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# **ASSIGNMENT**

## **LEVEL 5**

**COMP50016 : Server Side Programming**

**CB Number: CB014131**

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**SENG2461**

**Individual Assessment**

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### **INSTRUCTION TO CANDIDATES**

- 1. Late submission will be awarded zero (0) unless extenuating circumstances (EC) are upheld.**
- 2. Cases of plagiarism will be penalized.**
- 3. The assignment should be submitted as softcopy via LMS**
- 4. All evidences related to the sprint implementation in group assignment must be show cased in the final documentation.**

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# Software Requirements Specification

## 1. Introduction

### 1.1 Purpose

This document details the requirements for ElectroMart, an e-commerce platform focused on retail and consumer goods. The SRS will act as a guide for building a flexible, strong, and secure server-side web application that satisfies the needs of customers and administrators.

### 1.2 Scope

ElectroMart will be an online store that sells a large range of household products and consumer electronics. Product browsing, shopping cart functionality, administrative controls, and customer account management will all be included in the system.

## 2. Business Scenario

### 2.1 Business Model

ElectroMart is an online retail and consumer products firm that deals with electronics and home appliances. The business model is based on:

- Direct to consumer sales
- Competitive pricing through bulk purchasing
- Customer loyalty programs
- Effective supply chain management

### 2.2 Product and Services

**Products:** Include home appliances (microwaves, refrigerators, and washing machines), consumer electronics (laptops, smartphones, and tablets), and accessories and audio equipment.

**Services:** Technical assistance, installation services, product suggestion and extended warranties.

### 2.3 Revenue Model

Primary Revenue: Direct product sales with competitive margins are the main source of income.

#### Secondary Revenue:

- Sales of extended warranties
- Fees for installation services
- Partnerships for affiliate marketing
- Targeted promotion of related goods

### **2.4 Target Market**

- 18–45-year-old tech savvy consumers
- Renters and homeowners looking for appliances
- Electronics are necessary for small businesses
- Customers on a tight budget searching for discounts
- Customers value product support and warranties

### **2.5 Value Proposition**

- Competitive pricing via a well-functioning supply chain
- Thorough product details and evaluations
- Outstanding technical assistance and customer service
- Adaptable methods of payment
- Shipping that is dependable and quick
- An easy-to-use interface with tailored suggestions

### **2.6 Competitive Analysis**

#### 2.6.1 Key Competitors

- Amazon and Flipkart are powerful e-commerce giants. They have extensive logistics and product catalogs.
- Croma and Reliance Digital operate as an online and offline electronics company.
- Local online stores mainly compete on price and local delivery.

#### 2.6.2 Competitive Advantage

- Cheap prices such as bulk purchases, and effective supply chain management are carried out.
- They offer useful services for installation, support, and warranties.
- A safe and simple platform with personalized recommenders.

### 2.6.3 Market Opportunities

- Expanding digital market due to increasing penetration of smartphones and the Internet.
- High demand for cheap appliances amongst a price-conscious buyer.
- Growth of Tier 2 and Tier 3 cities where online electronics shopping is on the rise.

## 3. System Requirements

### 3.1 Functional Requirements

#### 3.1.1 User Management

- Authentication and user registration
- Management of profiles
- Access control based on roles (Admin, Support Staff, and Customers)
- Recovery of passwords

#### 3.1.2 Product Catalog

- Product browsing with the ability to search and filter
- Product pages with comprehensive details, pictures, and reviews
- Management of categories
- Product suggestions derived from past browsing

#### 3.1.3 Admin Panel

- Product Management
- Management of Orders
- Management of Users
- Reports and analytics for sales
- Content Management (banners, promotions)

## 3.2 Non-Functional Requirements

### 3.2.1 Performance

- The page loads in less than three seconds
- Support for up to 1000 users at once
- Database operations with a response time of less than one second

### 3.2.2 Security

- Secure authentication (session management, hashing of passwords)
- Protection against SQL injection attacks, XSS and CSRF
- Processing payments safely (PCI compliance)
- Protecting private information with encryption

### 3.2.3 Usability

- Navigation that is intuitive
- Desktop and mobile responsive design
- Compliance with accessibility (WCAG 2.1)

### 3.2.4 Reliability

- 99.9% uptime
- Frequent backups of data
- Managing and recording errors

## 4. Wireframes

### 4.1 Login Page

#### 4.1.1 Desktop Version

The wireframe shows a desktop browser window titled "Login". Inside the window, the ElectroMart logo (a square with "LOGO" inside) is positioned to the left of the brand name "ElectroMart". Below this, the heading "Sign in to your account" is centered, followed by a horizontal line and a "Sign up" button. A central login form box contains the following elements: a "Login" label, an "Email Address" label above a text input field, a "Password" label above another text input field, and a large black "Sign up" button at the bottom.



#### 4.1.2 Mobile Version



The image shows a mobile app interface for ElectroMart. At the top, there is a logo placeholder labeled "LOGO" next to the text "ElectroMart". Below this is the heading "Sign in to your account". Under the heading, there is a horizontal line followed by a "Sign up" button. Below this is a login form with three input fields: "Login", "Email", and "Password". Each field has a corresponding input box. At the bottom of the form is a large black button labeled "Sign up".

**ElectroMart**

### Sign in to your account

[Sign up](#)

**Login**

**Email**

**Password**

[Sign up](#)

## 4.2 Registration Page

### 4.2.1 Desktop Version

Register

LOGO

ElectroMart

Create your Account

Sign in

Register

Full Name

Email Address

Password

Confirm Password

Create account

#### 4.2.2 Mobile Version



The image shows a mobile app registration screen for 'ElectroMart'. At the top, there is a logo placeholder (a square with 'LOGO' inside) followed by the text 'ElectroMart'. Below this is the heading 'Create your Account' in a large, bold font. Underneath the heading is a horizontal line and a 'Sign up' button. The main registration form is enclosed in a rounded rectangle and contains the following elements: a title 'Register', a label 'Full Name' above a text input field, a label 'Email Address' above a text input field, a label 'Password' above a text input field, a label 'Confirm Password' above a text input field, and a large black 'Sign up' button at the bottom.

 **ElectroMart**

## Create your Account

[Sign up](#)

