ONLINE EYEWEAR STORE

A PROJECT COMPONENT REPORT

Submitted by

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for the Theory Cum Project Component

of

19CS694 – WEB USER INTERFACE DESIGN

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MEPCO SCHLENK ENGINEERING COLLEGE, SIVAKASI

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(An Autonomous Institution affiliated to Anna University Chennai)

Department of Computer Science and Engineering

BONAFIDE CERTIFICATE

Certified that this project component report titled **ONLINE EYEWEAR STORE** is the bonafide work of **E.GOWTHAM BABU (Reg. No. 202004039),** and **S.HARRISH RAGAVENDAR (Reg. No. 202004044)** who carried out this work under my guidance for the Theory cum Project Component course **"19CS694 – WEB USER INTERFACE DESIGN"** during the sixth semester.

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Sivakasi.	Sivakasi.

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Internal Examiner **External Examiner**

ABSTRACT

The need for an online eyewear store has increased over the years due to several factors. Firstly, people have become more tech-savvy and prefer to shop online, as it offers convenience and saves time. Secondly, the eyewear industry is growing rapidly, and customers are looking for a wider range of products, styles, and designs to choose from. An online eyewear store can offer a more extensive range of products as compared to a physical store. The online eyewear store project aims to provide a convenient and hassle-free way for customers to purchase high-quality eyewear products from the comfort of their own homes. The website will offer a wide range of eyewear products, including prescription glasses, sunglasses, contact lenses, and other accessories. Customers will be able to browse and filter products based on various parameters such as price, brand, style, and lens type. Moreover, an online eyewear store can offer customers access to high-quality eyewear products at competitive prices, making it more affordable for customers to purchase eyewear. Additionally, customers can also benefit from the convenience of being able to purchase eyewear products from anywhere in the world and have them delivered to their doorstep. The website will also offer personalized recommendations based on the customer's previous purchases and browsing history. The project will utilize secure payment gateways and a user-friendly interface to ensure a smooth shopping experience for customers. The online eyewear store project is a promising initiative that seeks to revolutionize the eyewear industry by offering customers a convenient and hassle-free way to purchase high-quality eyewear products.

ACKNOWLEDGEMENT

First and foremost, we thank the **LORD ALMIGHTY** for his abundant blessings that is showered upon our past, present and future successful endeavors.

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LIST OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION
API	Application Programming Interface
COD	Cash On Delivery
DB	Database
DBMS	Database Management System
JS	JavaScript
TS	TypeScript
UI	User Interface

CHAPTER 1

INTRODUCTION

1.1 PERSCPECTIVE

The online eyewear store project has great potential from various perspectives. From a customer's perspective, it provides a convenient way to purchase high-quality eyewear products without having to visit a physical store. Customers can browse a wider range of products, filter them based on their preferences, and use virtual try-on tools to see how the glasses look on them before making a purchase. Moreover, an online eyewear store can offer competitive prices, making it more affordable for customers to purchase eyewear products.

From a business perspective, an online eyewear store can offer various benefits. It can reach a wider customer base, including those who live in remote areas or have limited mobility. An online store can also reduce overhead costs, such as rent and staffing, as it requires fewer physical resources to operate. Furthermore, an online eyewear store can gather customer data and use it to personalize the shopping experience, increasing customer engagement and loyalty. Overall, the online eyewear store project has great potential to disrupt the eyewear industry by providing a more convenient and personalized shopping experience for customers and reducing overhead costs for businesses.

1.2 OBJECTIVES

The objective of the online eyewear store project is to create a user-friendly and convenient platform for customers to purchase high-quality eyewear products online. The project aims to offer a wide range of eyewear products, including prescription glasses, sunglasses, contact lenses, and other accessories, while also providing a personalized shopping experience. The project will utilize data analytics to offer personalized recommendations based on the customer's previous purchases and browsing history. To ensure a safe shopping experience, the project aims to offer secure payment gateways and provide excellent customer service, including prompt responses to customer queries and timely resolution of issues. By offering high-quality products, personalized recommendations, and excellent customer service, the project aims to increase brand awareness and loyalty while generating revenue for the business. Ultimately, the objective of the online eyewear store project is to provide customers with a seamless and hassle-free shopping experience, increasing customer satisfaction and loyalty.

1.3 SCOPE

The scope of the online eyewear store project is to provide customers with a convenient and personalized way to purchase eyewear products online. The project aims to offer a wide range of eyewear products, including prescription glasses, sunglasses, contact lenses, and other accessories, to cater to the diverse needs of customers. Customers will be able to browse and filter products based on various parameters such as price, brand, style, and lens type. Moreover, the online eyewear store project aims to ensure secure payment gateways to protect customer's sensitive information and provide a safe shopping experience. The project will also provide excellent customer service, including prompt responses to customer queries and timely resolution of issues, to ensure customer satisfaction. The scope of the project also includes generating revenue for the business by increasing brand awareness and loyalty through high-quality products, personalized recommendations, and excellent customer service. Overall, the online eyewear store project aims to revolutionize the eyewear industry by providing customers with a seamless and hassle-free shopping experience, increasing customer satisfaction, and loyalty.

CHAPTER 2

REQUIREMENT DESCRIPTION

2.1 FUNCTIONAL REQUIREMENTS

The functional requirements of the Online Eyewear Store are the collective information about the core operations that are available in the system.

- The system should be able to manage user accounts, including registration, login, and profile management.
- The system should be able to manage product details, such as product images, descriptions, specifications, and pricing. It should also allow the administrator to add, delete or modify products.
- The system should allow customers to add products to their shopping cart, view the total cost of their order, and proceed to checkout. The checkout process should include options for payment and shipping, as well as order confirmation.
- The system should provide search and filter options to help customers find products that meet their specific requirements.
- The system should ensure secure payment gateways to protect customer's sensitive information.
- The system should offer excellent customer service, including prompt responses to customer queries and timely resolution of issues.

2.2 NON-FUNCTIONAL REQUIREMENTS

Non-functional requirements are the quality attributes of the Online Eyewear Store that describe how well it performs its intended functions rather than what functions it performs.

- The system should be user-friendly and easy to navigate, providing a smooth shopping experience for customers.
- The system should be able to handle a large volume of traffic and transactions without any downtime or lag.
- The system should ensure data security by implementing measures such as secure payment gateways, data encryption, and firewall protection.

- The system should be compatible with different devices and platforms, such as desktops, laptops, tablets, and mobile phones.
- The system should be scalable to accommodate future growth in traffic and sales.
- The system should be reliable, ensuring that all transactions and customer data are securely processed and stored.
- The system should be available 24/7 to customers, providing them with access to the website at all times.
- The system should be accessible to all customers, including those with disabilities, through features such as screen readers and alternative text.
- The system should comply with relevant laws and regulations, such as data protection and consumer protection laws.

CHAPTER 3

SYSTEM DESIGN

3.1 ARCHITECTURE DESIGN

Architectural flow diagram implies the flow of the system. **Figure 3.1** depicts the architectural flow diagram for the Online Eyewear Store website. The flow starts with the user visiting the homepage of the website. The user can view the various kind of eyewear that are available. The user can also view the detailed description of each eyewear. The user can add the eyewear to the cart that he/she wishes to buy. Once the eyewear is added to the cart, the user can also change the quantity of the eyewear that he/she wishes to buy, that is it can be incremented or decremented. The user can then return to the home page and buy furthermore eyewear.

Once the user has added all the desired eyewear to the cart with the desired quantity, the system checks whether the user is logged in or not. If the user is already logged in, the user proceeds to checkout page. Else, the user is taken to the login page to login to the lensmakers website. If the user is a new user, then the user is taken to the registration page for creating a new account. Then, the user proceeds to check out and enters the shipping address of the products. Then the user chooses the desired payment method, and the order summary is shown to the user. Then the user makes payment online if he has chosen the PayPal option, else the user confirms the order in case of COD option.

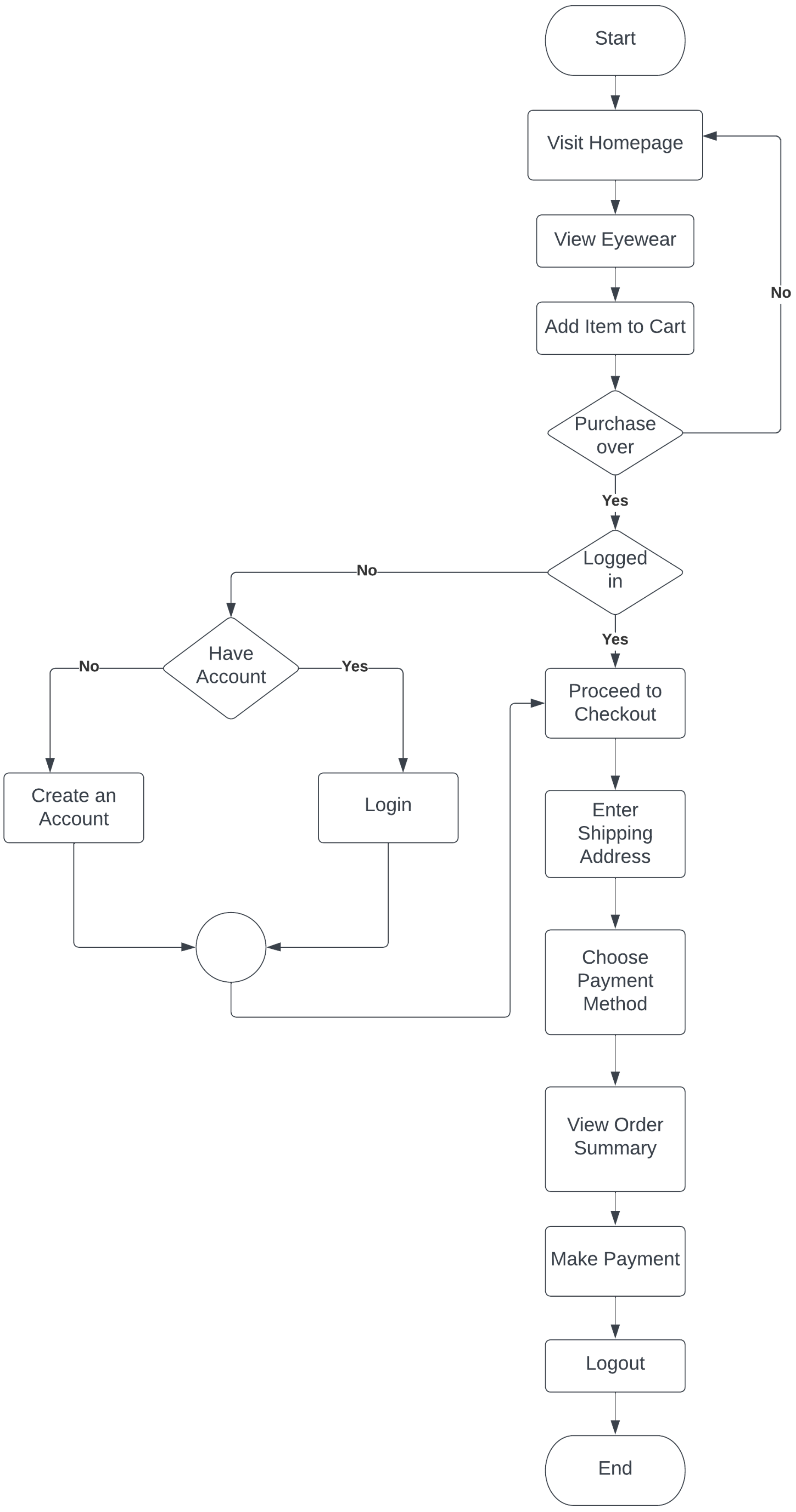


Figure 3.1: Flow Diagram of Online Eyewear Store Website

3.2 DESIGN COMPONENTS

3.2.1 Front End:

The front end of the Online Eyewear Store is developed using the Angular JS framework and Angular Material UI Component Library.

3.2.2 Back End:

Express JS is used to build the backend server for the Online Eyewear Store and MongoDB is used as the database in the back end.

3.3 DATABASE DESCRIPTION

Listed below gives a description of database document schemas used for Online Eyewear Store.

