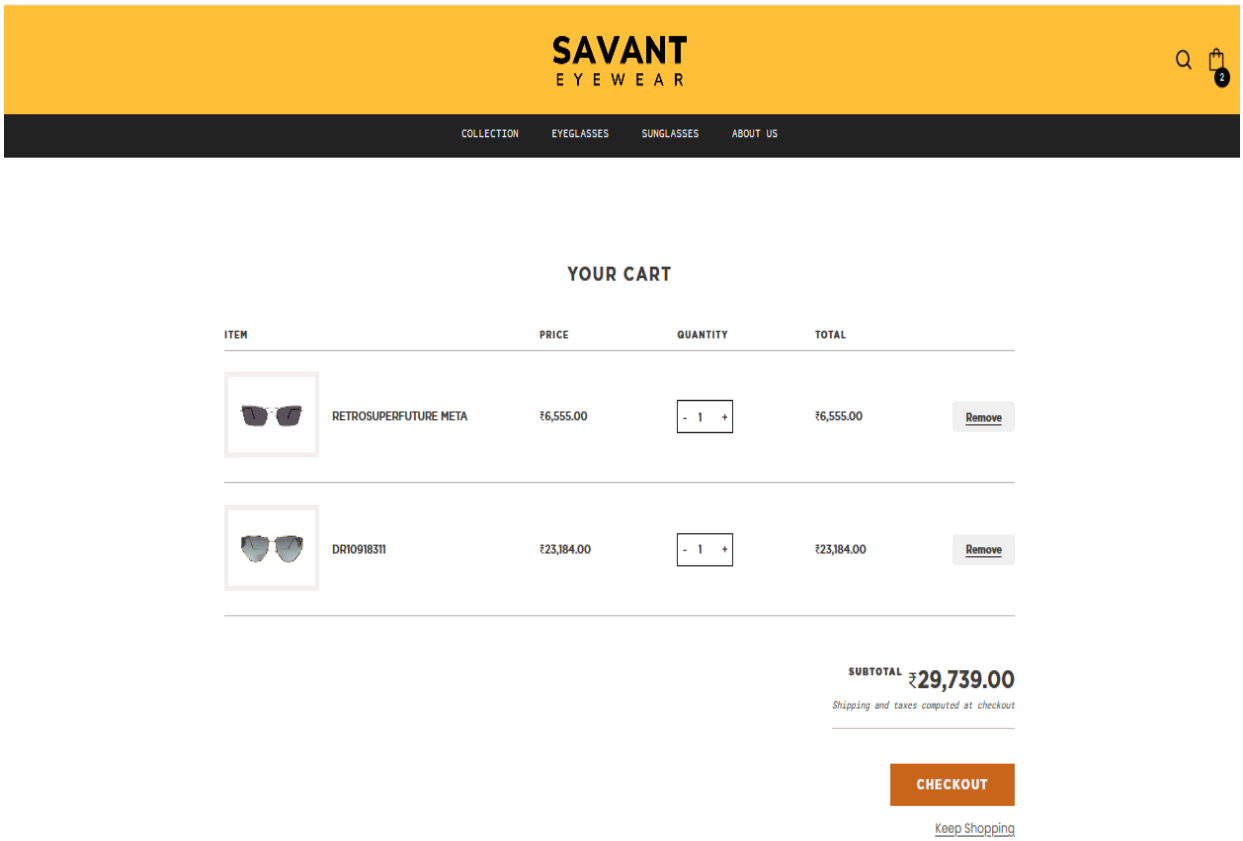
₹23,184.00 ₹28,980.00
Whether you want to appear sophisticated, fun-loving, youthful, conservative or style-conscious, the right eyewear can help you shape how you are perceived. And if you choose to wear only one pair of glasses for everything you do, that says something about you, too!
Eye 61mm, Bridge 15mm, Temple 150mm
UV Protected with a backside Anti-Reflective Coating
Made in Japan
COLOR: Black
QUANTITY:
1
ADD TO CART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Remove
SUBTOTAL ₹29,739.00
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CHECKOUT
Keep Shopping

CHAPTER-7 TESTING

7.1 Testing Strategies

Testing strategies for web development with React.js are crucial for ensuring the reliability, stability, and maintainability of your application. Here are some key testing approaches you can adopt:

1.Unit Testing:

This involves testing individual components or functions in isolation. Tools like Jest, Enzyme, or React Testing Library can be used for writing unit tests. Unit tests verify that each component behaves as expected under different conditions.

2.Integration Testing:

Integration tests check if different components work together as expected. These tests ensure that interactions between components produce the desired outcomes. Tools like Jest, Enzyme, or React Testing Library can also be usedfor integration testing.