Register

**Full Name**

**Email Address**

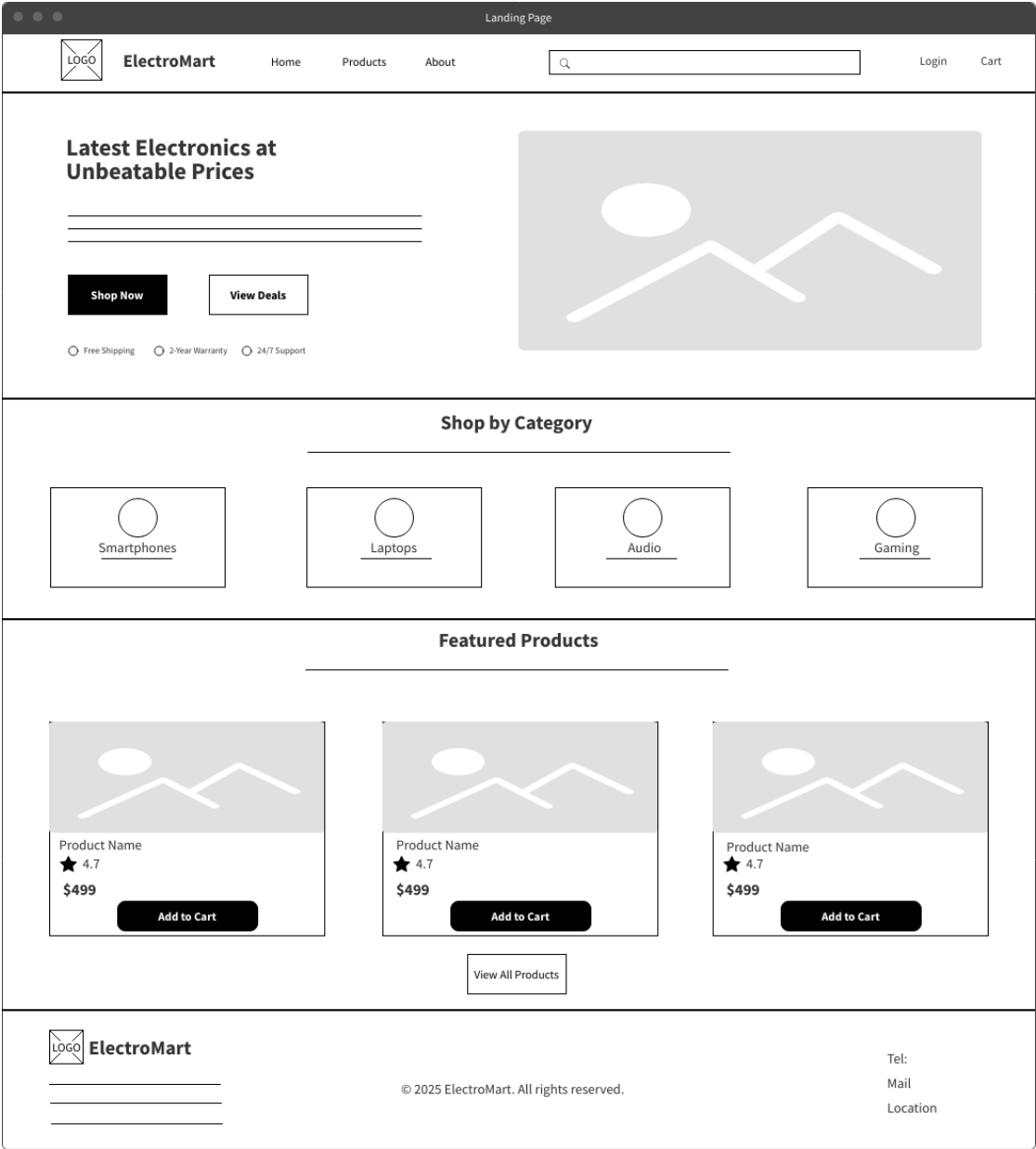
**Password**

**Confirm Password**

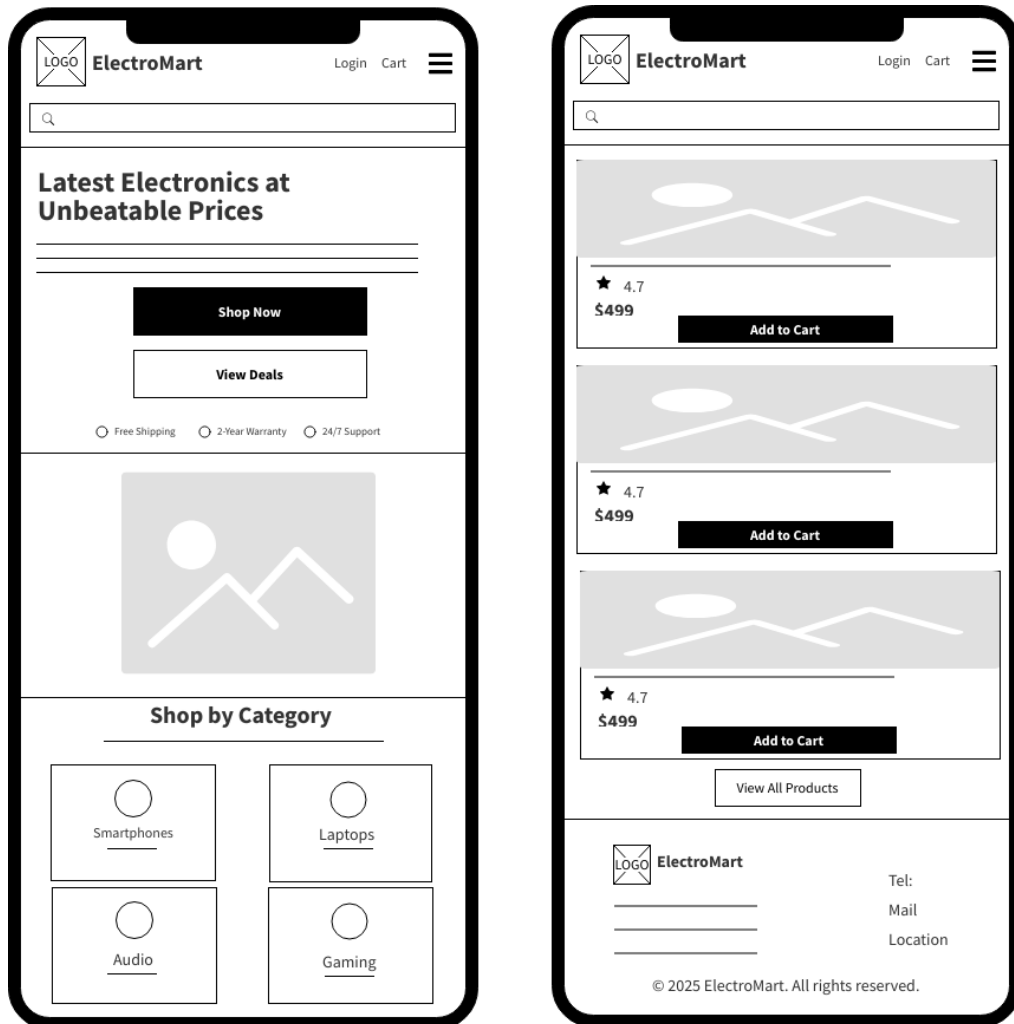
[Sign up](#)