3.3.1 User Structure

The details about the users stored in the User table are shown in **Table 3.1.**

Table 3.1: User Description

Attribute Name	Type	Constraint(s)	Description
User ID	String	UNIQUE	Autogenerated for each user, when a new user registers in the website
Name	String	NOT NULL	Name of the user
Email-ID	String	Must be of the form <username>@<mailserver>.<domain> UNIQUE, NOT NULL	E-Mail ID of the User
Password	String	NOT NULL	Password which the user uses to login to the website
IsAdmin	Boolean	NOT NULL	Indicates whether the user has admin privileges

3.3.2 Product Structure

The details about the products stored in the Product table are shown in **Table 3.2.**

Table 3.2: Product Description

Attribute Name	Type	Constraint(s)	Description
Product ID	String	UNIQUE	Autogenerated for each product, when it is added to the database
Name	String	NOT NULL	Name of the product
Slug	String	UNIQUE	Used to navigate to the product description page of that product
Image	String	NOT NULL	Path to the image of the eyewear
Brand	String	NOT NULL	Brand of the eyewear
Category	String	NOT NULL	Type of eyewear
Description	String	NOT NULL	Detailed description about the eyewear
Price	Number	NOT NULL	Price of the eyewear
Count in stock	Number	NOT NULL	Number of that particular eyewear currently in stock
Rating	Number	NOT NULL	Star rating out of 5
Number of reviews	Number	NOT NULL	Total number of reviews for that eyewear
Reviews	Array	NOT NULL	Collection of usernames, with their corresponding rating and comments

3.3.3 Review Structure

The details about the reviews stored in the Product table are shown in **Table 3.3.**

Table 3.3: Review Description

Attribute Name	Type	Constraint(s)	Description
Name	String	NOT NULL	Name of the user
Rating	Number	NOT NULL	Star rating out of 5
Comment	String	NOT NULL	Comment provided by the user

3.3.4 Order Structure

The details about the orders stored in the Order table are shown in **Table 3.4.**

Table 3.4: Order Description

Attribute Name	Type	Constraint(s)	Description
Order ID	String	UNIQUE	Autogenerated for each order, when it is added to the database
Products	Array	NOT NULL	Name of the user
Shipping Address	Object	NOT NULL	Delivery address for the order
User ID	String	NOT NULL	Comment provided by the user
Payment Method	String	NOT NULL	Way by which customer makes payment for the purchase
Items Price	Number	NOT NULL	Price of all the items the customer has purchased
Shipping Price	Number	NOT NULL	Shipping charges for the purchase
Tax Price	Number	NOT NULL	Tax for the purchase
Total Price	Number	NOT NULL	Total price including the items price, shipping charges and the tax price
IsPaid	Boolean	NOT NULL	Indicates whether the payment has been made or not
Payment Result	Object		Status of the payment
paidAt	Timestamp		Exact time at which payment is made
IsDelivered	Boolean		Indicates whether the product has been delivered or not
deliveredAt	Timestamp		Exact time at which order is delivered

3.3.5 Shipping Address Structure

The details about the shipping stored in the Order table are shown in **Table 3.5.**

Table 3.5: Shipping Address Description

Attribute Name	Type	Constraint(s)	Description
Full Name	String	NOT NULL	Full name of the customer
Address	String	NOT NULL	Street address and area
City	String	NOT NULL	Delivery City
State	String	NOT NULL	Delivery State
Postal Code	String	NOT NULL	PIN code of delivery address
Country	String	NOT NULL	Delivery country

3.3.6 Payment Structure

The details about the payment stored in the Order table are shown in **Table 3.6.**

Table 3.6: Payment Description

Attribute Name	Type	Constraint(s)	Description
Payment ID	String	UNIQUE	ID generated for each payment
Status	String	NOT NULL	Current state of the payment

3.4 LOW LEVEL DESIGN

The following section illustrates the functionalities of the system. This includes login to the website, register to the website, adding products to the inventory, adding products to the cart, making payment, and placing the order.

3.4.1 Login

Table 3.7 shows the login details of the application.

Table 3.7 Login Details

Files used	login.component.html, login.component.ts, auth.service.ts, user.routes.ts
Short Description	Allows the user to login to the online eyewear store website
Arguments	E-Mail ID, Password

Return	Success/Failure in login
Pre-Condition	The user must have an account in the website
Post-Condition	The home page of the online eyewear store will be displayed
Exception	Invalid E-Mail ID or password
Actors	Admin, User

3.4.2 Register

Table 3.8 shows the login details of the application.

Table 3.8 Register Details

Files used	register.component.html, register.component.ts, user.service.ts, user.routes.ts
Short Description	Allows the user to create a new account in the online eyewear store website
Arguments	Name, E-Mail ID, Password, Confirm Password
Return	Success/Failure in registration
Pre-Condition	The user must not have an account with the e-mail id
Post-Condition	The home page of the online eyewear store will be displayed
Exception	Invalid e-mail or Weak password
Actors	User

3.4.3 Add Product

Table 3.9 shows the add product details of the application.

Table 3.9 Add Product Details

Files used	admin-product-edit.component.html, admin-product-edit.component.ts, product.service.ts, product.routes.ts, admin.guard.ts
Short Description	Allows the admin to add new eyewear to the online eyewear store website
Arguments	Name, Slug, Price, Path to Image, Brand, Category, Count in stock, Description
Return	Success/Failure in adding new eyewear
Pre-Condition	The admin must be logged in to the website
Post-Condition	The eyewear inventory page of the online eyewear store will be displayed

Exception	Duplicate slug or Invalid path to image
Actors	Admin

3.4.4 Add to Cart

Table 3.10 shows the add to cart details of the application.

Table 3.10 Add to Cart Details

Files used	cart.component.html, cart.component.ts, cart.service.ts, product.routes.ts
Short Description	Allows the user add eyewear to the cart in the online eyewear store website
Arguments	Eyewear name, quantity
Return	Success/Failure adding eyewear to cart
Pre-Condition	The user must be logged in to the website
Post-Condition	The cart page of the online eyewear store will be displayed
Exception	Product out of stock
Actors	User

3.4.5 Place Order

Table 3.11 shows the place order details of the application.

Table 3.11 Place Order Details

Files used	place-order.component.html, place-order.component.ts, order.routes.ts, cart.service.ts, order.service.ts
Short Description	Allows the user to login to the online eyewear store website
Arguments	Eyewear name, Quantity, Shipping Address, Payment Method
Return	Success/Failure in placing order
Pre-Condition	The user must be logged in to the website
Post-Condition	The order summary page of the online eyewear store will be displayed
Exception	Invalid shipping address or Product out of stock
Actors	User

3.4.6 Make Payment

Table 3.12 shows the make payment details of the application.

Table 3.12 Make Payment Details

Files used	payment-method.component.html, payment-method.component.ts, order.routes.ts, auth.guard.ts, auth.service.ts
Short Description	Allows the user to make payment for an order placed in the online eyewear store website
Arguments	Order ID, Amount, PayPal E-Mail, PayPal Password
Return	Success/Failure in payment
Pre-Condition	The user must be logged in to the website
Post-Condition	The payment status for the order will be displayed to the user
Exception	Invalid PayPal E-Mail or Password
Actors	User

3.4.7 Search Eyewear

Table 3.13 shows the make search eyewear details of the application.

Table 3.13 Search Eyewear Details

Files used	search.component.html, search.component.ts, product.routes.ts, product.service.ts
Short Description	Allows the user to search an eyewear based on the name of the eyewear
Arguments	Eyewear Name
Return	Eyewear Details/Eyewear Not Found
Pre-Condition	The user must know the correct name of the eyewear that he is going to search for
Post-Condition	All the eyewear that contains the search term in its name is displayed to the user
Exception	No matching eyewear
Actors	User

3.4.8 Shop by Category

Table 3.14 shows the shop by category details of the application.

Table 3.14 Shop by Category Page Details

Files used	search.component.html, search.component.ts, product.routes.ts, product.service.ts
Short Description	Allows the user to search an eyewear based on the category of the eyewear
Arguments	Eyewear Category
Return	List of Eyewear Details/Eyewear Not Found
Pre-Condition	The user must know the category or the class of the eyewear that he wishes to buy
Post-Condition	All the eyewear that belongs to the selected category is displayed to the user.
Exception	No matching eyewear in the selected category
Actors	User

3.5 USER INTERFACE DESIGN

3.5.1 Home Page

Figure 3.2 provides the interface for home page of the website. The user can select form a wide range of eyewear available in the homepage. There is also a search feature to search for a particular eyewear from the website. Also, a filter by category option is available in the side menu, to filter out eyewear based on specific category, for example sunglasses or power glasses.

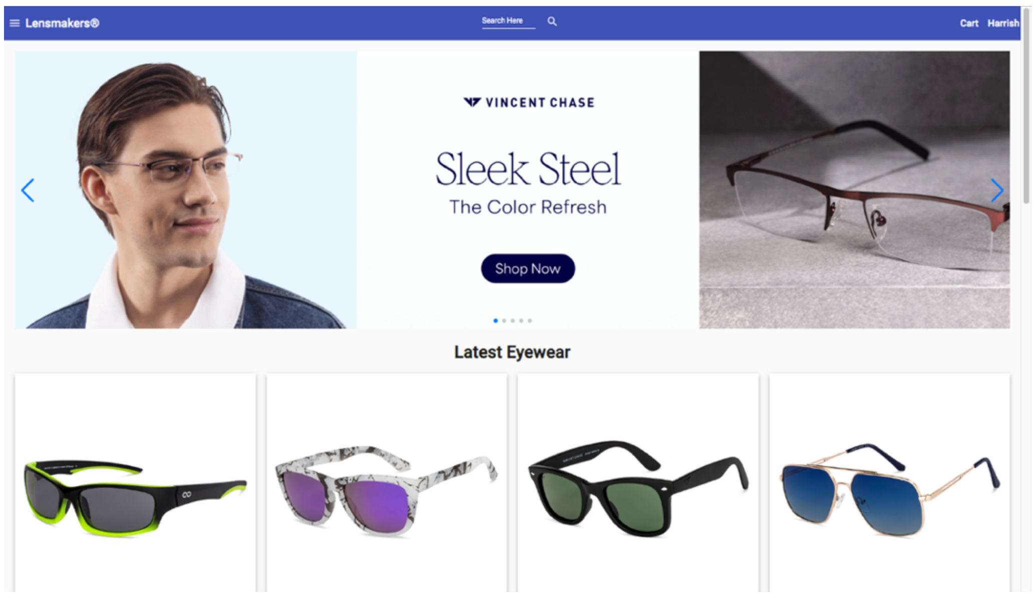


Figure 3.2: Home Page of Online Eyewear Store

3.5.2 Login Page

Figure 3.3 provides the interface for login page of the website. If the login e-mail and password are valid, the user is allowed to login to the website. If the user is a new user there is also a register link embedded in the page which takes the user to the registration page.

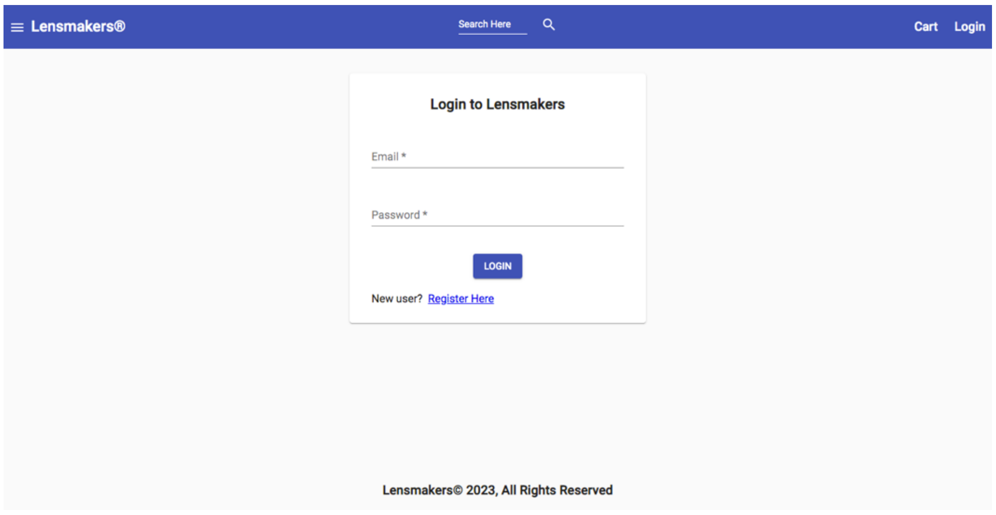


Figure 3.3: Login Page of Online Eyewear Store

3.5.3 Register Page

Figure 3.4 provides the interface for new user registration page of the website. The user can create a new account in the website by using his/her e-mail address, provided the e-mail doesn't already exist on the database. If the user already has an account, then the user is taken to the login page where the user can login with his/her existing e-mail and password.

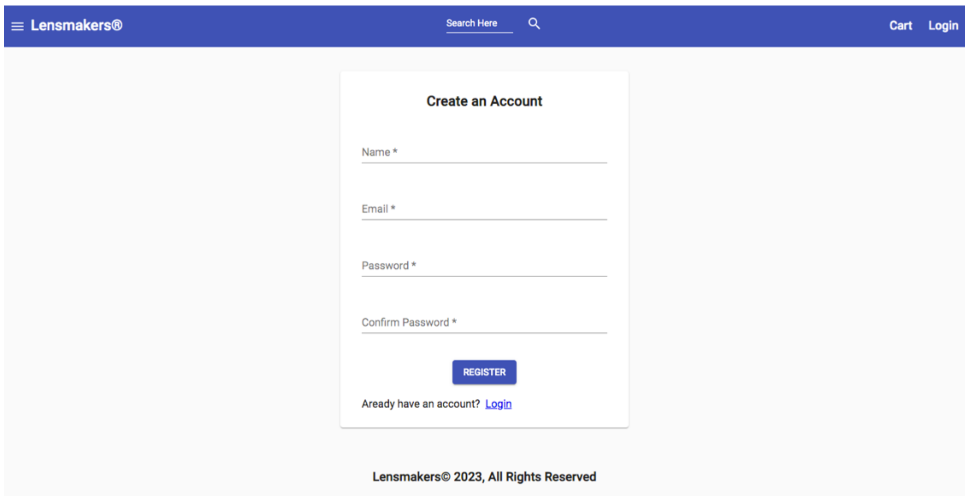
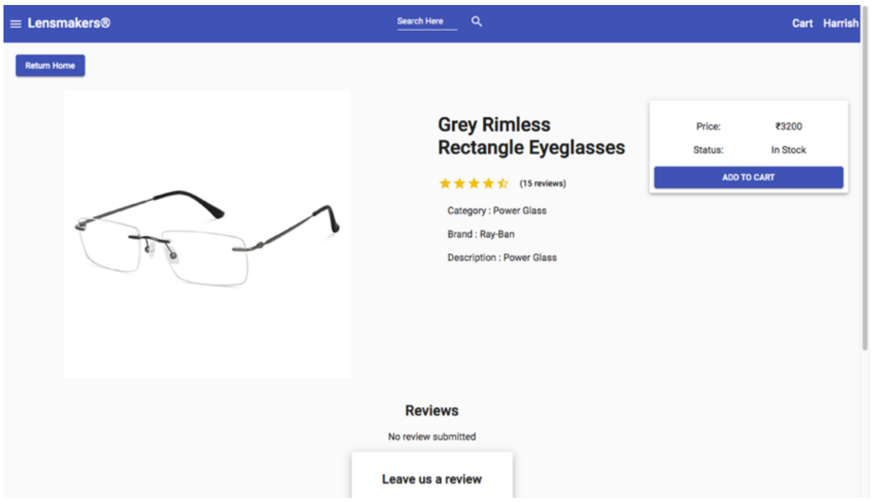


Figure 3.4: Register Page of Online Eyewear Store

3.5.4 Product Details Page

Figure 3.5 provides the detailed information about an eyewear. It contains the name of the eyewear, category of the eyewear, brand of the eyewear, price of the eyewear, short description about the eyewear, stock status of the eyewear, star rating out of 5, number of reviews. The user can also submit a star rating and review for the eyewear. Add to cart button is provided in the website, which the user can use to add the product to his/her cart, provided the item is in stock, for purchase.