3. End-to-End (E2E) Testing:

E2E tests simulate real user scenarios by interacting with your application through a browser. Tools like Cypress or Selenium WebDriver can be used for writing E2E tests. These tests validate the entire application flow, from user inputs to outputs.

4.Snapshot Testing:

Snapshot testing captures the output of a component or a page and compares it against a saved "snapshot" of the previous output. Tools like Jest's snapshot testing feature can be used to detect unintended changes in the UI.

5. Accessibility Testing:

Ensure your application is accessible to users with disabilities by conducting accessibility testing. Tools like axe-core or react-axe can be integrated into your testing suite to automate accessibility checks.

6. Performance Testing:

Performance testing evaluates the responsiveness and stability of your application under various conditions, such as high user loads or slow network connections. Tools like Lighthouse, WebPageTest, or React's built-in Profilercan be used to assess performance metrics.

7. Component Library Testing:

If you're developing a reusable component library with React, you can employ dedicated testing frameworks like Storybook to visually test individual components in isolation and document their usage.

8. API Testing:

If your React application interacts with backend APIs, it's essential to test these API endpoints to ensure they return the expected data and handle various inputs correctly. Tools like Postman or Jest with axios-mock-adapter can be used for API testing.

9. State Management Testing:

If you're using Redux, MobX, or Context API for state management, ensure that the state updates and interactions are tested thoroughly. Tools like Redux DevTools or custom middleware for Redux can help in debugging and testing state changes.

10. Continuous Integration and Continuous Deployment (CI/CD):

Automate your testing process by integrating it into your CI/CD pipeline. Services like Jenkins, Travis CI, or GitHub Actions can be configured to run your tests automatically whenever new code is pushed, ensuring that changes don't introduce regressions.

By combining these testing strategies, you can build robust and reliable React.js applications that meet user expectations and maintain high quality standards throughout their lifecycle.

7.2 Testing Strategies and Analysis

Testing is process of executing a program with the intent of finding an error. A successful test is one that uncovers a yet-discovered error. There are some methods using that testing of system is done with the intention of finding all possible errors/bugs in the system.

1. **Black-box Testing:**

   This testing strategy involves testing the system's functionality without knowledge of its internal structure or implementation. Black-box testing can be used to test the user interface, search functionality, and recommendation generation.

2. **White-box Testing:**

   This testing strategy involves testing the system's internal structure and implementation, such as code or database queries. White-box testing can be used to test the Deep Learning algorithms and database queries.

3. **Regression Testing:**

   This testing strategy involves testing the system after changes or updates have been made to ensure that the changes did not affect the system's functionality. Regression testing can be used after updates to the Deep Learning algorithms or database.

4. **Load Testing:**

   This testing strategy involves testing the system's ability to handle a large number of users and data. Load testing can be used to test the system's scalability and performance under heavy traffic.

5. **User Acceptance Testing:**

   This testing strategy involves testing the system's ability to meet the project requirements and user expectations. User acceptance testing can be performed by testing the accuracy and relevance of the recommendations generated by the system.

6. Exploratory Testing:

This testing strategy involves testing the system by exploring its functionality in an unscripted and ad-hoc manner. Exploratory testing can be used to identify any issues or bugs that were not caught during other types of testing

CHAPTER-8 CONCLUSION

8.1. Overall Analysis:

The "E-Commerce Eyewear Website" project aims to provide a solution to the problem of customers not being able to visit each and every shop in a large infrastructure to find the products they require. The system uses Deep Learning algorithms to suggest fashion products based on user-uploaded images and also provides information on the availability of the recommended products and their alternatives within that infrastructure.

The project has the potential to provide significant value to customers by saving time and effort in finding the eyewear products they require in a vast infrastructure. The use of Deep Learning algorithms ensures that the recommendations generated by the system are accurate and relevant to the user's needs.

8.2 Future Enhancement:

There are lot of potential future enhancements that could be done with the "E-Commerce Eyewear Website" project, some of them are listed below:

• Personalized Recommendations - The system could be enhanced to provide personalized recommendations to each user based on their previous searches and purchases.

• The system could be integrated with social media platforms to enable users to upload images directly from their social media accounts.

• The system could be enhanced to provide real-time inventory management,which would ensure that the system only recommends products that are
currently available in stock.

These enhancements could improve the system's functionality, user experience, and competitiveness in the market.

This is Easy to Use and that is given the best option to choose a multiple choices of clothes in one page.

References

1. https://www.geeksforgeeks.org/reactjs-introduction/
2. https://www.javatpoint.com/
3. https://www.tutorialspoint.com/
4. https://www.python.org/
5. https://www.openai.com