### 4.3 Home Page

#### 4.3.1 Desktop Version

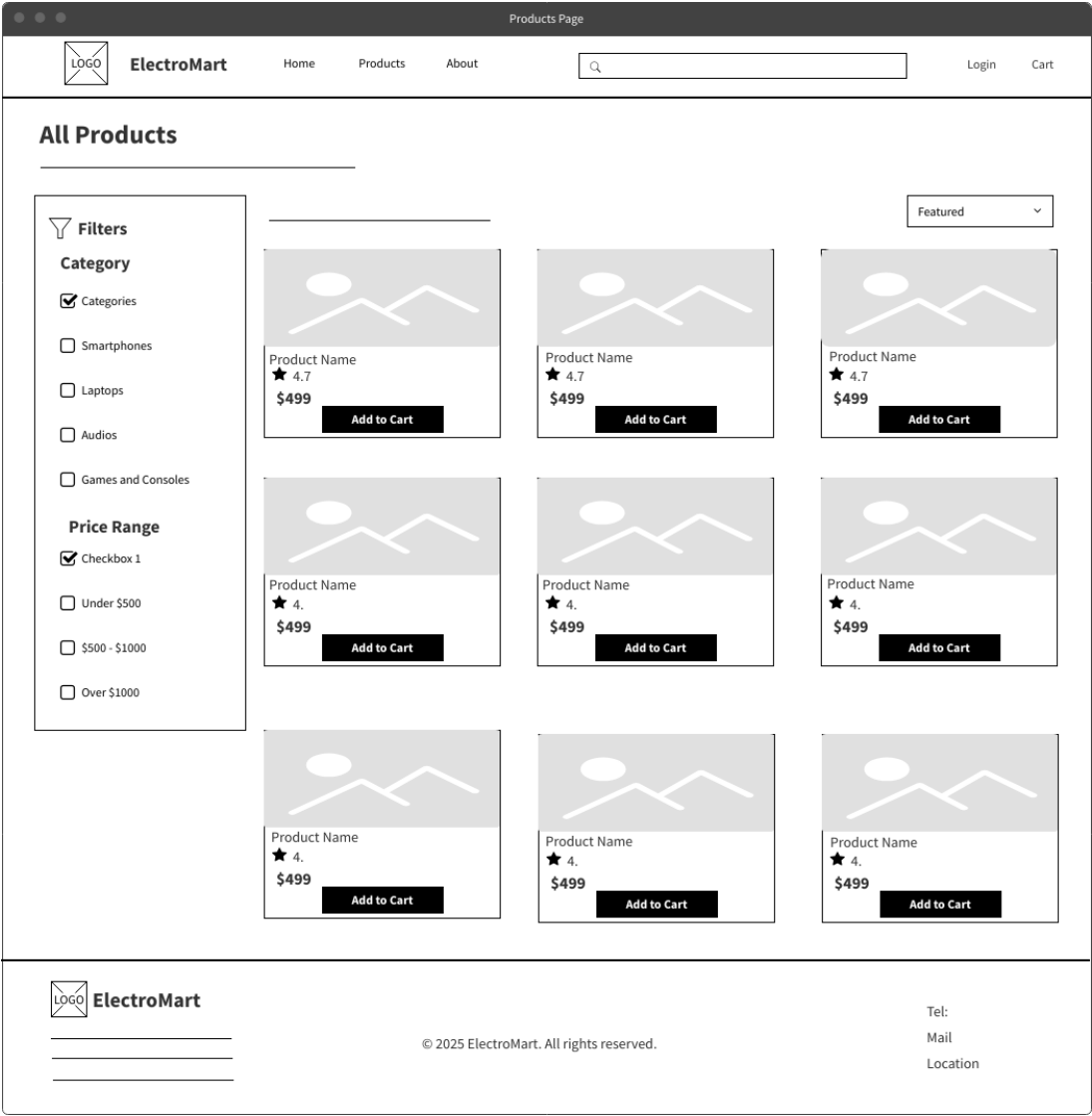


## 4.3.2 Mobile Version

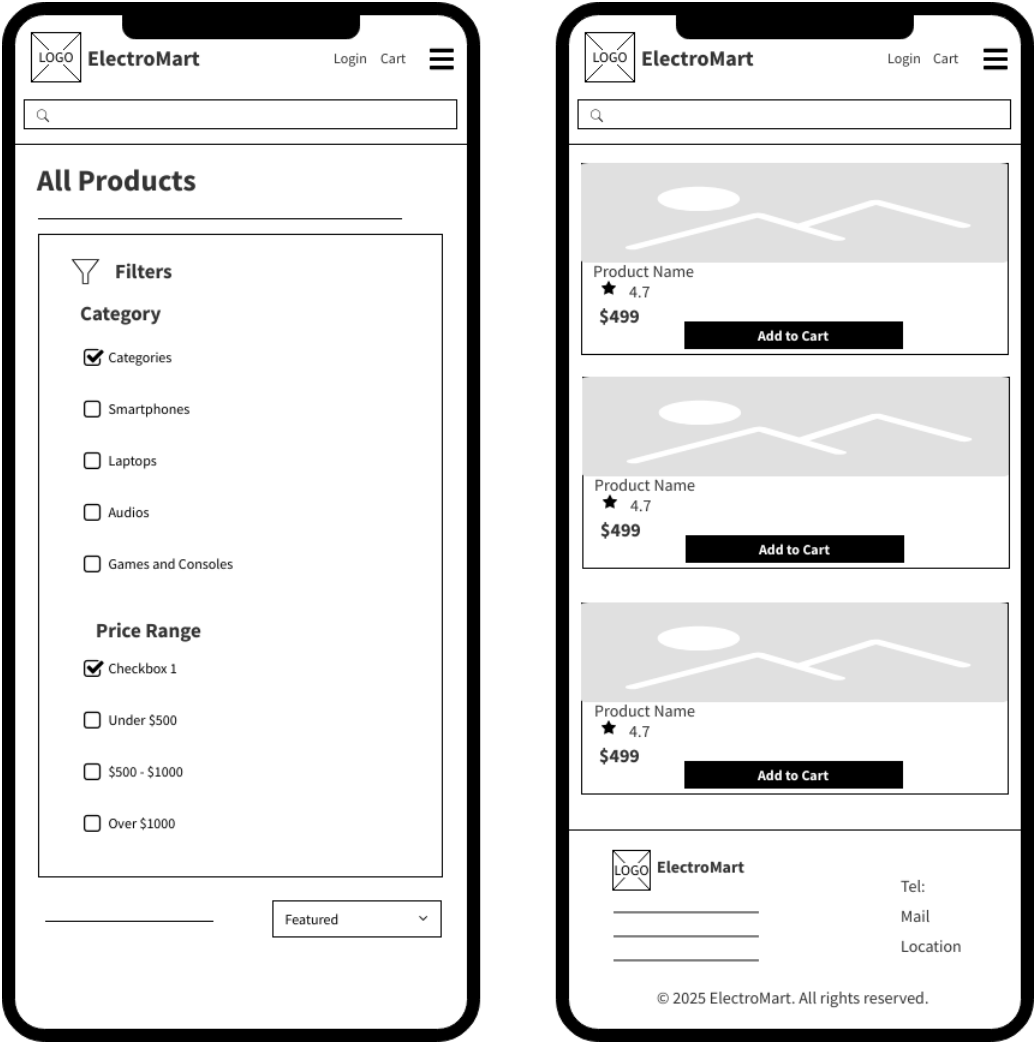


## 4.4 Products Page

### 4.4.1 Desktop Version



4.4.2 Mobile Version



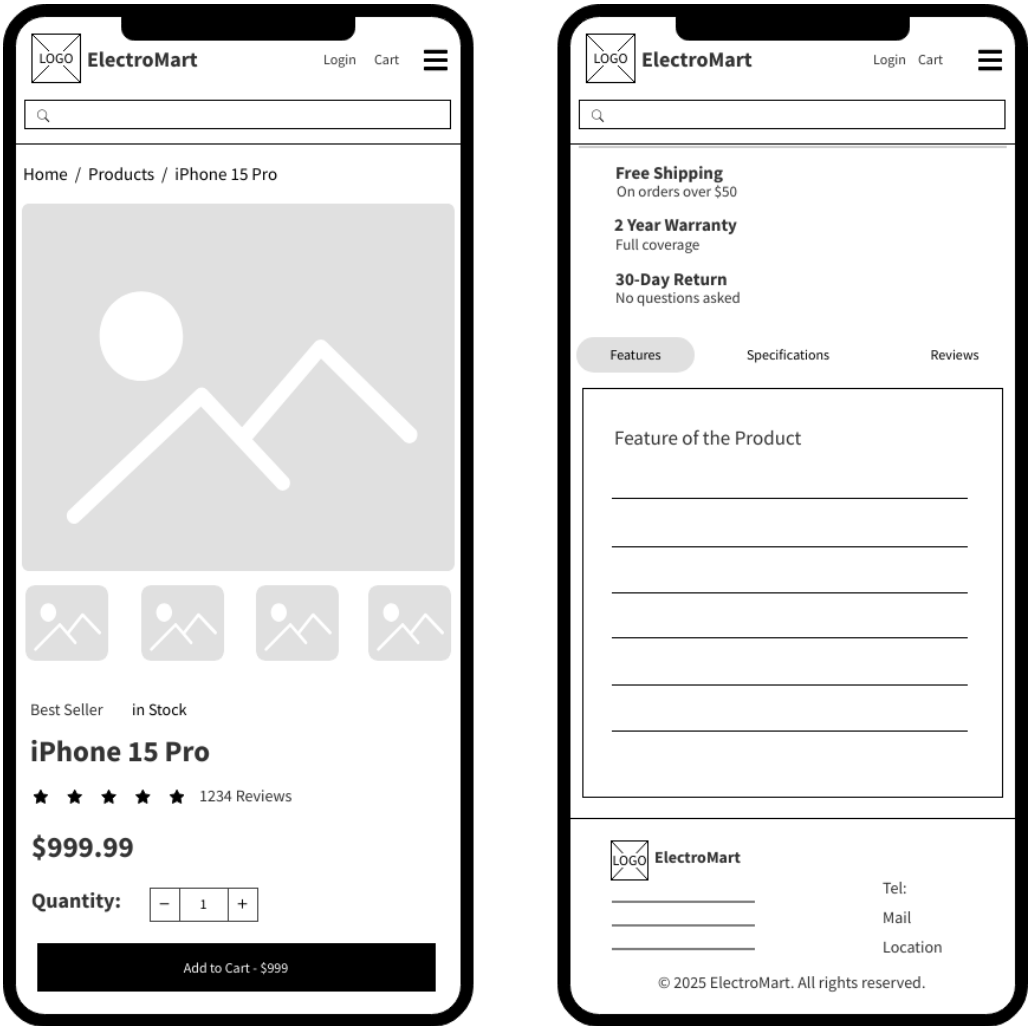
## 4.5 Product View Page

### 4.5.1 Desktop Version



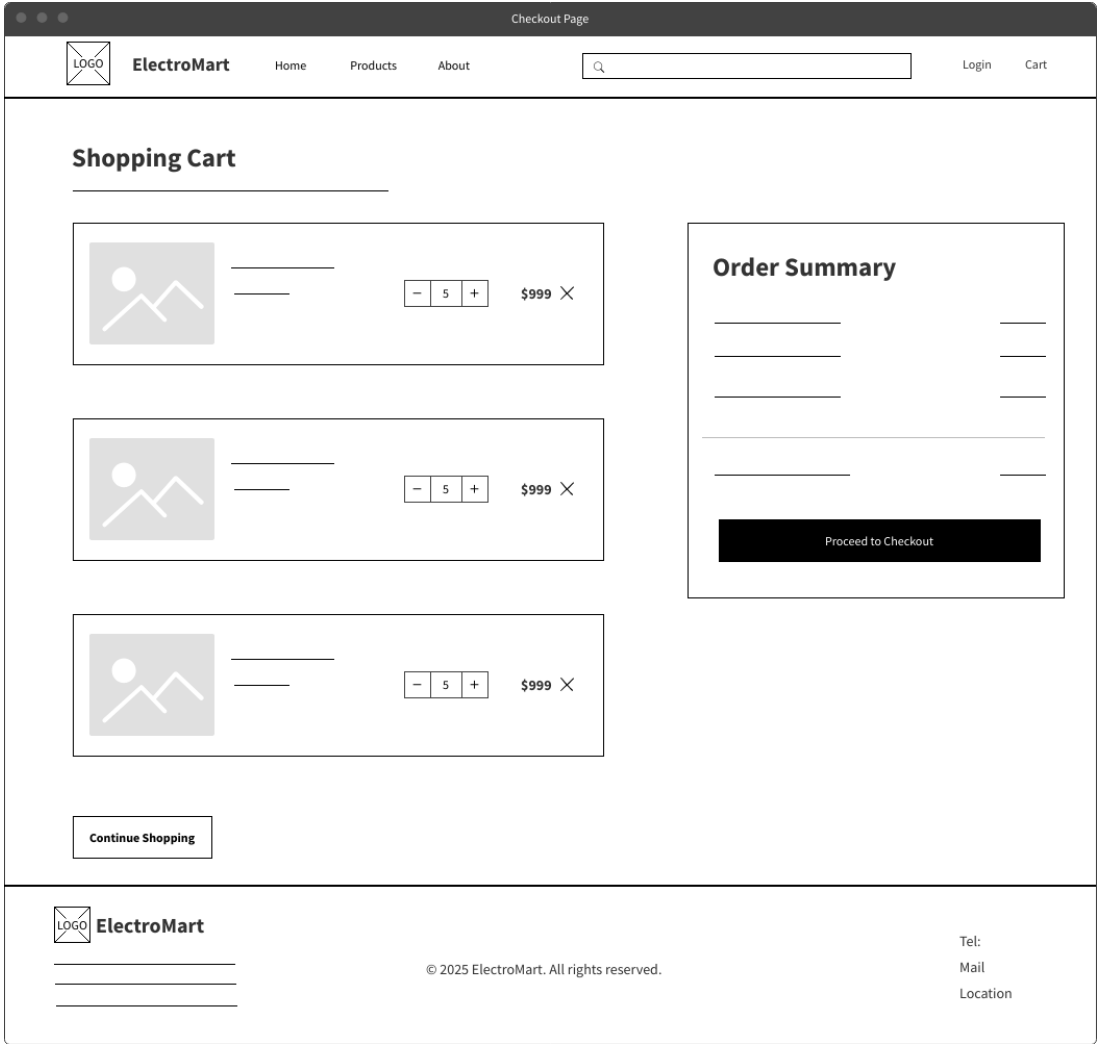


4.5.2 Mobile Version

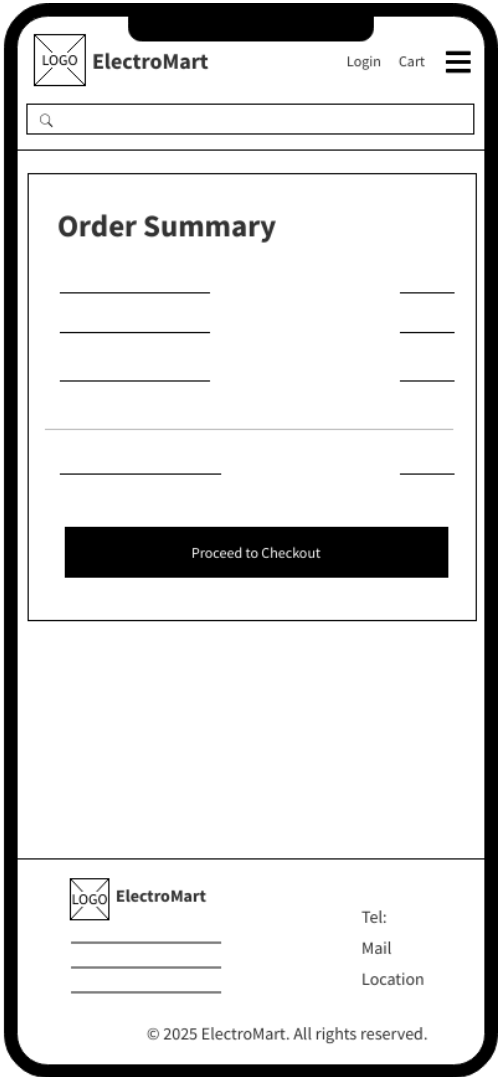
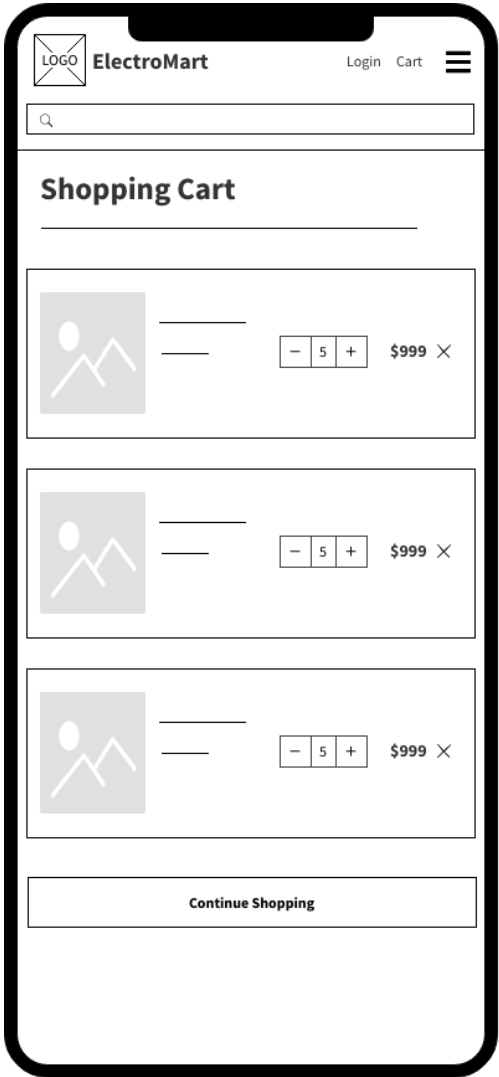