Grey Rimless Rectangle Eyeglasses

★★★★☆ (15 reviews)

Category : Power Glass

Brand : Ray-Ban

Description : Power Glass

Price:	₹3200
Status:	In Stock

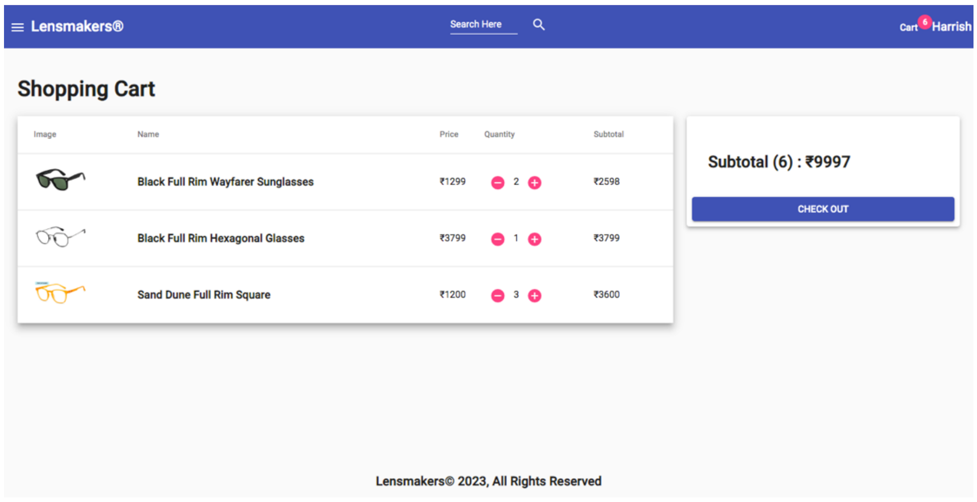
Reviews

No review submitted

Figure 3.5: Product Details Page

3.5.5 Cart Page

Figure 3.6 provides the cart page of the website. This page displays all the eyewear that the user has added to his/her cart with the eyewear name, preview image and its price. The user can also increment or decrement the quantity of the eyewear in the cart page. After completing the process, the user can proceed to checkout.



Shopping Cart

Image	Name	Price	Quantity	Subtotal
	Black Full Rim Wayfarer Sunglasses	₹1299	2	₹2598
	Black Full Rim Hexagonal Glasses	₹3799	1	₹3799
	Sand Dune Full Rim Square	₹1200	3	₹3600

Subtotal (6) : ₹9997

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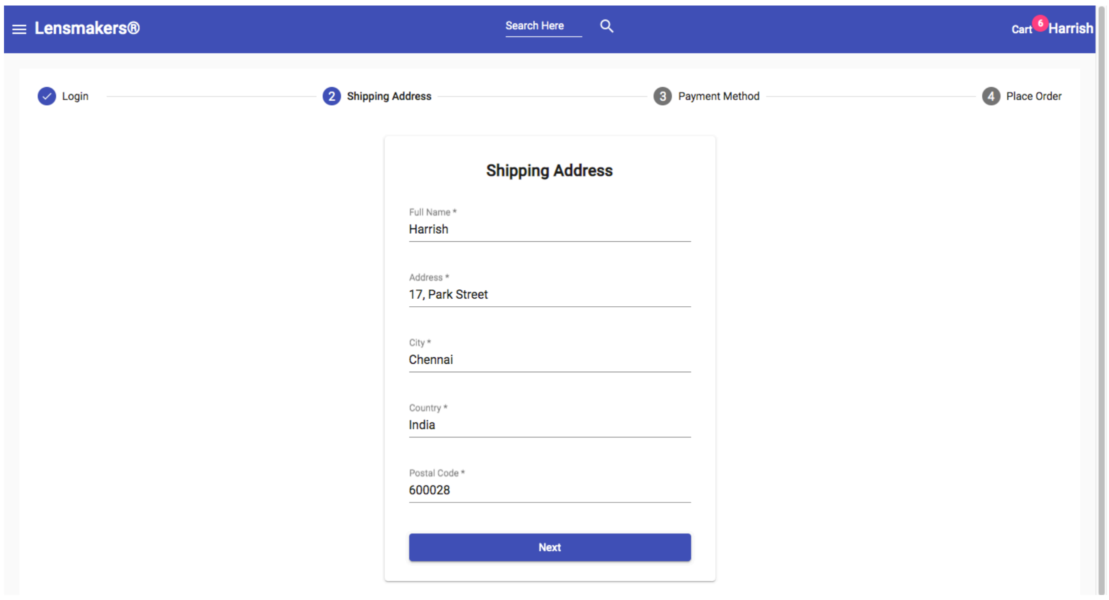
Figure 3.6: Cart Page

3.5.6 Shipping Address Page

Figure 3.7 provides the shipping address page of the website. The user must fill the billing name along with the complete address with postal code for the successful delivery of the package.



Shipping Address

Full Name * Harrish

Address * 17, Park Street

City * Chennai

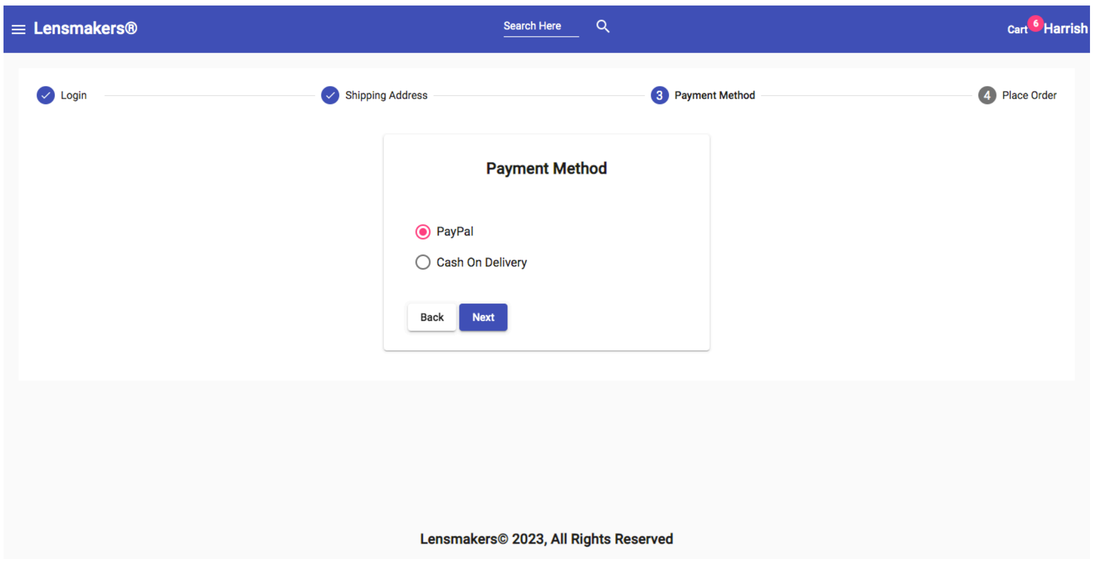
Country * India

Postal Code * 600028

Figure 3.7: Shipping Address Page

3.5.7 Payment Method Page

Figure 3.8 provides the payment method page of the website. The user can choose to pay through the PayPal payment gateway or the Cash on Delivery option.



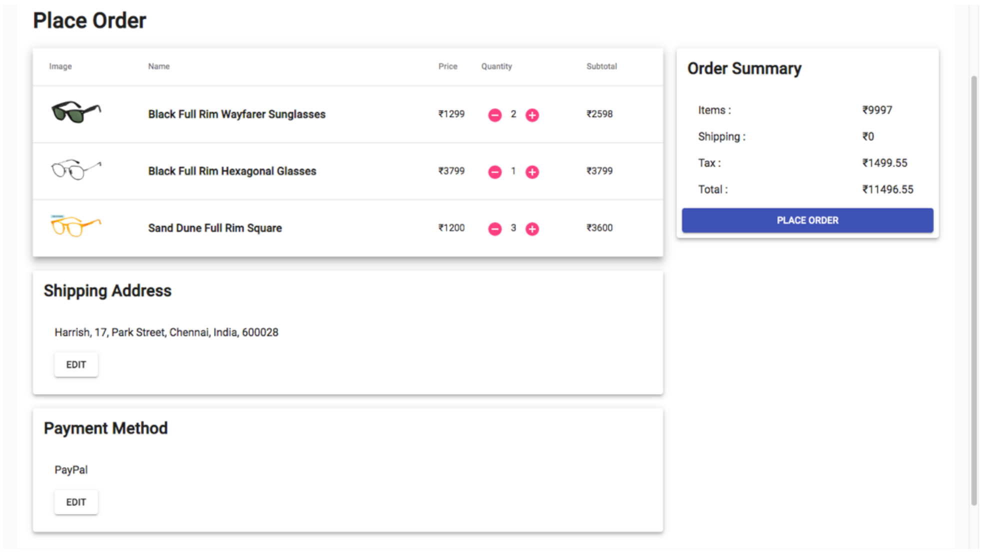
Payment Method

[✓ PayPal] Cash On Delivery

Figure 3.8: Payment Method Page

3.5.8 Place Order Page

Figure 3.9 provides the place order page of the website. The user can still increment or decrement the quantity of eyewear that he/she has finally checked out. The user can also edit the shipping address or the mode of payment. Once the user has confirmed all the details, he/she can click the place order button to confirm the order.



Place Order

Image	Name	Price	Quantity	Subtotal
	Black Full Rim Wayfarer Sunglasses	₹1299	2	₹2598
	Black Full Rim Hexagonal Glasses	₹3799	1	₹3799
	Sand Dune Full Rim Square	₹1200	3	₹3600

Order Summary

Items :	₹9997
Shipping :	₹0
Tax :	₹1499.55
Total :	₹11496.55

Shipping Address

Harrish, 17, Park Street, Chennai, India, 600028

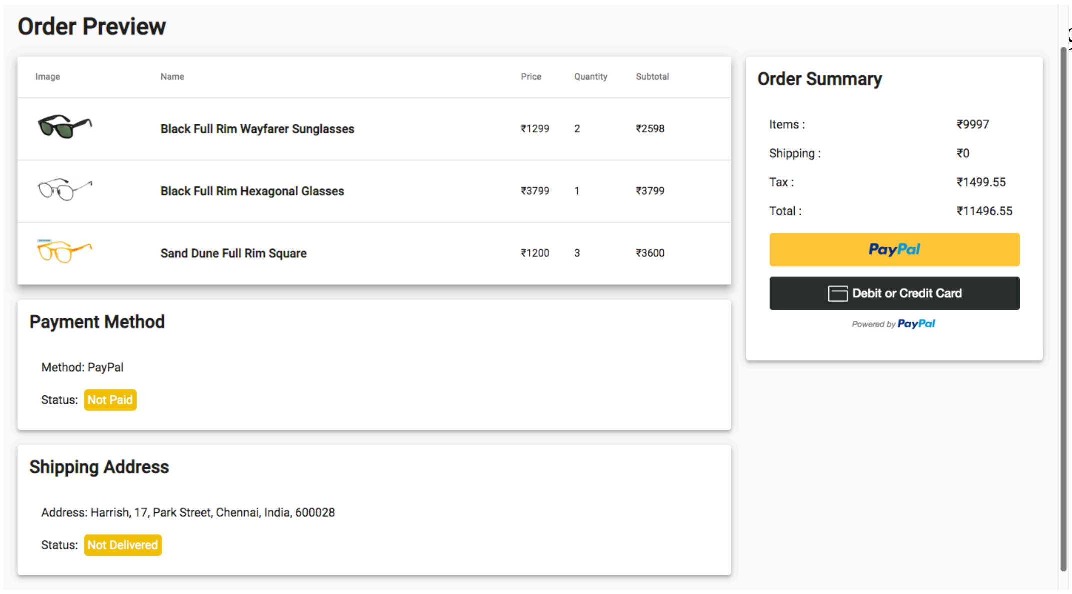
Payment Method

PayPal

Figure 3.9: Place Order Page

3.5.9 Order Summary Page

Figure 3.10 provides the order summary page of the website. This page displays all the eyewear purchased by the user, with the preview image, eyewear name, price and quantity. It also displays the item price, tax and total amount of the purchase. The user can make payment through the PayPal Payment gateway or using his/her debit/credit card.



Order Preview

Image	Name	Price	Quantity	Subtotal
	Black Full Rim Wayfarer Sunglasses	₹1299	2	₹2598
	Black Full Rim Hexagonal Glasses	₹3799	1	₹3799
	Sand Dune Full Rim Square	₹1200	3	₹3600

Payment Method

Method: PayPal

Status: Not Paid

Shipping Address

Address: Harrish, 17, Park Street, Chennai, India, 600028

Status: Not Delivered

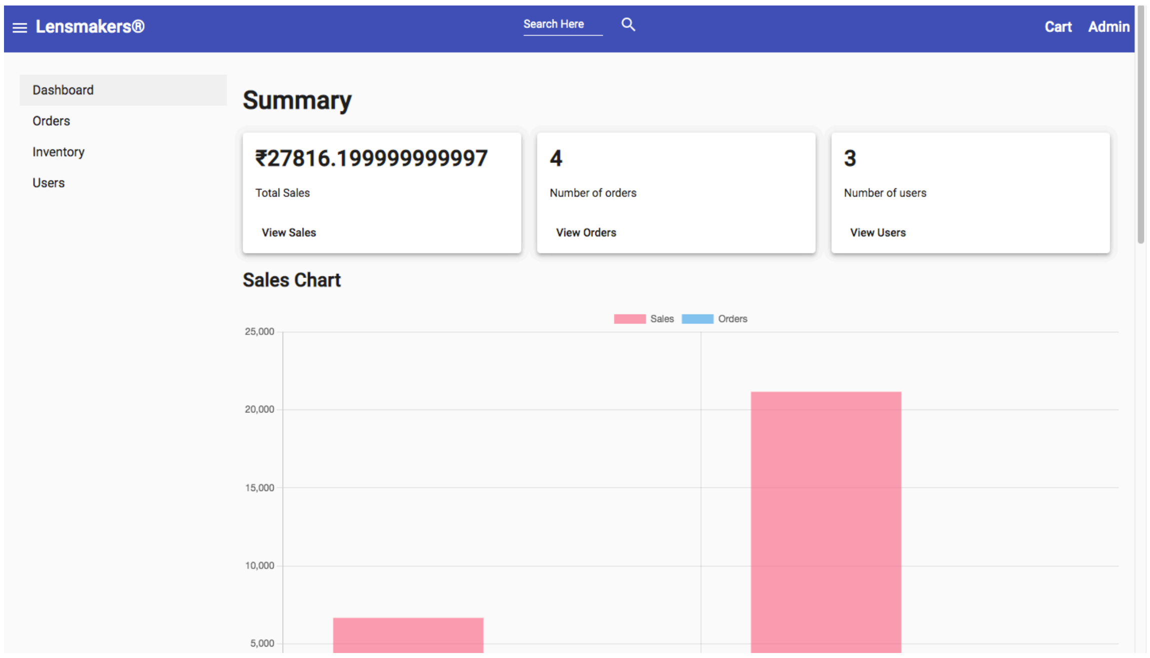
Order Summary

Items :	₹9997
Shipping :	₹0
Tax :	₹1499.55
Total :	₹11496.55

Figure 3.10: Order Summary Page

3.5.10 Admin Dashboard Page

Figure 3.11 provides the admin dashboard page of the website. This page helps the admin to track the sales, orders and users. The sales is tracked and visually plotted using a histogram and the count of each eyewear category in the inventory is visualized using a pie chart.



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Summary

₹27816.199999999997
Total Sales

4
Number of orders

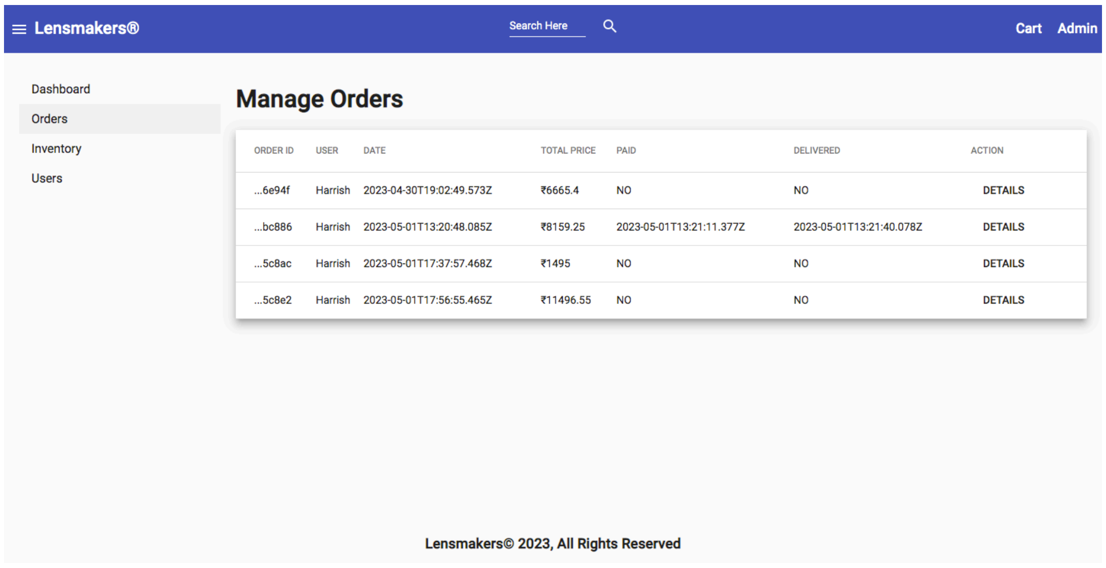
3
Number of users

Sales Chart

Figure 3.11: Admin Dashboard Page

3.5.11 Manage Orders Page

Figure 3.12 provides the order management page of the website. The admin can see and manage all the order details through this page. The admin can also mark a parcel as delivered by clicking the details button which takes the admin to the order details page.



Manage Orders

ORDER ID	USER	DATE	TOTAL PRICE	PAID	DELIVERED	ACTION
...6e94f	Harrish	2023-04-30T19:02:49.573Z	₹6665.4	NO	NO	DETAILS
...bc886	Harrish	2023-05-01T13:20:48.085Z	₹8159.25	2023-05-01T13:21:11.377Z	2023-05-01T13:21:40.078Z	DETAILS
...5c8ac	Harrish	2023-05-01T17:37:57.468Z	₹1495	NO	NO	DETAILS
...5c8e2	Harrish	2023-05-01T17:56:55.465Z	₹11496.55	NO	NO	DETAILS

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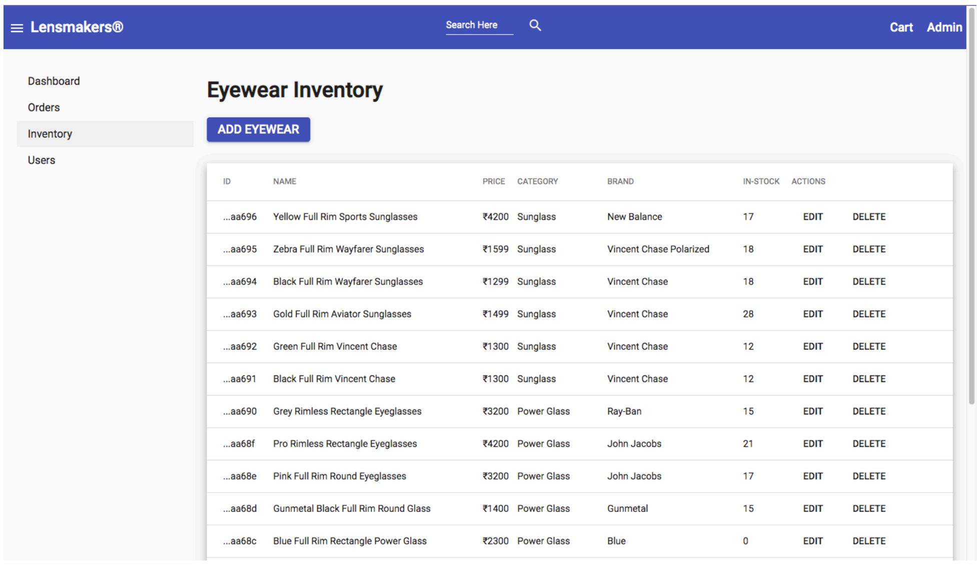
Figure 3.12: Manage Orders Page

3.5.12 Eyewear Inventory Page

Figure 3.13 provides the eyewear inventory page of the website. It displays all the eyewear that are currently in the inventory of the eyewear store. The admin can add a new eyewear or modify or delete the existing eyewear details.



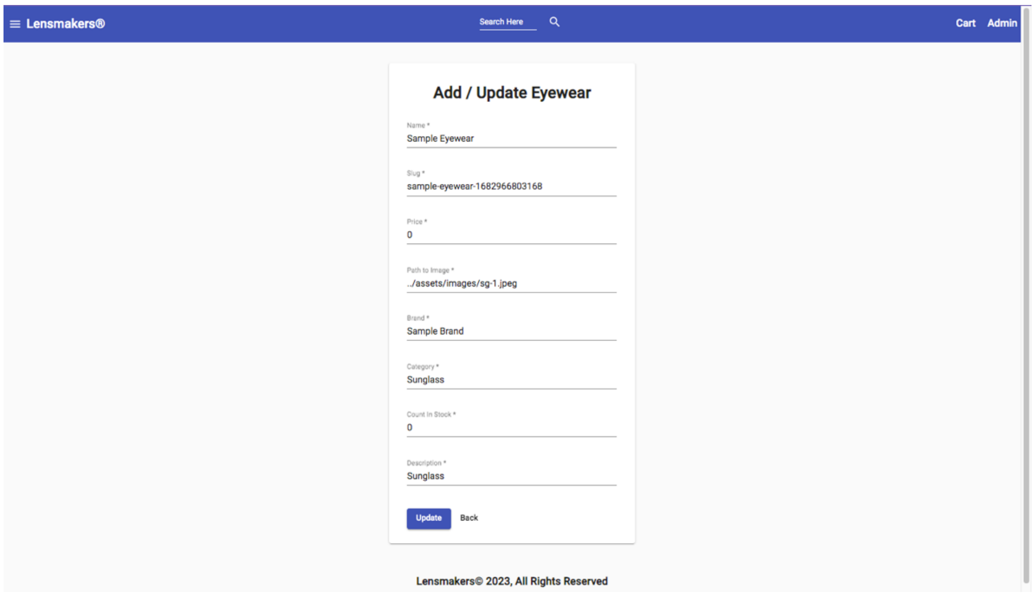
Eyewear Inventory

ID	NAME	PRICE	CATEGORY	BRAND	IN-STOCK	ACTIONS	
...aa696	Yellow Full Rim Sports Sunglasses	₹4200	Sunglass	New Balance	17	EDIT	DELETE
...aa695	Zebra Full Rim Wayfarer Sunglasses	₹1599	Sunglass	Vincent Chase Polarized	18	EDIT	DELETE
...aa694	Black Full Rim Wayfarer Sunglasses	₹1299	Sunglass	Vincent Chase	18	EDIT	DELETE
...aa693	Gold Full Rim Aviator Sunglasses	₹1499	Sunglass	Vincent Chase	28	EDIT	DELETE
...aa692	Green Full Rim Vincent Chase	₹1300	Sunglass	Vincent Chase	12	EDIT	DELETE
...aa691	Black Full Rim Vincent Chase	₹1300	Sunglass	Vincent Chase	12	EDIT	DELETE
...aa690	Grey Rimless Rectangle Eyeglasses	₹3200	Power Glass	Ray-Ban	15	EDIT	DELETE
...aa68f	Pro Rimless Rectangle Eyeglasses	₹4200	Power Glass	John Jacobs	21	EDIT	DELETE
...aa68e	Pink Full Rim Round Eyeglasses	₹3200	Power Glass	John Jacobs	17	EDIT	DELETE
...aa68d	Gunmetal Black Full Rim Round Glass	₹1400	Power Glass	Gunmetal	15	EDIT	DELETE
...aa68c	Blue Full Rim Rectangle Power Glass	₹2300	Power Glass	Blue	0	EDIT	DELETE

Figure 3.13: Eyewear Inventory Page

3.5.13 Add Eyewear Page

Figure 3.14 provides the add eyewear page of the website. The Admin can add a new eyewear to the inventory or update the details of an existing eyewear. Once a new eyewear is added or updated, the change is reflected immediately in the home page of the website.



Add / Update Eyewear

Name *	Sample Eyewear
Slug *	sample-eyewear-1682966803168
Price *	0
Path to Image *	../assets/images/sg-1.jpeg
Brand *	Sample Brand
Category *	Sunglass
Count In Stock *	0
Description *	Sunglass

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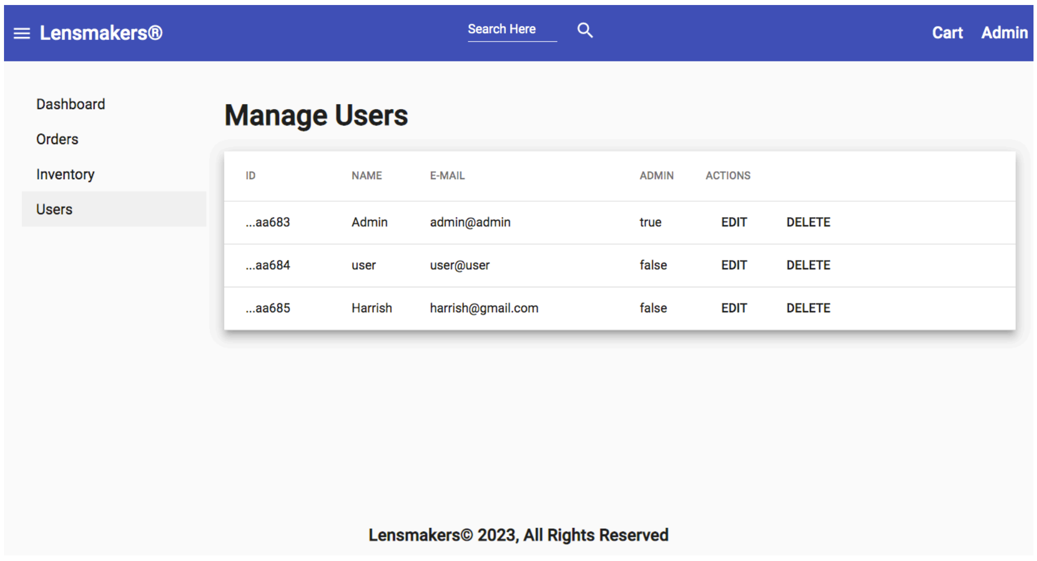
Figure 3.14: Add Eyewear Page

3.5.14 Manage Users Page

Figure 3.15 provides the manage users page of the website. The Admin can edit user details or delete user from the website. The admin can also make another user an Admin. That is, the admin can provide admin privileges to other users also.