## 4.6 Checkout Page

### 4.6.1 Desktop Version

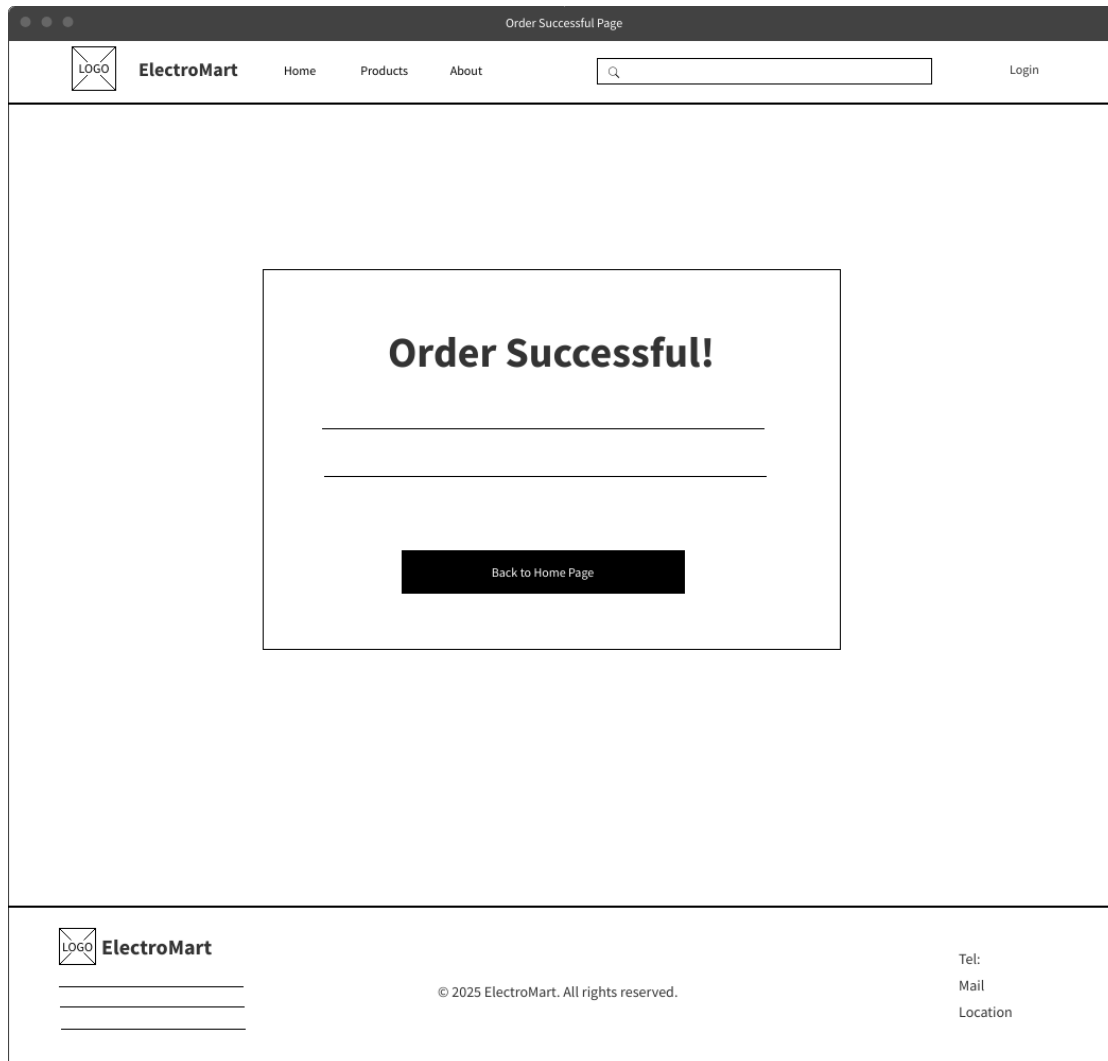


4.6.2 Mobile Version



## 4.7 Order Successful Page

### 4.7.1 Desktop Page

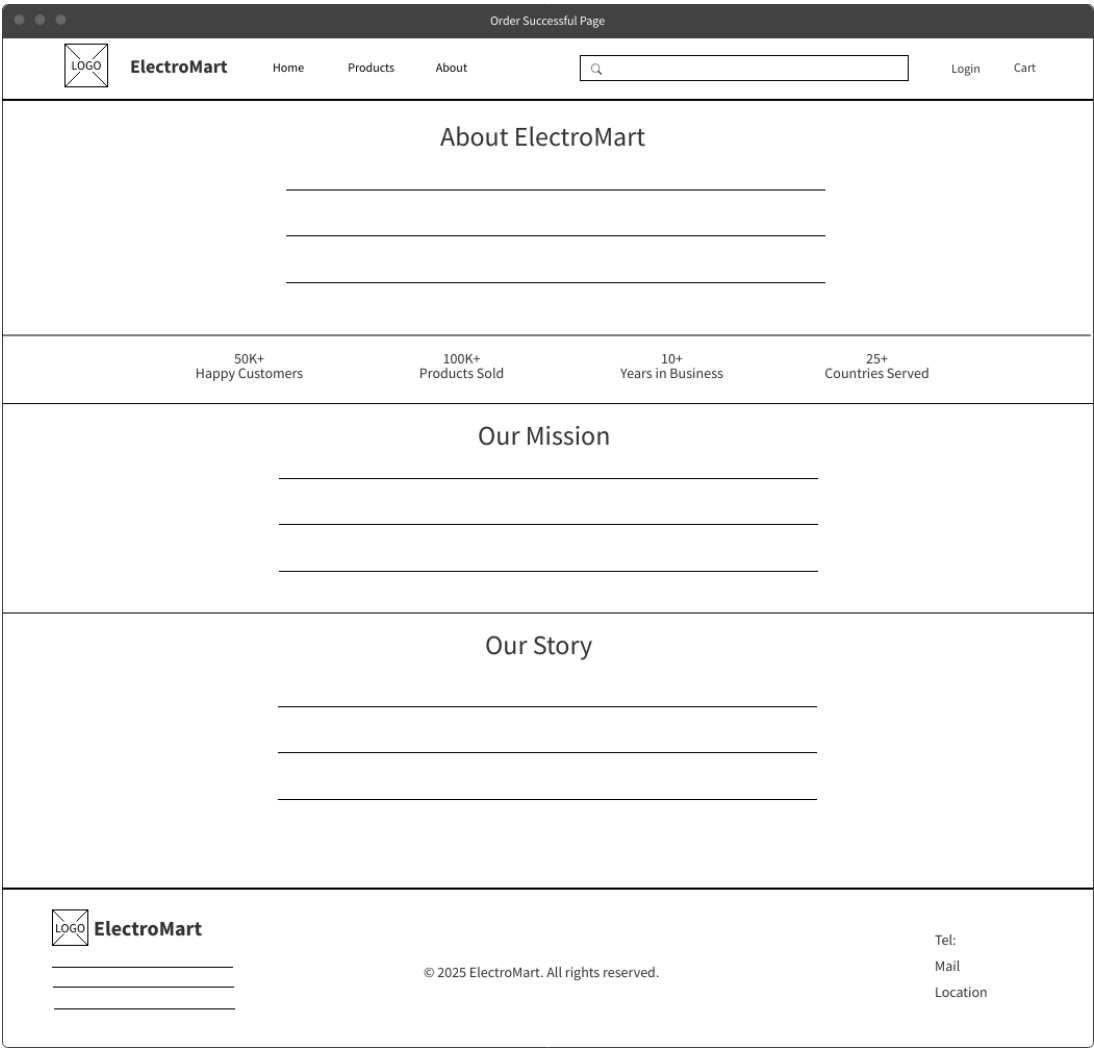


#### 4.7.2 Mobile Version

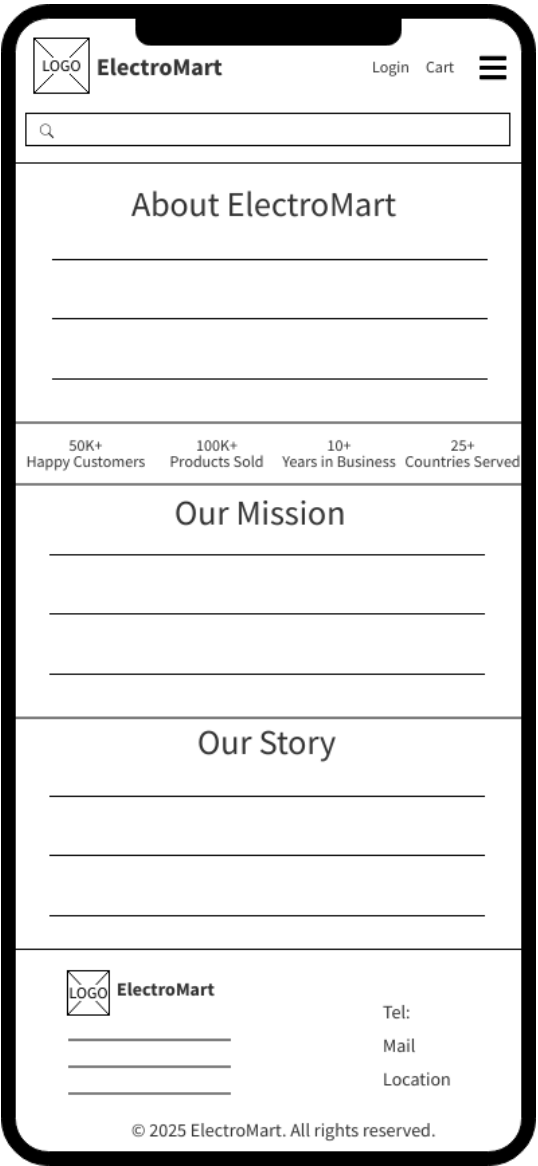


4.8 About us

4.8.1 Desktop Version



4.8.2 Mobile Version



## 4.9 Admin Dashboard

Admin Page

LOGO

ElectroMart Admin

Welcome, Admin User

Logout

Product Management

Add

Edit

View

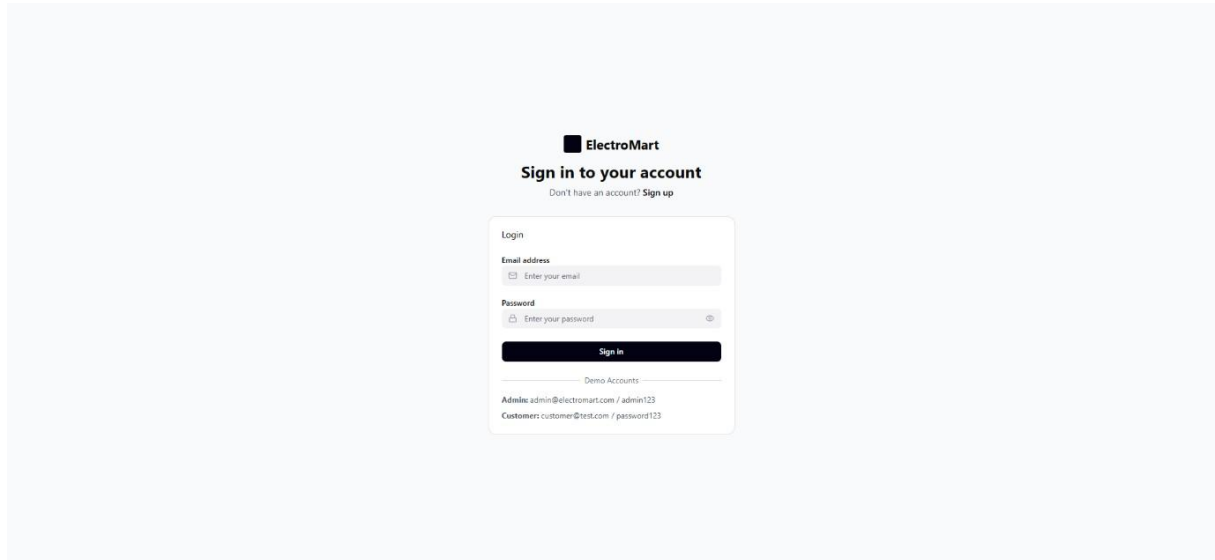
Delete



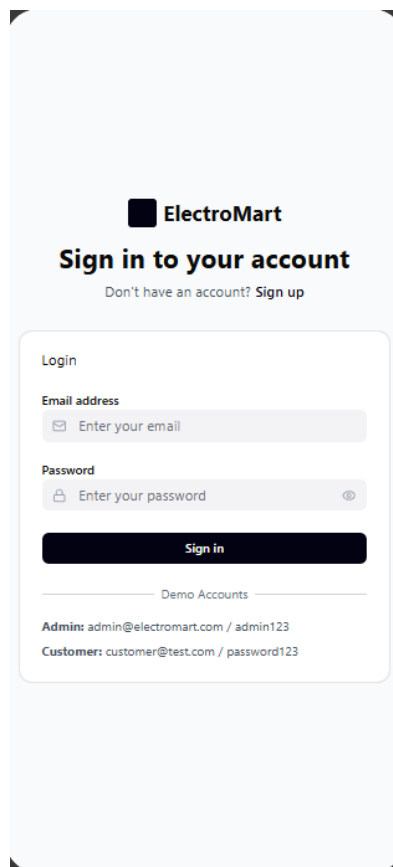
## 5. UI Mockups

### 5.1 Login Page

#### 5.1.1 Desktop View

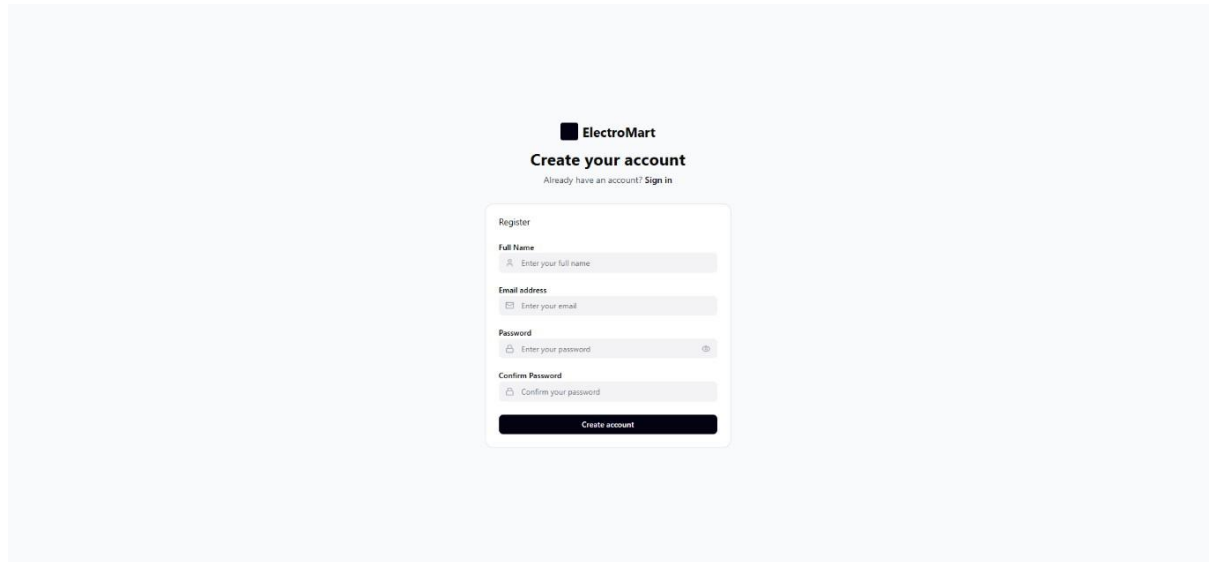


#### 5.1.2 Mobile View



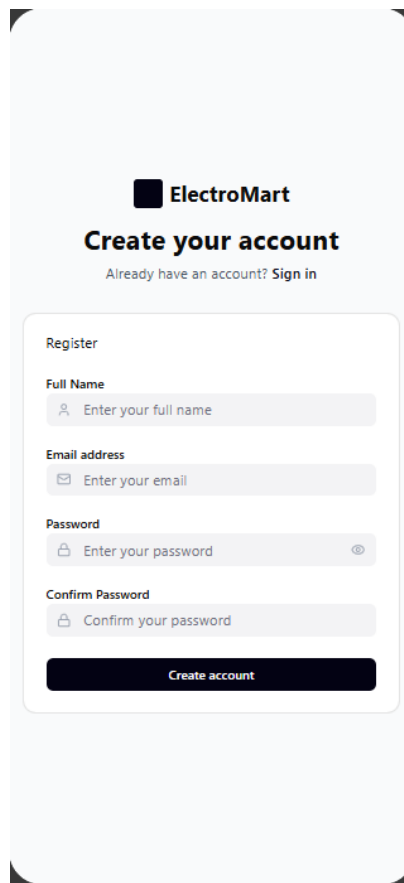
## 5.2 Registration Page

### 5.2.1 Desktop View



The desktop view of the registration page features a centered white card on a light gray background. At the top of the card is the ElectroMart