Manage Users

ID	NAME	E-MAIL	ADMIN	ACTIONS	
...aa683	Admin	admin@admin	true	EDIT	DELETE
...aa684	user	user@user	false	EDIT	DELETE
...aa685	Harrish	harrish@gmail.com	false	EDIT	DELETE

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Figure 3.15: Manage Users Page

3.5.15 Update User Page

Figure 3.16 provides the update user page of the website. The admin can change the name of the user and can provide a user with Admin privileges.

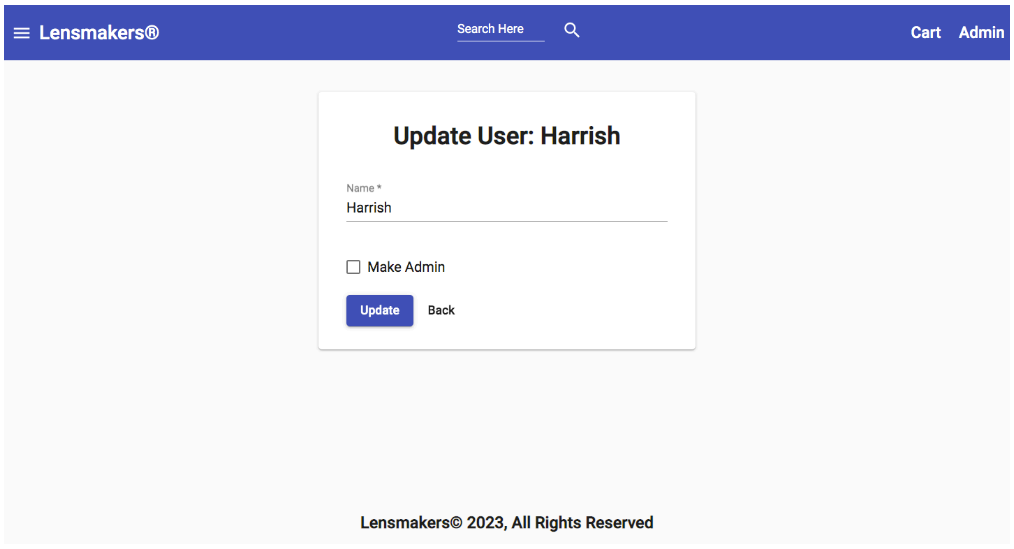
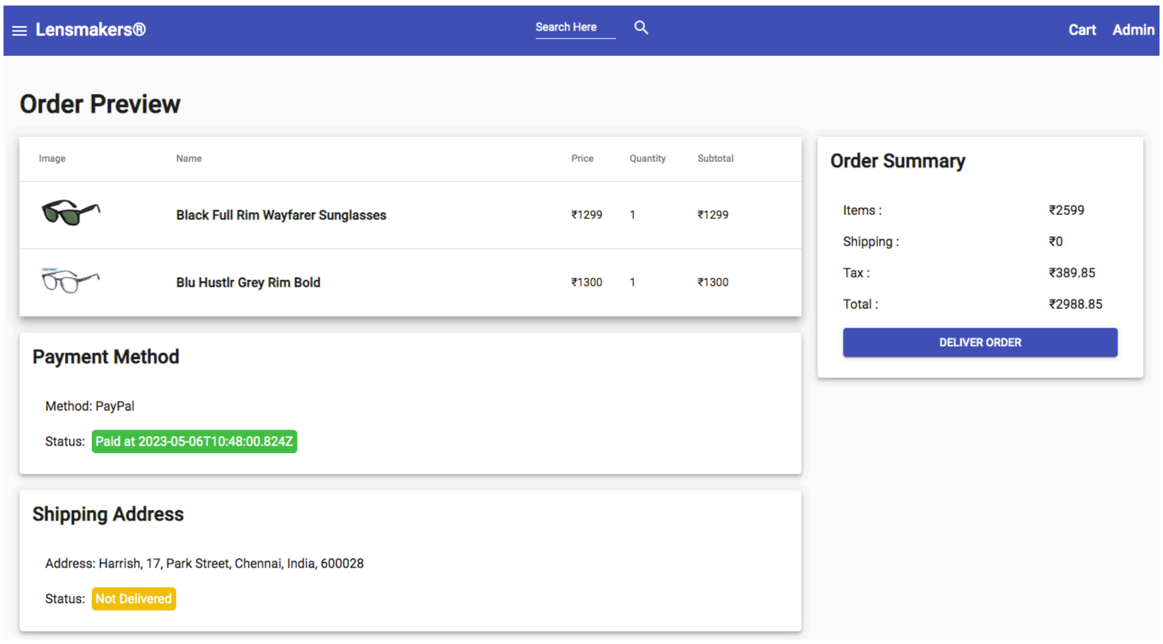


Figure 3.16: Update User Page

3.5.16 Deliver Order Page

Figure 3.17 provides the deliver order page of the website. Once the payment has been made successfully by the user, and the order has been delivered, the admin can mark the order as delivered in the website.



Order Preview

Image	Name	Price	Quantity	Subtotal
	Black Full Rim Wayfarer Sunglasses	₹1299	1	₹1299
	Blu Hustlr Grey Rim Bold	₹1300	1	₹1300

Order Summary

Items :	₹2599
Shipping :	₹0
Tax :	₹389.85
Total :	₹2988.85

Payment Method

Method: PayPal

Status: Paid at 2023-05-06T10:48:00.824Z

Shipping Address

Address: Harrish, 17, Park Street, Chennai, India, 600028

Status: Not Delivered

Figure 3.17: Deliver Order Page

3.5.17 Search Eyewear Page

Figure 3.18 provides the search eyewear page of the website. It enables the user to search for any particular eyewear based on the given eyewear name or a substring of the eyewear name.

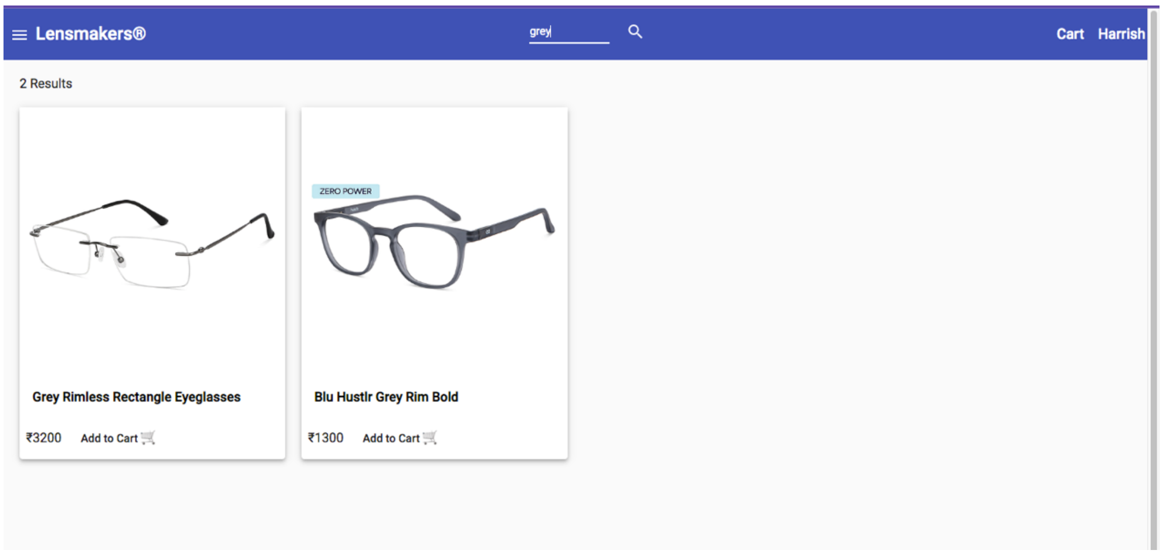


Figure 3.18: Search Page

3.5.18 Shop by Category Page

Figure 3.19 and **Figure 3.20** provides the search by category page and category-based filter results of the website. It enables the user to filter eyewear based on a selected category such as Sunglasses or Computer Glasses.

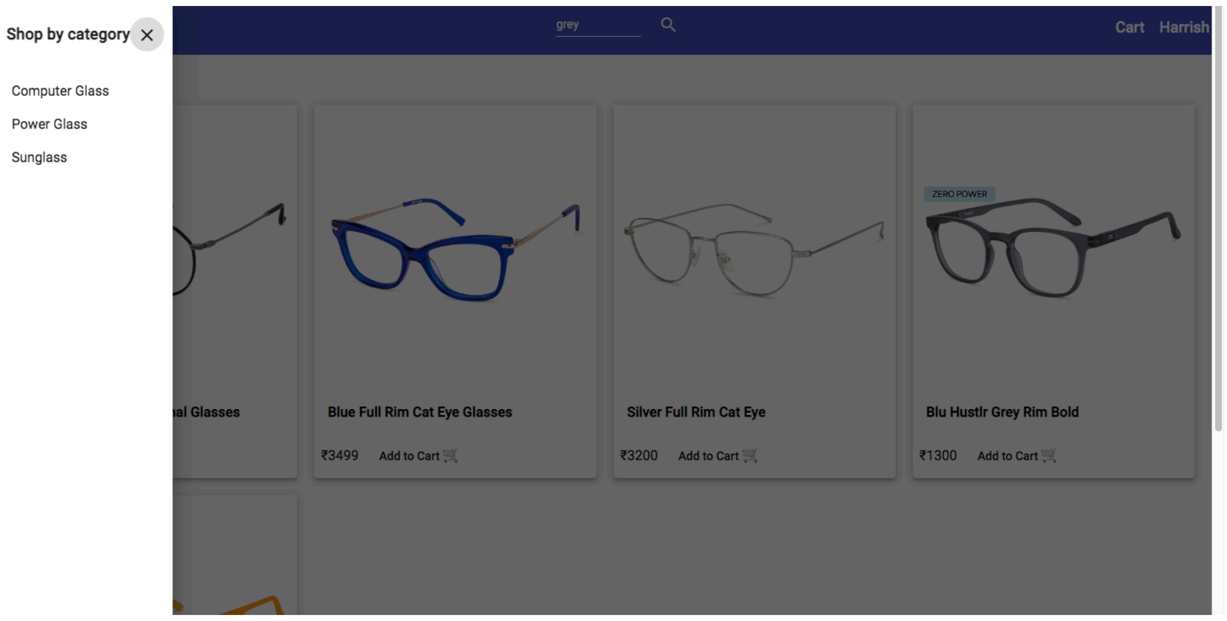


Figure 3.19: Shop by Category Menu

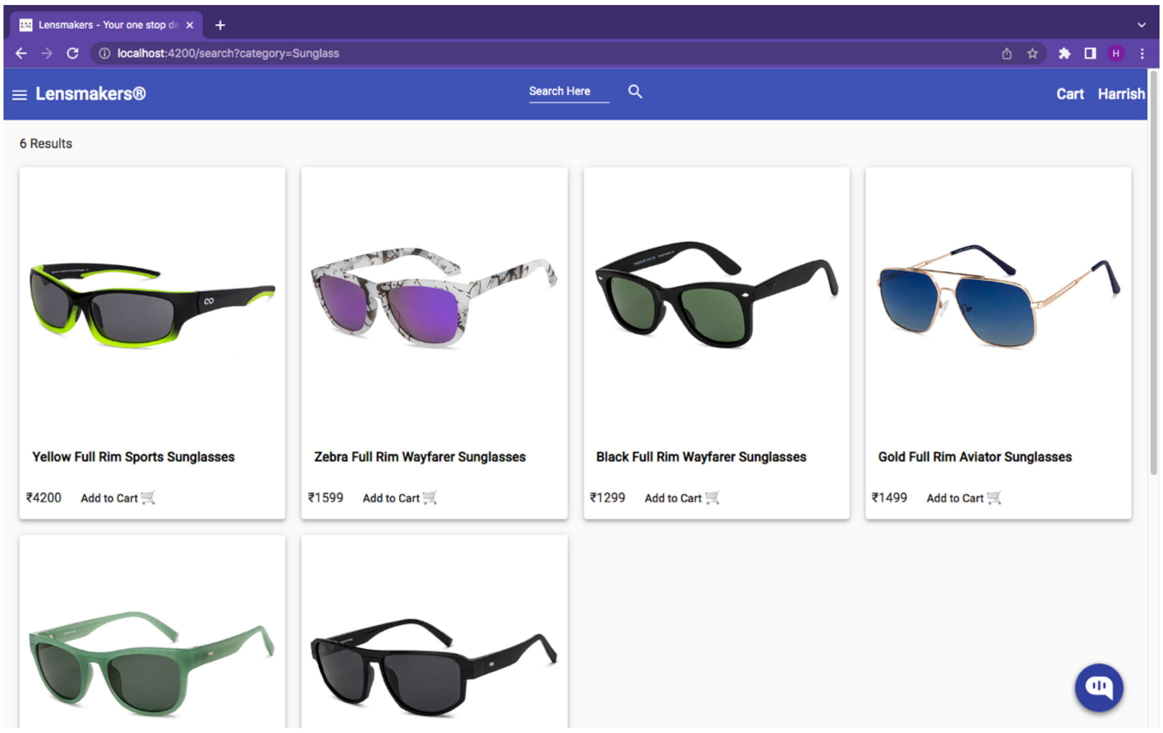

Lensmakers - Your one stop de
localhost:4200/search?category=Sunglass
Lensmakers®
Search Here
Cart
Harrish
6 Results
Yellow Full Rim Sports Sunglasses
₹4200
Add to Cart
Zebra Full Rim Wayfarer Sunglasses
₹1599
Add to Cart
Black Full Rim Wayfarer Sunglasses
₹1299
Add to Cart
Gold Full Rim Aviator Sunglasses
₹1499
Add to Cart

Figure 3.20: Category Filter Page

Conclusion:

Based on the user interface screenshots presented, it can be concluded that the design of the online eyewear store's interface is visually appealing and user-friendly. The use of high-quality product images, clear typography, and a consistent color scheme creates a cohesive and professional look. The layout of the homepage effectively showcases the store's featured products, while the top navigation bar and search bar make it easy for users to find what they are looking for. The product category pages are well-organized and provide useful filtering options, allowing users to quickly narrow down their search. The product pages themselves are well-designed, with detailed product descriptions and clear pricing information. The "Add to Cart" and "Check Out" buttons are prominently displayed, making it easy for users to complete their purchase. The shopping cart and checkout pages are also well-designed, with clear instructions and easy-to-fill forms. The use of a progress bar during checkout provides users with a clear understanding of the steps required to complete their purchase. Overall, the user interface screenshots demonstrate that the online eyewear store's interface is well-designed and user-friendly, creating a positive user experience.

CHAPTER 4

SYSTEM IMPLEMENTATION

4.1 LOGIN IMPLEMENTATION

The login credentials are obtained. If the credentials are OK, then the user is redirected to the homepage

```
POST email id, password
   IF userid, password valid
           RETURN homepage
   ELSE
           TOAST Invalid Credential
```

4.2 REGISTER IMPLEMENTATION

The form fields are obtained. If they are valid, then the user is added to the database.

```
POST requestFields
   IF requestFields valid
           RETURN added to db
   ELSE
           TOAST enter valid details
```

4.3 ADD EYEWEAR IMPLEMENTATION

The form fields are obtained. If they are valid, then the eyewear is added to the database.

```
POST requestFields
   IF requestFields valid
           RETURN added to db
   ELSE
```

```
                TOAST enter valid eyewear details
```

4.4 ADD TO CART IMPLEMENTATION

The form fields are obtained. If eyewear stock is available, then the eyewear is added to the cart.

```
POST eyewearId
   IF eyewear in stock
           RETURN added to cart
   ELSE
           TOAST item out of stock
```

4.5 PLACE ORDER IMPLEMENTATION

The required spectacles are selected by the customer. The total price is calculated and it is displayed.

```
POST list of eyewear
         RETURN total amount
POST shipping address
IF shipping address valid
           RETURN Payment page
ELSE
          TOAST enter valid details
```

4.6 MAKE PAYMENT IMPLEMENTATION

The payment form fields are obtained. If they are valid, then the payment is made successfully.

```
POST requestFields
        IF requestFields valid
        RETURN order successful page
    ELSE
        TOAST enter valid details
```

4.7 SEARCH EYEWEAR IMPLEMENTATION

The search form fields are obtained. If they are valid, then the eyewear is searched and the result is shown successfully.

```
POST requestField
    IF requestField valid
        RETURN all matching eyewear by name
    ELSE
        TOAST eyewear not found
```

4.8 SHOP BY CATEGORY IMPLEMENTATION

The search by category form fields is obtained. If they are valid, then the all the eyewear of the selected category will be displayed on the website.

```
POST requestField
    IF requestField valid
        RETURN all matching eyewear by category
    ELSE
        TOAST eyewear not found
```

CHAPTER 5

RESULTS AND DISCUSSION

5.1 TEST CASES AND RESULTS

5.1.1 Test Cases and Results for Login function:

The Table 5.1, Table 5.2 shows that the possible test data for the both positive and negative test case given below, if the user is already having account then the output is true otherwise false.

Table 5.1: Positive Test Case and result for Login

Test Case ID	TC1
Test Case Description	It tests whether the given login details are valid or not
Test Data	test@gmail.com, test@123
Expected Output	TRUE
Result	PASS

Table 5.2: Negative Test Case and result for Login

Test Case ID	TC2
Test Case Description	It tests whether the given login details are valid or not
Test Data	test@gmail.com
Expected Output	FALSE
Result	PASS

5.1.2 Test Case and Results for Register Function:

The Table 5.3, Table 5.4 shows that the possible test data for both positive and negative test case given below, if the user is already having account then the output is false otherwise true.

Table 5.3: Positive Test Case and result for Register

Test Case ID	TC3
Test Case Description	It tests whether the given registration details are valid or not
Test Data	Harrish, test@gmail.com, test@123, test@123
Expected Output	TRUE
Result	PASS

Table 5.4: Negative Test Case and result for Register

Test Case ID	TC4
Test Case Description	It tests whether the given registration details are valid or not
Test Data	Harrish, test@gmail.com, test@123, test@123
Expected Output	FALSE
Result	PASS

5.1.3 Test Case and Results for Add Eyewear:

The Table 5.5, Table 5.6 shows that the possible test data for both positive and negative test case given below, if the value of the add eyewear fields are valid then the output is true otherwise false.

Table 5.5: Positive Test Case and result for Add Eyewear

Test Case ID	TC5
Test Case Description	It tests whether the new eyewear can be added to the online eyewear store
Test Data	Sample-eyewear,2500, ../assets/images/sg-1.jpg/, Sample-Brand, Sunglass, 20
Expected Output	TRUE
Result	PASS

Table 5.6: Negative Test Case and result for Add Eyewear

Test Case ID	TC6
Test Case Description	It tests whether the new eyewear can be added to the online eyewear store
Test Data	Sample-eyewear-2, ../assets/images/sg-1.jpg/, Sample-Brand-2, Sunglass, 20
Expected Output	FALSE
Result	PASS

5.1.4 Test Case and Results for Add to Cart:

The Table 5.7, Table 5.8 shows that the possible test data for both positive and negative test case given below, if the value of the add to cart fields are valid then the output is true otherwise false.

Table 5.7: Positive Test Case and result for Add Eyewear

Test Case ID	TC7
Test Case Description	It tests whether the eyewear can be added to cart or not
Test Data	Sample-Eyewear, 10
Expected Output	TRUE
Result	PASS

Table 5.8: Negative Test Case and result for Add Eyewear

Test Case ID	TC8
Test Case Description	It tests whether the eyewear can be added to cart or not
Test Data	Sample-Eyewear, 10000
Expected Output	FALSE
Result	PASS

5.1.5 Test Case and Results for Place Order

The Table 5.9, Table 5.10 shows that the possible test data for both positive and negative test case given below, if the order fields are valid then the output is true, else the output is false.

Table 5.9: Negative Test Case and result for Place Order

Test Case ID	TC9
Test Case Description	It tests whether the given place order details are valid or not
Test Data	Sample-Eyewear, 3, 123 Park Street, Chennai, India, 600-028, PayPal
Expected Output	TRUE
Result	PASS

Table 5.10: Negative Test Case and result for Place Order

Test Case ID	TC10
Test Case Description	It tests whether the given place order details are valid or not
Test Data	Sample-Eyewear, 3, Chennai, India, 111-111, PayPal
Expected Output	FALSE
Result	PASS

5.1.6 Test Case and Results for Make Payment:

The Table 5.11, Table 5.12 shows that the possible test data for both positive and negative test case given below, if the payment details are valid then the output is true otherwise false.

Table 5.11: Positive Test Case and result for Make Payment

Test Case ID	TC11
Test Case Description	It tests whether payment can be made for a given order
Test Data	sb-uq0jx25570769@personal.example.com, @#$$tytg#
Expected Output	TRUE
Result	PASS

Table 5.12: Negative Test Case and result for Make Payment

Test Case ID	TC12
Test Case Description	It tests whether payment can be made for a given order
Test Data	harrish-123@personal.example.com, harrish@#$%
Expected Output	FALSE
Result	PASS

5.1.7 Test Case and Results for Search Eyewear:

The Table 5.13, Table 5.14 shows that the possible test data for both positive and negative test case given below, if the eyewear name is valid then the matching eyewear is returned otherwise the output is false.

Table 5.13: Positive Test Case and result for Search Eyewear

Test Case ID	TC13
Test Case Description	It searches for the given eyewear based on matching with the eyewear name
Test Data	blu hustlr sport
Expected Output	TRUE
Result	PASS

Table 5.14: Negative Test Case and result for Search Eyewear

Test Case ID	TC14
Test Case Description	It searches for the given eyewear based on matching with the eyewear name
Test Data	xyzabcrty
Expected Output	FALSE
Result	PASS

5.1.8 Test Case and Results for Shop by Category:

The Table 5.15, Table 5.16 shows that the possible test data for both positive and negative test case given below, if the category details are valid then all the matching eyewear is returned otherwise the output is false.

Table 5.15: Positive Test Case and result for Shop by Category

Test Case ID	TC15
Test Case Description	It retrieves all the eyewear of the selected eyewear category and displays it to the user
Test Data	Sunglass
Expected Output	TRUE
Result	PASS

Table 5.16: Negative Test Case and result for Shop by Category

Test Case ID	TC16
Test Case Description	It retrieves all the eyewear of the selected eyewear category and displays it to the user
Test Data	xyzabcrty
Expected Output	FALSE
Result	PASS

CHAPTER 6

CONCLUSION AND FUTURE ENHANCEMENT(S)

In conclusion, the Online Eyewear Store project has been successfully implemented and offers a user-friendly and efficient platform for customers to purchase eyewear online. The website offers a wide range of products, from sunglasses to prescription glasses, and provides customers with detailed product information, including images, specifications, and customer reviews. The payment and checkout process is simple and secure, with multiple payment options available to customers. The project has been developed using modern web technologies, ensuring that the website is responsive, fast, and accessible across different devices. While the Online Eyewear Store project has been successfully implemented, there are several potential areas for improvement and future enhancements.

These include a virtual try-on feature that enables customers to see how different glasses frames look on their face would be an excellent addition to the website. This feature could be implemented using computer vision and machine learning technologies. The website could implement a personalized recommendation system that suggests glasses frames to customers based on their previous purchases, browsing history, and preferences. The website could integrate with social media platforms to enable customers to share their purchases with friends and family on social media. The website could offer additional payment options, such as cryptocurrency or mobile payment methods, to cater to a broader range of customers. Overall, the Online Eyewear Store project has been successful, but there is always room for improvement and enhancement to provide a better user experience for customers.

APPENDIX – A

SYSTEM REQUIREMENTS

HARDWARE REQUIREMENT:

Server	:	10 TB Storage and 128 GB of Memory
Processor	:	Intel Core i3 10th Gen
Memory	:	8 GB
Storage	:	256 GB of Disk Storage
Network	:	100 Mbps Bandwidth

SOFTWARE REQUIREMENT:

Operating System	:	Any
DBMS	:	MongoDB
IDE used	:	Visual Studio Code 2023
NodeJS Version	:	18.16.0
Angular CLI Version	:	15.2.4