logo, followed by the heading 'Create your account' and a link 'Already have an account? Sign in'. Below this is a 'Register' section with four input fields: 'Full Name' (with a person icon), 'Email address' (with an envelope icon), 'Password' (with a lock icon and a toggle for visibility), and 'Confirm Password' (with a lock icon). A dark blue 'Create account' button is at the bottom of the card.

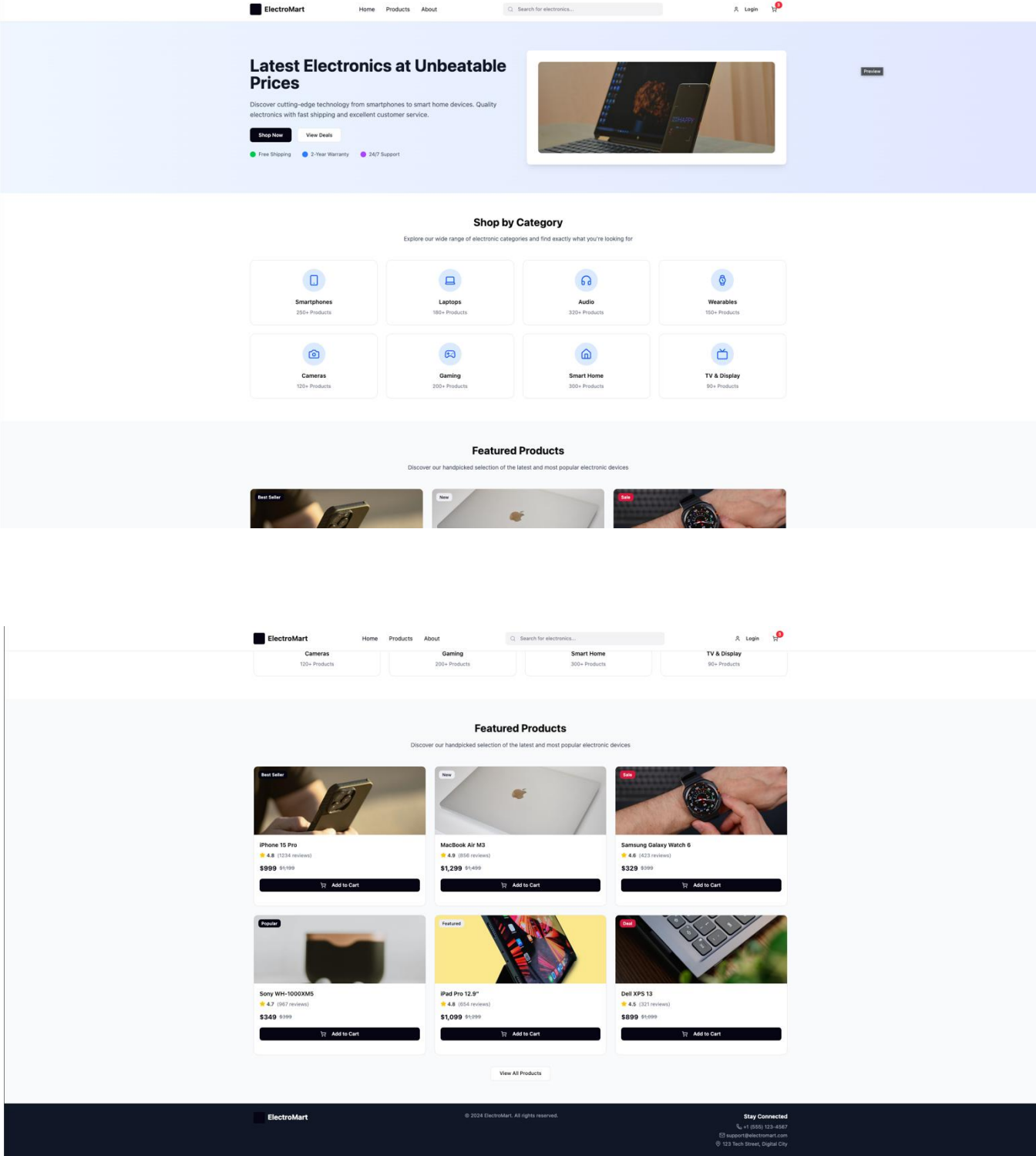
### 5.2.2 Mobile View



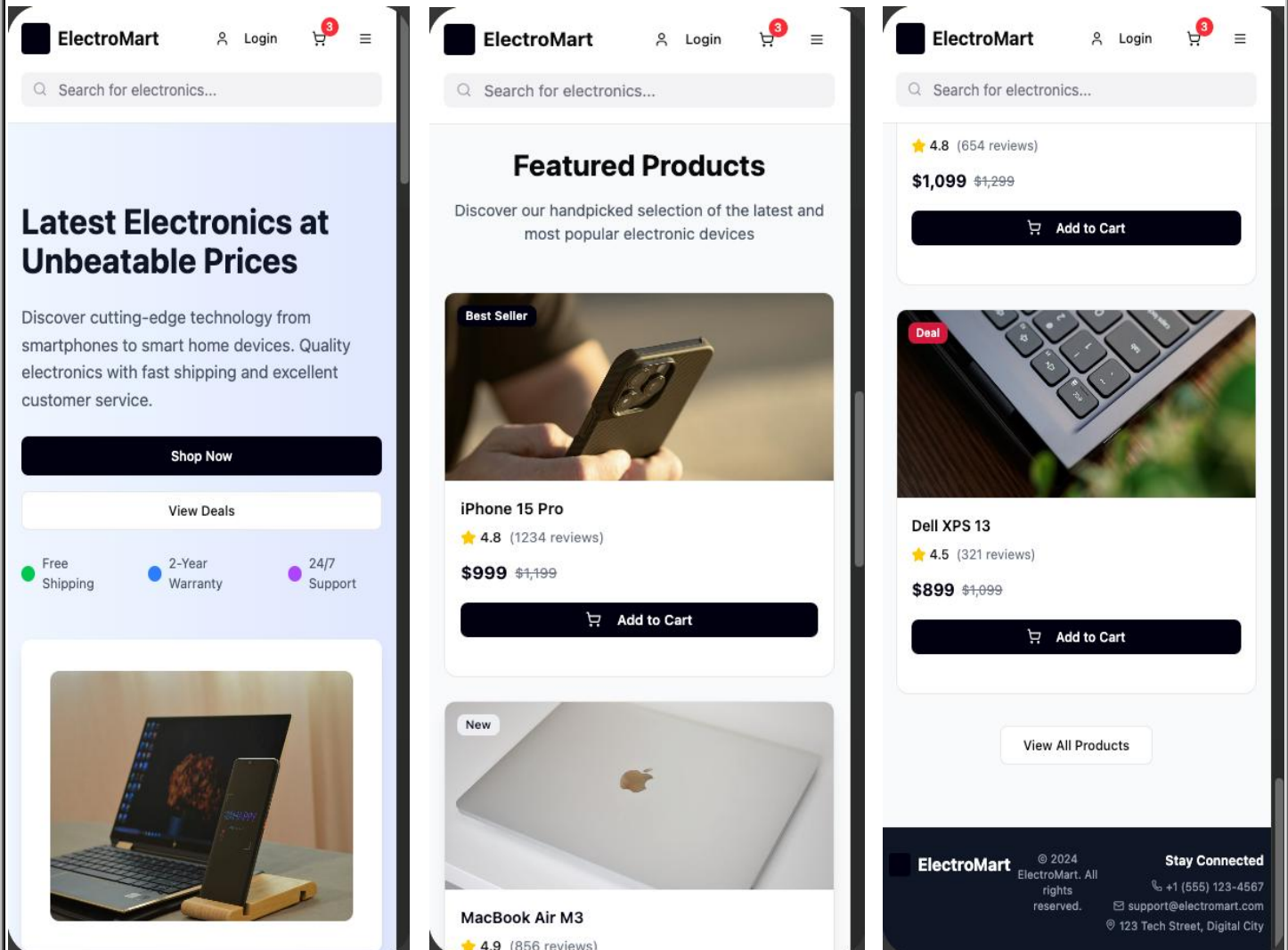
The mobile view of the registration page is shown within a rounded rectangle. It contains the same ElectroMart logo, 'Create your account' heading, and 'Sign in' link as the desktop version. The 'Register' section follows, with input fields for 'Full Name', 'Email address', 'Password', and 'Confirm Password', each accompanied by a relevant icon. A dark blue 'Create account' button is positioned at the bottom of the form area.

## 5.3 Landing Page

### 5.3.1 Desktop View

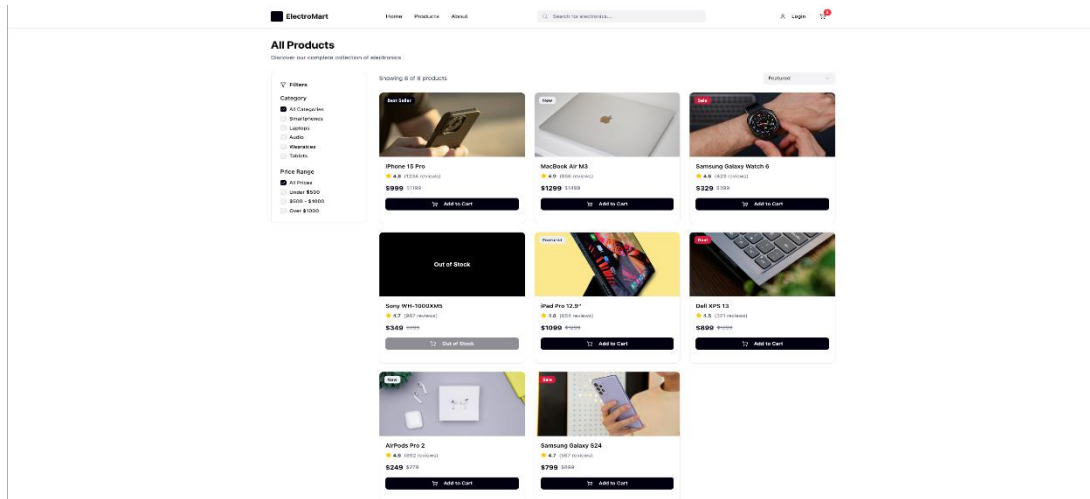


### 5.3.2 Mobile View

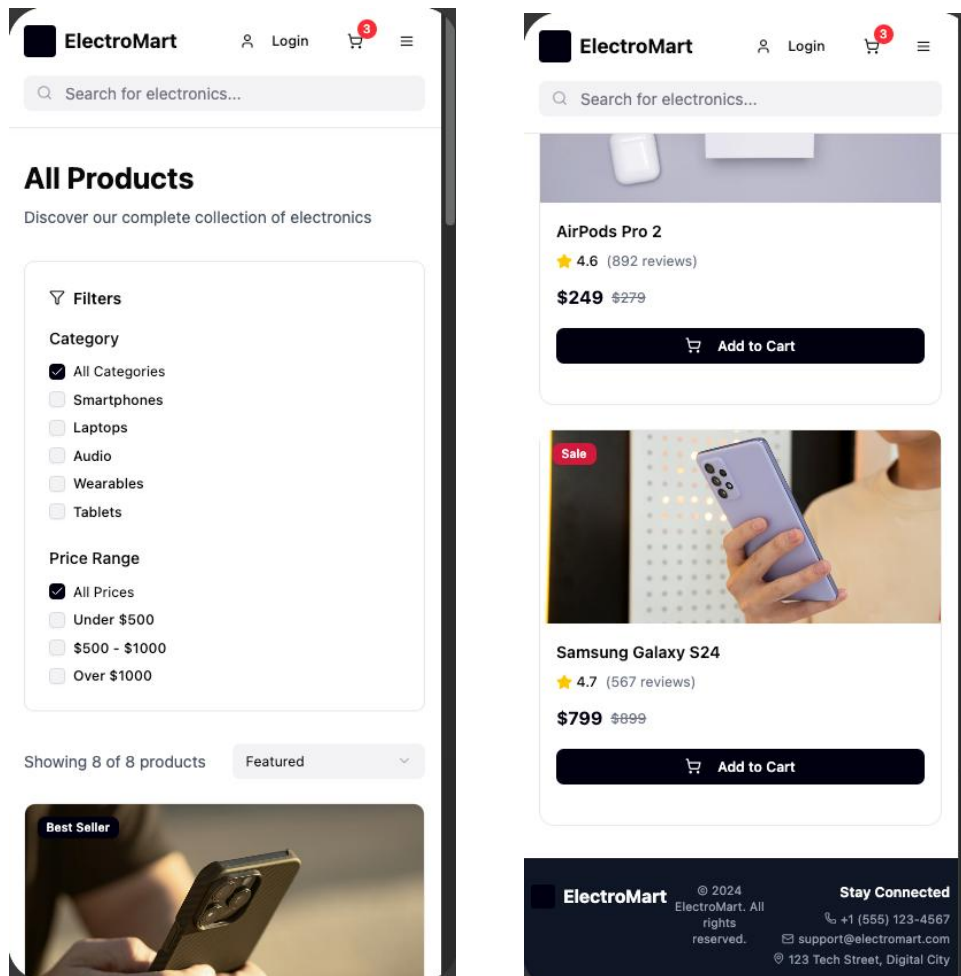


## 5.4 Product Page

### 5.4.1 Desktop View

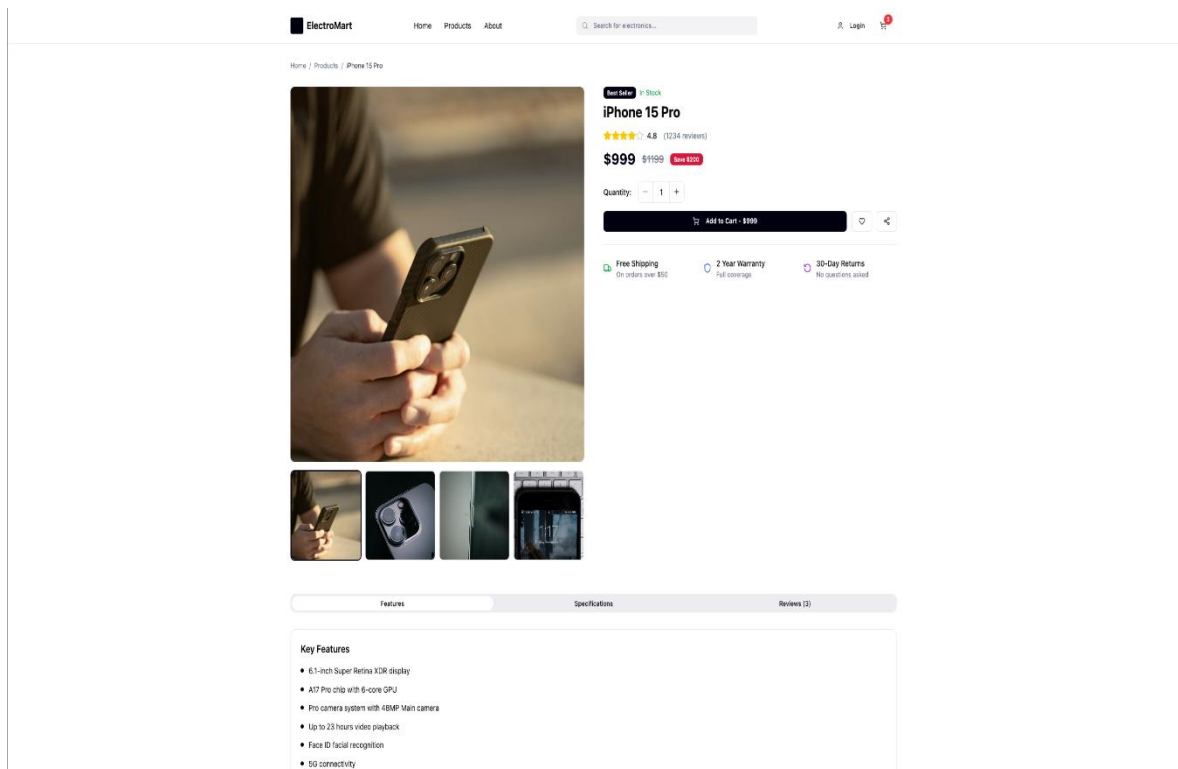


### 5.4.2 Mobile View

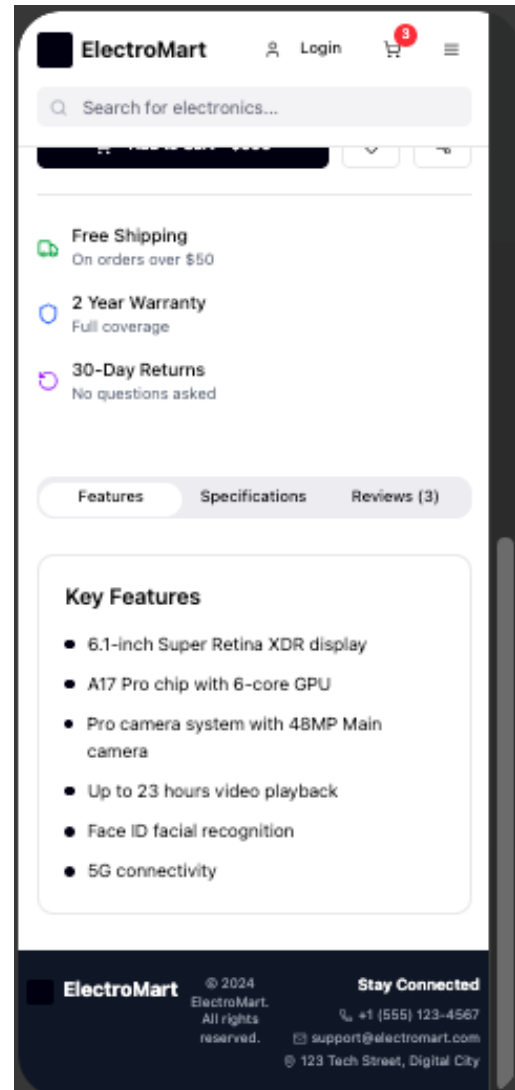
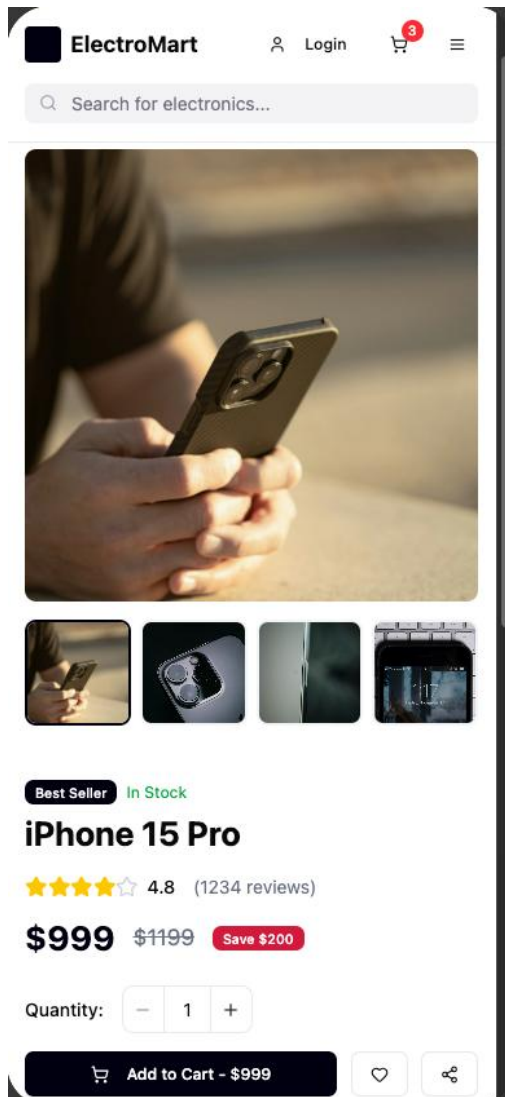