APPENDIX – B

SOURCE CODE

index.html

```
<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <title>Lensmakers - Your one stop destination for all kinds of eyewear</title>
  <base href="/">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="icon" type="image/x-icon" href="favicon.ico">
</head>
<body>
  <app-root></app-root>
</body>
</html>
```

app.component.html

```
<mat-sidenav-container
  class="example-container"
  (backdropClick)="sidenav.close()"
>
  <mat-sidenav
    class="sidenav"
    #sidenav
    (keydown.escape)="sidenav.close()"
    disableClose >
    <div class="header" fxLayout="row" fxLayoutAlign="space-between center">
      <div>
        <h3>Shop by category</h3>
      </div>
      <div>
        <button
          (click)="sidenav.close()"
          mat-icon-button
          aria-label="close menu icon"  >
          <mat-icon>close</mat-icon>
        </button>
      </div>
    </div>
    <mat-nav-list>
      <a
        (click)="sidenav.close()"
        mat-list-item
        [routerLink]="['/search']"
        [queryParams]="{ category: category }"
        *ngFor="let category of categories"
      >
        {{ category }}
      </a>
    </mat-nav-list>
  </mat-sidenav>
  <mat-sidenav-content>
    <div id="app">
      <mat-toolbar color="primary">
        <button
          (click)="sidenav.open()"
          mat-icon-button
          aria-label="open menu icon"
        >
          <mat-icon>menu</mat-icon>
        </button>
        <a mat-button routerLink="/" style="font-size:22px;">Lensmakers®</a>
        <div class="example-spacer">
          <form [formGroup]="searchForm" (ngSubmit)="onSubmit()">
            <mat-form-field floatLabel="never">
              <input
                matInput
                placeholder="Search Here"
                formControlName="name"
                name="query"
              />
            </mat-form-field>
            <button class="hide-small-screen" mat-button color="secondary">
              <mat-icon>search</mat-icon>
            </button>
          </form>
        </div>
```

```
        <a mat-button routerLink="cart">
          <span
            *ngIf="itemsCount > 0"
            [matBadge]="itemsCount"
            matBadgePosition="after"
            matBadgeOverlap="false"
            matBadgeColor="accent"
            >Cart</span>
          <span style="font-size:18px" *ngIf="itemsCount === 0">Cart</span>
        </a>
        <a mat-button *ngIf="!currentUser" routerLink="login" style="font-
size:18px">Login</a>
        <ng-container *ngIf="currentUser">
          <button mat-button [matMenuTriggerFor]="menu" style="font-size:18px">
            {{ currentUser.name }}
          </button>
          <mat-menu #menu="matMenu">
            <a mat-menu-item routerLink="profile">Profile</a>
            <a mat-menu-item routerLink="order-history">Order Hisotry</a>
            <a *ngIf="currentUser" mat-menu-item routerLink="admin/dashboard"
              >Admin</a
            >
            <button *ngIf="currentUser" mat-menu-item (click)="logout()">
              Logout
            </button>
          </mat-menu>
        </ng-container>
      </mat-toolbar>
      <div class="container">
        <router-outlet></router-outlet>
      </div>
      <div class="footer"><h3>Lensmakers© 2023, All Rights Reserved</h3></div>
    </div>
  </mat-sidenav-content>
</mat-sidenav-container>
```

app.component.ts

```
import { Component, ViewChild } from '@angular/core';
import { Router } from '@angular/router';
import { UserInfo } from './models';
import { AuthService } from './services/auth.service';
import { CartService } from './services/cart.service';
import { MatSidenav } from '@angular/material/sidenav';
import { ProductService } from './services/product.service';
import { FormBuilder, FormGroup, Validators } from '@angular/forms';
@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css'],
})
export class AppComponent {
  @ViewChild('sidenav')
  sidenav!: MatSidenav;
  categories: [] = [];
  searchForm: FormGroup;
  title = 'Lensmakers - Your one stop destination for all kinds of eyewear';
  itemsCount: number = 0;
  currentUser: UserInfo | null = null;
  constructor(
    private formBuilder: FormBuilder,
    private router: Router,
    private cartService: CartService,
    private authService: AuthService,
    private productService: ProductService
  ) {
    this.searchForm = this.formBuilder.group({
      name: [''],
    });
  }
  ngOnInit() {
    this.authService.currentUser.subscribe((x) => (this.currentUser = x));
    this.cartService.currentCart.subscribe(
      (x) => (this.itemsCount = x.itemsCount)
    );
    this.productService
      .getCategories()
      .subscribe((categories) => (this.categories = categories));
  }
  onSubmit() {
    this.router.navigate(['/search'], {
      queryParams: { name: this.searchForm.controls.name.value },
    });
  }
  logout() {
    this.authService.logout();
    this.router.navigate(['/login']);
  }
}
```

home.component.html

```
<div *ngIf="loading; else result">
  <mat-spinner></mat-spinner>
</div>
<ng-template #result>
  <swiper
    [autoHeight]="true"
    [autoplay]="true"
    [loop]="true"
    [navigation]="true"
    [pagination]="true"
  >
    <ng-template swiperSlide>
      <img src="../assets/images/banner1.webp" alt="banner 1" />
    </ng-template>
    <ng-template swiperSlide>
      <img src="../assets/images/banner2.webp" alt="banner 2" />
    </ng-template>
    <ng-template swiperSlide>
      <img src="../assets/images/banner3.jpeg" alt="banner 3" />
    </ng-template>
    <ng-template swiperSlide>
      <img src="../assets/images/banner4.webp" alt="banner 4" />
    </ng-template>
    <ng-template swiperSlide>
      <img src="../assets/images/banner5.webp" alt="banner 5" />
    </ng-template>
  </swiper>
  <h1 style="text-align: center;">Latest Eyewear</h1>
  <div
    *ngIf="!error"
    fxLayout="row wrap"
    fxLayoutGap="20px grid"
    fxLayoutGap.xs="10px grid"
  >
    <div
      fxFlex="25%"
      fxFlex.sm="33%"
      fxFlex.xs="100%"
      *ngFor="let product of products"
    >
      <mat-card class="mat-elevation-z4">
        <a [routerLink]="'/product/' + product.slug">
          <img mat-card-image [src]="product.image" />
          <mat-card-content>
            <h3>
              {{ product.name }}
            </h3>
            <app-rating [rating]="product.rating"></app-rating>
          </mat-card-content>
        </a>
        <mat-card-actions>
          <span>₹{{ product.price }}</span>
          <button mat-button (click)="addToCart(product)">Add to Cart 🛒</button>
        </mat-card-actions>
      </mat-card>
    </div>
  </div>
</ng-template>
```

home.component.ts

```
import { Component } from '@angular/core';
import { MatSnackBar } from '@angular/material/snack-bar';
import { Title } from '@angular/platform-browser';
import { Product } from 'src/app/models/product';
import { CartService } from 'src/app/services/cart.service';
import { ProductService } from 'src/app/services/product.service';
import SwiperCore, { Navigation, Pagination } from 'swiper';
SwiperCore.use([Navigation, Pagination]);
@Component({
  selector: 'app-home',
  templateUrl: './home.component.html',
  styleUrls: ['./home.component.css'],
})
export class HomeComponent {
  loading = true;
  error = false;
  products!: Product[];
  constructor(
    private productService: ProductService,
    private snackBar: MatSnackBar,
    private cartService: CartService,
    private titleService: Title
  ) {
    this.titleService.setTitle('Lensmakers - Your one stop destination for all kinds of
eyewear');
  }
  ngOnInit() {
    this.productService.getProducts().subscribe(
      (products: Product[]) => {
        this.loading = false;
        this.products = products;
      },
      (err) => {
        this.loading = false;
        this.error = true;
        this.snackBar.open(err, '', { panelClass: 'error-snackbar' });
      }
    );
  }
  addToCart(product: Product) {
    const { _id, image, name, slug, price } = product;
    this.cartService
      .add({ _id, image, name, slug, price, quantity: 1 })
      .subscribe(
        (productName) =>
          this.snackBar.open(`${productName} added to the cart`, '', {
            panelClass: 'success-snackbar',
          }),
        (err) => {
          this.snackBar.open(err.message, '', { panelClass: 'error-snackbar' });
        }
      );
  }
  onSwiper(swiper: any) {
    console.log(swiper);
```

```
 }
 onSlideChange() {
   console.log('slide change');
 }
}
```

product-details.component.html

```
<div *ngIf="loading; else result">
  <mat-spinner></mat-spinner>
</div>
<ng-template #result>
  <div *ngIf="!error">
    <div class="back-to-result">
      <button
      mat-raised-button
      color="primary"
      routerLink="/">Return Home</button>
    </div>
    <div fxLayout="row wrap" fxLayoutGap="20px grid" fxLayoutGap.xs="0 grid">
      <div fxFlex="50%" fxFlex.xs="100%">
        <img mat-card-image [src]="product.image" />
      </div>
      <div fxFlex="25%" fxFlex.xs="100%">
        <h1>{{ product.name }}</h1>
        <app-rating
          [rating]="product.rating"
          [numReviews]="product.numReviews"
          [reviewUrl]="['/product/' + product.slug]"
        ></app-rating>
        <mat-list>
          <mat-list-item> Category : {{ product.category }}</mat-list-item>
          <mat-list-item> Brand : {{ product.brand }}</mat-list-item>
          <mat-list-item> Description : {{ product.description }}</mat-list-item>
        </mat-list>
      </div>
      <div fxFlex="25%" fxFlex.xs="100%">
        <mat-card class="mat-elevation-z4">
          <mat-list>
            <mat-list-item>
              <div class="full-width" fxLayout="row">
                <div fxFlex="50%">Price:</div>
                <div fxFlex="50%">₹{{ product.price }}</div>
              </div>
            </mat-list-item>
            <mat-list-item>
              <div class="full-width" fxLayout="row">
                <div fxFlex="50%">Status:</div>
                <div fxFlex="50%">
                  {{ product.countInStock > 0 ? "In Stock" : "Unavailable" }}
                </div>
              </div>
            </mat-list-item>
          </mat-list>
          <mat-card-actions>
            <button
              class="full-width"
              mat-raised-button
              color="primary"
              (click)="addToCart()"
            >
              ADD TO CART
            </button>
          </mat-card-actions>
        </mat-card>
      </div>
    </div>
    <div name="reviews">
      <h2 style="text-align: center;">Reviews</h2>
      <p *ngIf="product.reviews.length === 0" style="text-align: center;">No review
submitted</p>
      <mat-list *ngFor="let review of product.reviews">
        <mat-list-item>
          <div>
            <p>
              <strong>{{ review.name }}</strong>
            </p>
            <app-rating [rating]="review.rating"></app-rating>
            <p>
              <strong>{{ review.comment }}</strong>
            </p>
            <mat-divider></mat-divider>
          </div>
        </mat-list-item>
      </mat-list>
      <p *ngIf="!currentUser" style="text-align: center;">
        Please
        <a
          routerLink="/login"
          [queryParams]="{ returnUrl: '/product/' + product.slug }"
          >login</a
        >
        to submit a review
      </p>
      <div class="main-div">
        <mat-card *ngIf="currentUser" class="mat-elevation-z7">
          <mat-card-content>
            <form [formGroup]="form" (ngSubmit)="onSubmit()">
              <h2>Leave us a review</h2>
              <mat-list>
                <mat-list-item>
                  <mat-form-field class="full-width">
                    <input
                      matInput
                      placeholder="Comment"
                      formControlName="comment"
                      required
                    />
                    <mat-error> Please provide a comment </mat-error>
                  </mat-form-field>
                </mat-list-item>
                <mat-list-item>
                  <mat-form-field appearance="fill">
                    <mat-label>Choose an option</mat-label>
                    <select formControlName="rating" matNativeControl>
                      <option value=""></option>
                      <option value="1">⭐ Poor</option>
                      <option value="2">⭐⭐ Okay</option>
                      <option value="3">⭐⭐⭐ Good</option>
                      <option value="4">⭐⭐⭐⭐ Very good</option>
                      <option value="5">⭐⭐⭐⭐⭐ Excellent</option>
                    </select>
                  </mat-form-field>
                  </mat-list-item>
                  <mat-list-item>
                    <button
                      [disabled]="createReviewLoading"
                      mat-raised-button
                      color="primary"
                      style="display:block;margin:auto"
                    >
                      Submit
                    </button>
                    <mat-spinner
                      [diameter]="30"
                      *ngIf="createReviewLoading"
                    ></mat-spinner>
                  </mat-list-item>
                </mat-list>
              </form>
            </mat-card-content>
          </mat-card>
        </div>
       </div>
      </div>
      </ng-template>
```

product-details.component.ts

```
import { Component, OnInit } from '@angular/core';
import { Title } from '@angular/platform-browser';
import { ActivatedRoute, Router } from '@angular/router';
import { Product } from '../../models/product';
import { AuthService } from '../../services/auth.service';
import { ProductService } from '../../services/product.service';
import { CartService } from 'src/app/services/cart.service';
import { MatSnackBar } from '@angular/material/snack-bar';
import { UserInfo } from 'src/app/models';
import { FormBuilder, FormGroup, Validators } from '@angular/forms';
@Component({
  selector: 'app-product-details',
  templateUrl: './product-details.component.html',
  styleUrls: ['./product-details.component.css'],
})
export class ProductDetailsComponent implements OnInit {
```

```
form: FormGroup;
currentUser: UserInfo | null = null;
submitted = false;
error = false;
loading = true;
createReviewLoading = false;
product: Product = {
  _id: '',
  name: '',
  price: 0,
  image: '',
  brand: '',
  category: '',
  description: '',
  countInStock: 0,
  slug: '',
  rating: 0,
  numReviews: 0,
  reviews: [],
};
constructor(
  private formBuilder: FormBuilder,
  private authService: AuthService,
  private titleService: Title,
  private route: ActivatedRoute,
  private productService: ProductService,
  private router: Router,
  private cartService: CartService,
  private snackBar: MatSnackBar
) {
  this.form = this.formBuilder.group({
    comment: ['', Validators.required],
    rating: ['', Validators.required],
  });
}
async ngOnInit() {
  this.authService.currentUser.subscribe((x) => (this.currentUser = x));
  this.getProduct();
}
getProduct() {
  const routeParams = this.route.snapshot.paramMap;
  const slug = routeParams.get('slug');
  if (slug) {
    this.productService.getProductBySlug(slug).subscribe(
      (data) => {
        this.loading = false;
        this.product = data;
        this.titleService.setTitle(this.product.name);
      },
      (err) => {
        this.error = true;
        this.loading = false;
        this.snackBar.open(err, '', {
          panelClass: 'error-snackbar',
        });
      }
    );
  } else {
    this.error = true;
    this.loading = false;
    this.snackBar.open('Product not found', '', {
      panelClass: 'error-snackbar',
    });
  }
}
addToCart() {
  const { _id, image, name, slug, price } = this.product;
  this.cartService
    .add({ _id, image, name, slug, price, quantity: 1 })
    .subscribe(
      (productName) => {
        this.snackBar.open(`${productName} added to the cart`, '', {
          panelClass: 'success-snackbar',
        });
        this.router.navigate(['/cart']);
      },
      (err) => {
        this.snackBar.open(err.message, '', { panelClass: 'error-snackbar' });
      }
    );
}
onSubmit() {
    this.submitted = true;
    if (this.form.invalid) {
      return;
    }
    const { comment, rating } = this.form.controls;
    this.createReviewLoading = true;
    this.productService
      .createReview(this.product._id, comment.value, rating.value)
      .subscribe(
        (data) => {
          this.getProduct();
          this.createReviewLoading = false;
        },
        (error) => {
          this.snackBar.open(error, '', { panelClass: 'error-snackbar' });
          this.createReviewLoading = false;
        }
      );
  }
}
```