## 5.5 Product View Page

### 5.5.1 Desktop View

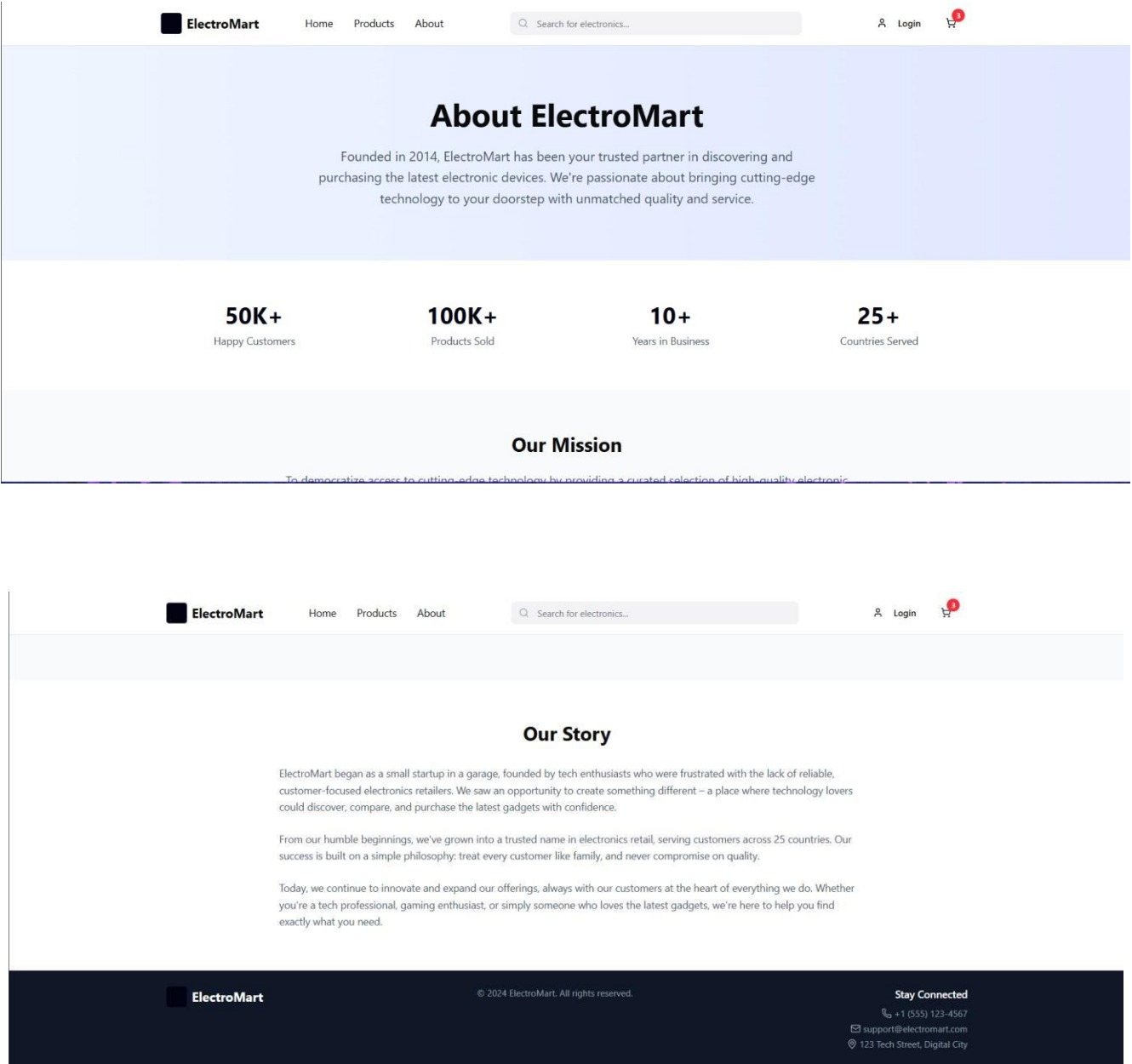


## 5.5.2 Mobile View



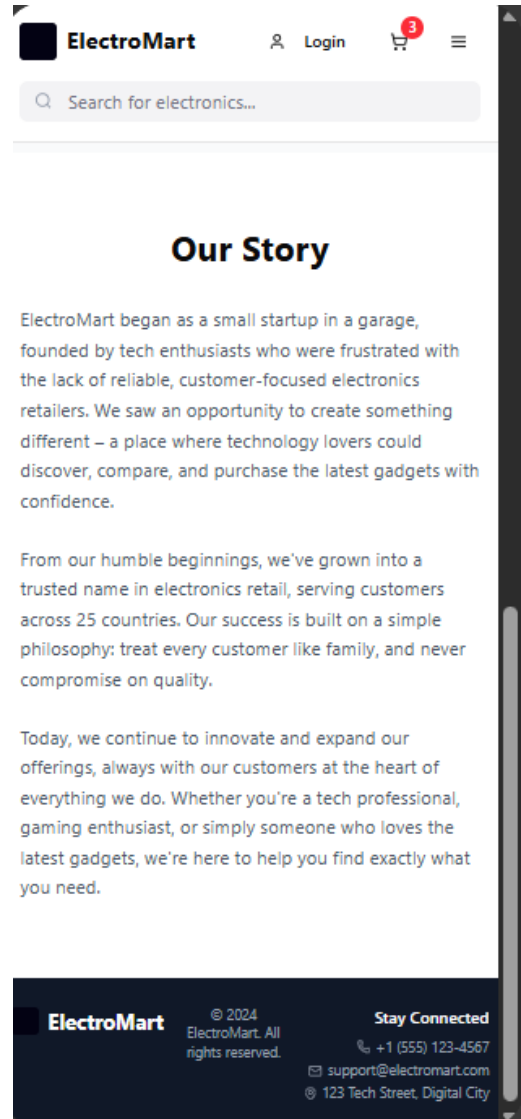
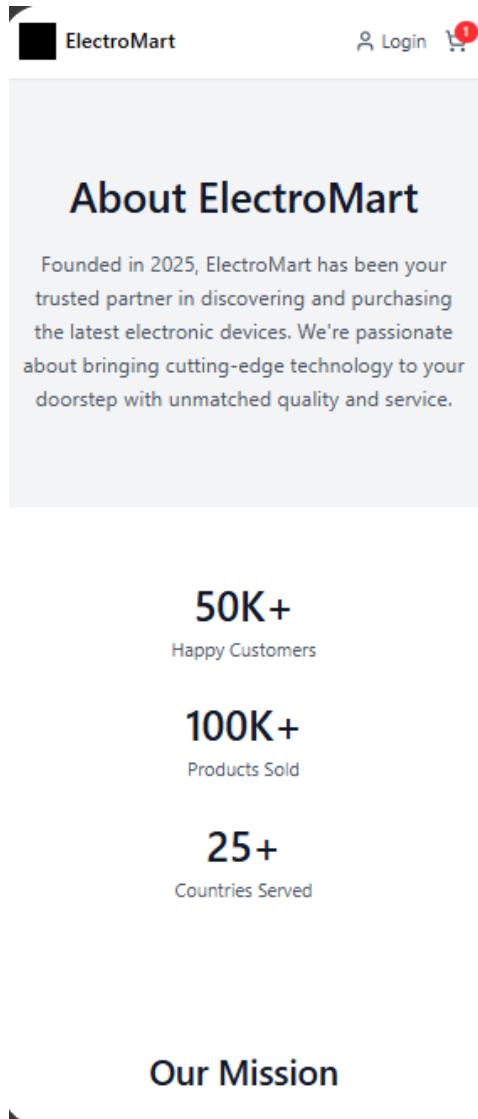
## 5.6 About