login.component.html

```
<mat-card>
  <mat-card-content>
    <form [formGroup]="form" (ngSubmit)="onSubmit()">
      <h2>Login to Lensmakers</h2>
      <mat-list>
        <mat-list-item>
          <mat-form-field class="full-width">
            <input
              matInput
              placeholder="Email"
              formControlName="email"
              required
            />
            <mat-error> Please provide a valid email address! </mat-error>
          </mat-form-field>
        </mat-list-item>
        <mat-list-item>
          <mat-form-field class="full-width">
            <input
              matInput
              type="password"
              placeholder="Password"
              formControlName="password"
              required
            />
            <mat-error> Please enter your password! </mat-error>
          </mat-form-field>
        </mat-list-item>
        <mat-list-item>
          <button [disabled]="loading" mat-raised-button color="primary"
          style="display:block;margin:auto">
            LOGIN
          </button>
          <mat-spinner [diameter]="30" *ngIf="loading"></mat-spinner>
        </mat-list-item>

        <mat-list-item>
          New user? &nbsp;
          <a
            [routerLink]="['/register']"
            [queryParams]="{ returnUrl: returnUrl }"
            >Register Here</a
          >
        </mat-list-item>
      </mat-list>
    </form>
  </mat-card-content>
</mat-card>
```

login.component.ts

```
import { Component, OnInit } from '@angular/core';
import { Router, ActivatedRoute } from '@angular/router';
import { FormBuilder, FormGroup, Validators } from '@angular/forms';
import { first } from 'rxjs/operators';
import { AuthService } from '../../services/auth.service';
import { MatSnackBar } from '@angular/material/snack-bar';
@Component({
  selector: 'app-login',
  templateUrl: './login.component.html',
  styleUrls: ['./login.component.css'],
})
export class LoginComponent implements OnInit {
  form: FormGroup;
  loading = false;
  submitted = false;
  returnUrl: string;
  error = '';
  constructor(
    private formBuilder: FormBuilder,
    private route: ActivatedRoute,
    private router: Router,
    private snackBar: MatSnackBar,
    private authService: AuthService
  ) {
    if (this.authService.currentUserValue) {
      this.router.navigate(['/']);
    }
    this.form = this.formBuilder.group({
      email: ['', Validators.email],
      password: ['', Validators.required],
    });
    this.returnUrl = this.route.snapshot.queryParams['returnUrl'] || '/';
  }
  ngOnInit() {}
  onSubmit() {
    this.submitted = true;
    if (this.form.invalid) {
      return;
    }
    const { email, password } = this.form.controls;
    this.loading = true;
    this.authService
      .login(email.value, password.value)
      .pipe(first())
      .subscribe(
        (data) => {
          this.router.navigate([this.returnUrl]);
        },
        (error) => {
          this.snackBar.open(error, '', { panelClass: 'error-snackbar' });
          this.loading = false;
        }
      );
  }
}
```

cart.component.html

```
<h1>Shopping Cart</h1>
<div fxLayout="row wrap" fxLayoutGap="20px grid" fxLayoutGap.xs="10px grid">
  <div *ngIf="cart" fxFlex="70%" fxFlex.xs="100%">
    <table mat-table [dataSource]="cart.items" class="mat-elevation-z8">
      <!-- Image Column -->
      <ng-container matColumnDef="image">
        <th mat-header-cell *matHeaderCellDef>Image</th>
        <td class="thumbnail-cell" mat-cell *matCellDef="let element">
          <img [src]="element.image" class="thumbnail" />
        </td>
      </ng-container>
      <ng-container matColumnDef="name">
        <th mat-header-cell *matHeaderCellDef>Name</th>
        <td mat-cell *matCellDef="let element">
          <h3 [routerLink]="'/product/' + element.slug"> {{ element.name }}</h3>
        </td>
      </ng-container>
      <ng-container matColumnDef="price">
        <th mat-header-cell *matHeaderCellDef>Price</th>
        <td mat-cell *matCellDef="let element">₹{{ element.price }}</td>
      </ng-container>
      <ng-container matColumnDef="quantity">
        <th mat-header-cell *matHeaderCellDef>Quantity</th>
        <td mat-cell *matCellDef="let element">
          <button
            (click)="remove(element)"
            mat-icon-button
            color="accent"
            aria-label="remove icon"
          >
            <mat-icon>remove_circle</mat-icon>
          </button>
          {{ element.quantity }}
          <button
            (click)="add(element)"
            mat-icon-button
            color="accent"
            aria-label="add icon"
          >
            <mat-icon>add_circle</mat-icon>
          </button>
        </td>
      </ng-container>
      <ng-container matColumnDef="subtotal">
        <th mat-header-cell *matHeaderCellDef>Subtotal</th>
        <td mat-cell *matCellDef="let element">
          ₹{{ element.quantity * element.price }}
        </td>
      </ng-container>
      <tr mat-header-row *matHeaderRowDef="displayedColumns"></tr>
      <tr mat-row *matRowDef="let row; columns: displayedColumns"></tr>
    </table>
  </div>
  <div fxFlex="30%" fxFlex.xs="100%" class="mt-20">
    <mat-card class="mat-elevation-z4">
      <mat-list>
        <mat-list-item>
          <h2>Subtotal ({{ cart.itemsCount }}) : ₹{{ cart.itemsPrice }}</h2>
        </mat-list-item>
      </mat-list>
      <mat-card-actions>
        <button
          (click)="checkout()"
          class="full-width"
          mat-raised-button
          color="primary"
        >
          CHECK OUT
        </button>
      </mat-card-actions>
    </mat-card>
  </div>
</div>
```

cart.component.ts

```
import { Component, OnInit } from '@angular/core';
import { MatSnackBar } from '@angular/material/snack-bar';
import { Title } from '@angular/platform-browser';
import { ActivatedRoute, Router } from '@angular/router';
import { Product } from 'src/app/models/product';
import { CartService } from 'src/app/services/cart.service';
import { Cart, Item } from '../../models/cart';
@Component({
  selector: 'app-cart',
  templateUrl: './cart.component.html',
  styleUrls: ['./cart.component.css'],
})
export class CartComponent implements OnInit {
  cart!: Cart;
  displayedColumns: string[] = [
    'image',
    'name',
    'price',
    'quantity',
    'subtotal',
  ];
  error: string = '';
  constructor(
    private titleService: Title,
    private router: Router,
    private route: ActivatedRoute,
    private snackBar: MatSnackBar,
    private cartService: CartService
  ) {}
  ngOnInit() {
    this.titleService.setTitle('Shopping Cart');
    this.cartService.currentCart.subscribe((x) => (this.cart = x));
  }
  add(item: Item) {
    this.cartService.add(item).subscribe(
      (productName) =>
        this.snackBar.open(`${productName} added to the cart`, '', {
          panelClass: 'success-snackbar',
        }),
      (err) => {
        this.snackBar.open(err.message, '', { panelClass: 'error-snackbar' });
      }
    );
  }
  remove(item: Item) {
    this.snackBar.dismiss();
    this.cartService.remove(item._id);
  }
  checkout() {
    if (this.cart.itemsCount === 0) {
      this.snackBar.open('Cart is empty', '', { panelClass: 'error-snackbar' });
      return;
    }
    this.router.navigate(['/shipping']);
  }
}
```

server.ts

```
import cors from 'cors';
import path from 'path';
import dotenv from 'dotenv';
import express, { Request, Response } from 'express';
import mongoose from 'mongoose';
import { userRouter } from './routers/user.routes';
import { orderRouter } from './routers/order.routes';
import { productRouter } from './routers/product.routes';
import { uploadRouter } from './routers/upload.routes';
dotenv.config();
const app = express();
app.use(
  cors({
    credentials: true,
    origin: ['http://localhost:4200'],
  })
);
app.use(express.json());
app.use(express.urlencoded({ extended: true }));
const MONGODB_URI = process.env.MONGODB_URI || 'mongodb://localhost/ts-
backend';
mongoose
  .connect(MONGODB_URI)
  .then(() => {
    console.log('Successfully connected to MongoDB!');
  })
  .catch((err) => {
    console.log('Error in database connection!');
  });
app.use('/api/uploads', uploadRouter);
app.use('/api/users', userRouter);
app.use('/api/products', productRouter);
app.use('/api/orders', orderRouter);
app.get('/api/config/paypal', (req: Request, res: Response) => {
  res.send({ clientId: process.env.PAYPAL_CLIENT_ID || 'sb' });
});
const __dirname = path.resolve();
app.use(express.static(path.join(__dirname, './frontend/dist/frontend')));
app.get('*', (req, res) =>
  res.sendFile(path.join(__dirname, './frontend/dist/frontend/index.html'))
);
app.use((err: Error, req: Request, res: Response, next: Function) => {
  res.status(500).send({ message: err.message });
});
const PORT: number = parseInt((process.env.PORT || '5000') as string, 10);
app.listen(PORT, () => {
  console.log(`Server started at http://localhost:${PORT}`);
});
```

utils.ts

```
import { Request, Response } from 'express';
import jwt from 'jsonwebtoken';
import { User } from './models/user.model';
export const generateToken = (user: User) => {
  return jwt.sign(
    {
      _id: user._id,
      name: user.name,
      email: user.email,
      isAdmin: user.isAdmin,
    },
    process.env.JWT_SECRET || 'somethingsecret',
    {
      expiresIn: '30d',
    }
  );
};
export const isAuth = (req: Request, res: Response, next: Function) => {
  const authorization = req.headers.authorization;
  if (authorization) {
    const token = authorization.slice(7, authorization.length); // Bearer XXXXXX
    const decode = jwt.verify(
      token,
      process.env.JWT_SECRET || 'somethingsecret'
    );
    req.user = decode;
    next();
  } else {
    res.status(401).send({ message: 'No Token' });
  }
};
export const isAdmin = (req: Request, res: Response, next: Function) => {
  if (req.user && req.user.isAdmin) {
    next();
  } else {
    res.status(401).send({ message: 'Invalid Admin Token' });
  }
};
```

user.service.ts

```
import { Injectable } from '@angular/core';
import { HttpClient, HttpHeaders } from '@angular/common/http';
import { Observable } from 'rxjs';
import { User } from '../models/user';
import { environment } from 'src/environments/environment';
const httpOptions = {
  headers: new HttpHeaders({ 'Content-Type': 'application/json' }),
};
@Injectable({
  providedIn: 'root',
})
export class UserService {
  constructor(private http: HttpClient) {}
  getUser(userId: string): Observable<any> {
    return this.http.get(`${environment.apiUrl}/api/users/${userId}`, {
      responseType: 'json',
    });
  }
  update(user: User) {
    return this.http.put<User>(
      `${environment.apiUrl}/api/users/${user._id}`,
      user
    );
  }

  deleteUser(userId: string): Observable<any> {
    return this.http.delete(`${environment.apiUrl}/api/users/${userId}`, {
      responseType: 'json',
    });
  }}
```

product.service.ts

```
import { Injectable } from '@angular/core';
import { HttpClient } from '@angular/common/http';
import { Observable } from 'rxjs';
import { environment } from '../../environments/environment';
import { Product, ProductFilter } from '../models/product';

@Injectable({
 providedIn: 'root',
})
export class ProductService {
 getAdminProducts() {
  return this.http.get(`${environment.apiUrl}/api/products`, {
    responseType: 'json',
  });
 }
 constructor(private http: HttpClient) {}

 getProducts(): Observable<any> {
  return this.http.get(`${environment.apiUrl}/api/products`, {
    responseType: 'json',
  });
 }

 createProduct(): Observable<any> {
  return this.http.post(`${environment.apiUrl}/api/products`, {
    responseType: 'json',
  });
 }

 createReview(
  productId: string,
  comment: string,
  rating: number
 ): Observable<any> {
  return this.http.post(
    `${environment.apiUrl}/api/products/${productId}/reviews`,
    { comment, rating },
    {
     responseType: 'json',
    }
  );
 }

 deleteProduct(productId: string): Observable<any> {
  return this.http.delete(`${environment.apiUrl}/api/products/${productId}`, {
    responseType: 'json',
  });
 }

 searchProducts(productFilter: ProductFilter): Observable<any> {
  let qs = '';
  if (productFilter.category) {
    qs += `category=${productFilter.category}&`;
  }
  if (productFilter.name) {
    qs += `name=${productFilter.name}&`;
  }
  return this.http.get(`${environment.apiUrl}/api/products?${qs}`, {
    responseType: 'json',
  });
 }
 getCategories(): Observable<any> {
  return this.http.get(`${environment.apiUrl}/api/products/categories`, {
    responseType: 'json',
  });
 }
 getProduct(productId: string): Observable<any> {
  return this.http.get(`${environment.apiUrl}/api/products/${productId}`, {
    responseType: 'json',
  });
 }

 getProductBySlug(slug: string): Observable<any> {
  return this.http.get(`${environment.apiUrl}/api/products/slug/${slug}`, {
    responseType: 'json',
  });
 }
 postFile(fileToUpload: File): Observable<any> {
  const formData: FormData = new FormData();
  formData.append('image', fileToUpload, fileToUpload.name);
  return this.http.post(`${environment.apiUrl}/api/uploads`, formData);
 }
 update(product: Product) {
  return this.http.put<Product>(
    `${environment.apiUrl}/api/products/${product._id}`,
    product
  );
 }
}
```

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