### 5.6.1 Desktop View



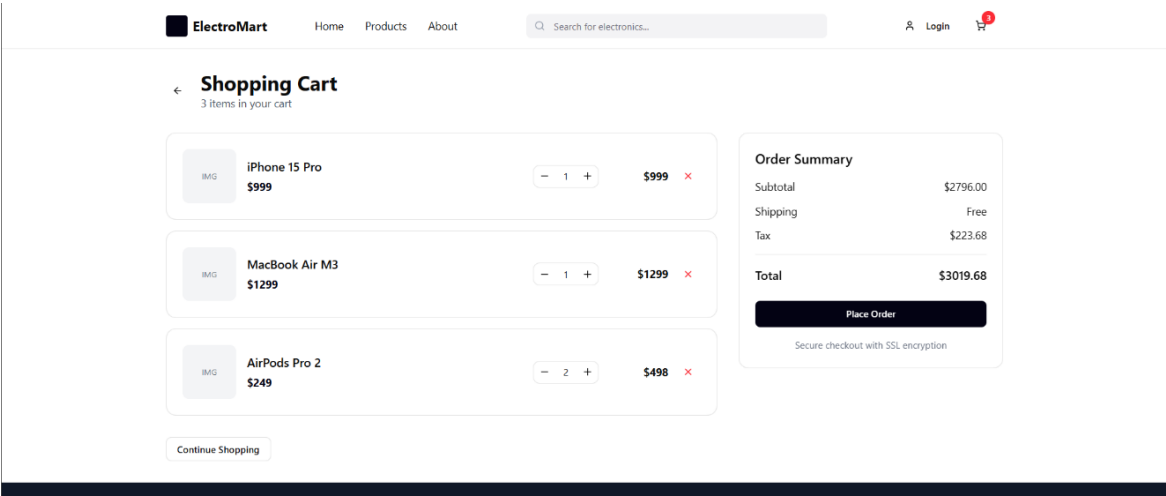


## 5.6.2 Mobile View

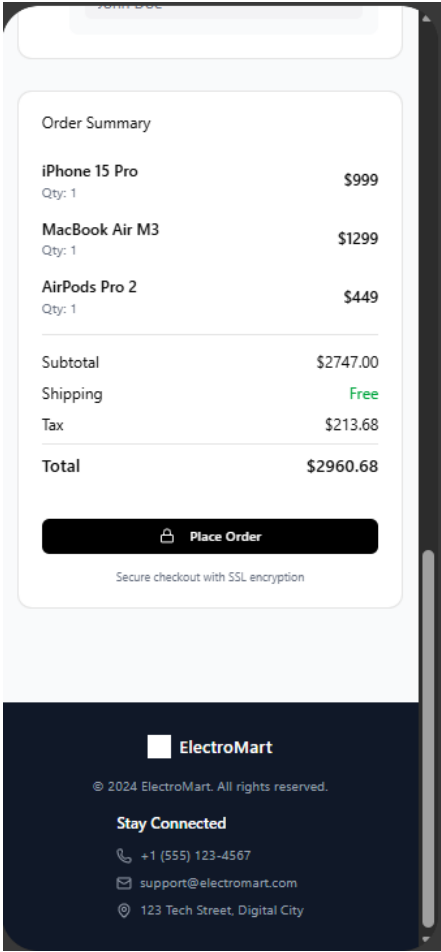
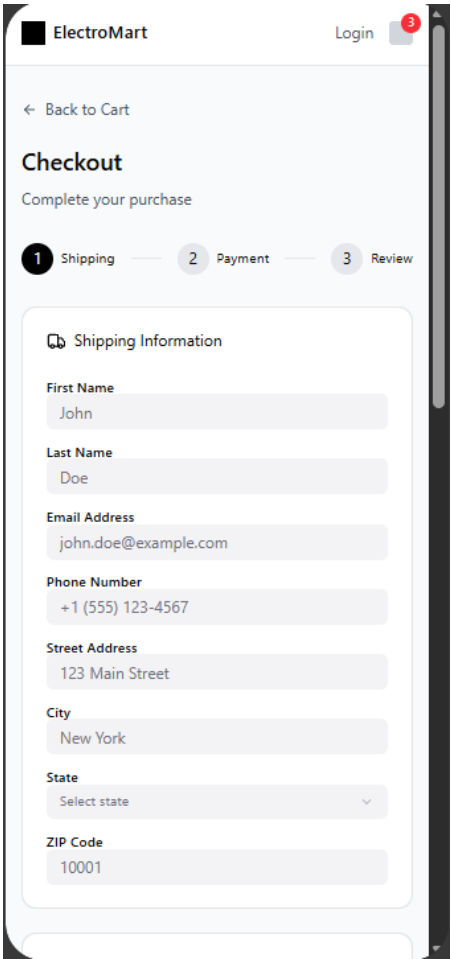


## 5.7 Checkout Page

### 5.7.1 Desktop View

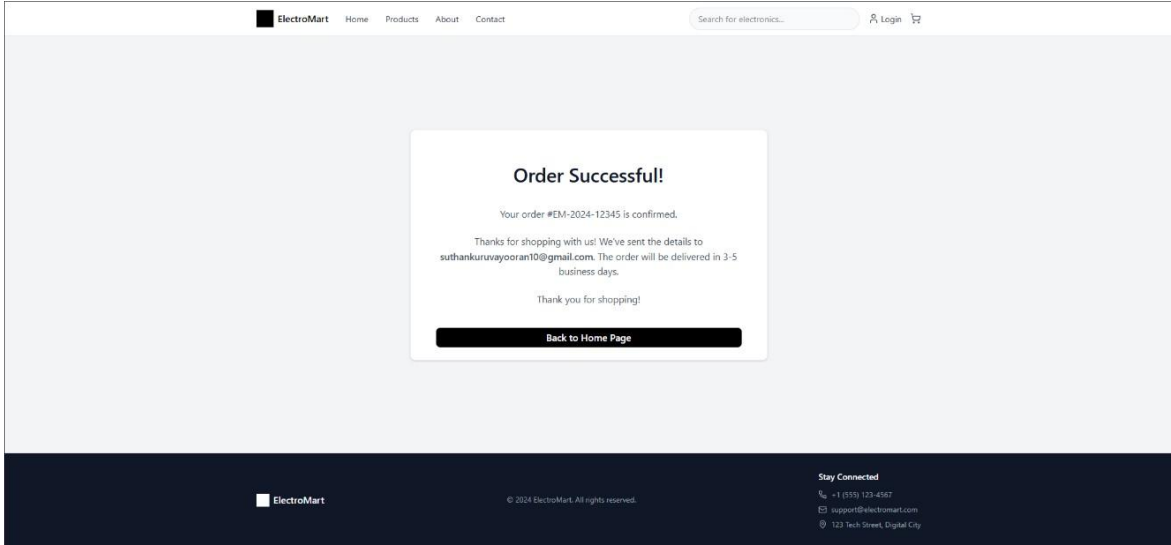


### 5.7.2 Mobile View

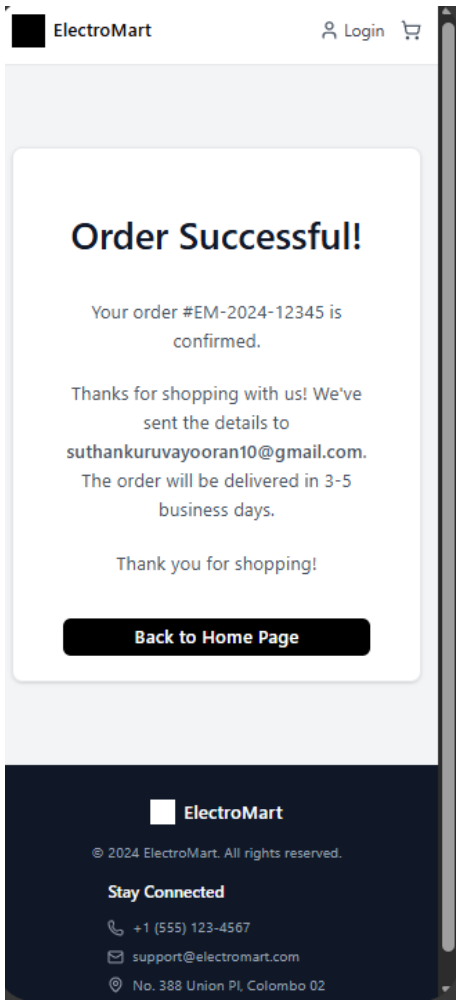


## 5.8 Order Successful

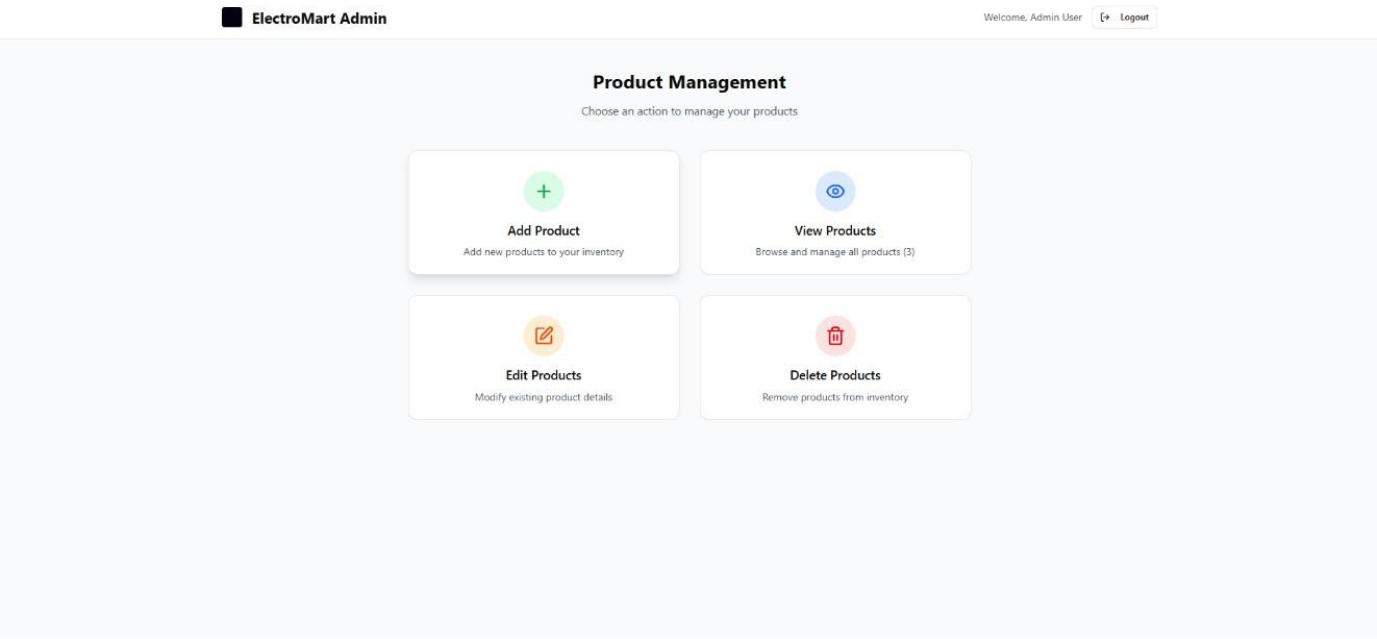
### 5.8.1 Desktop View



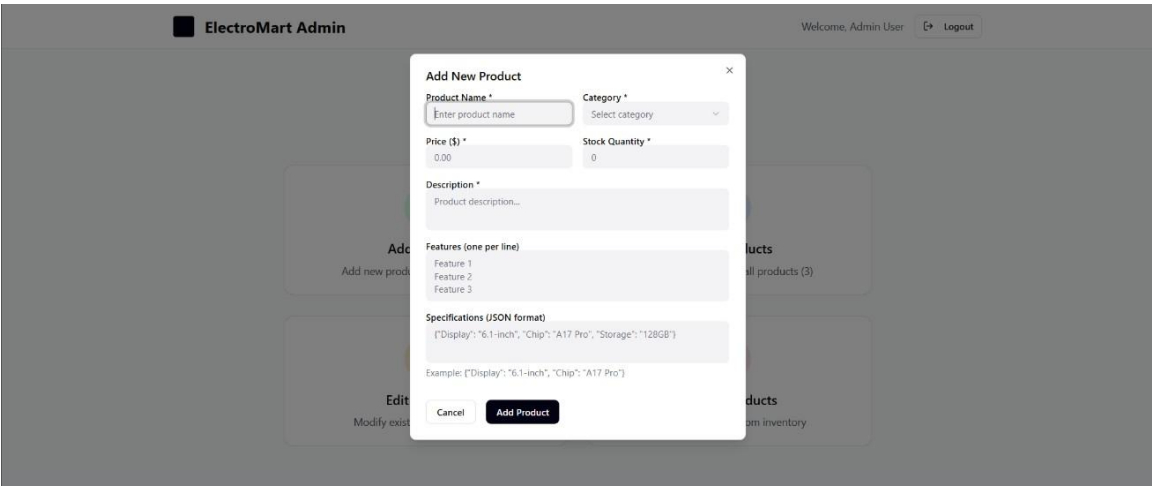
### 5.8.2 Mobile View



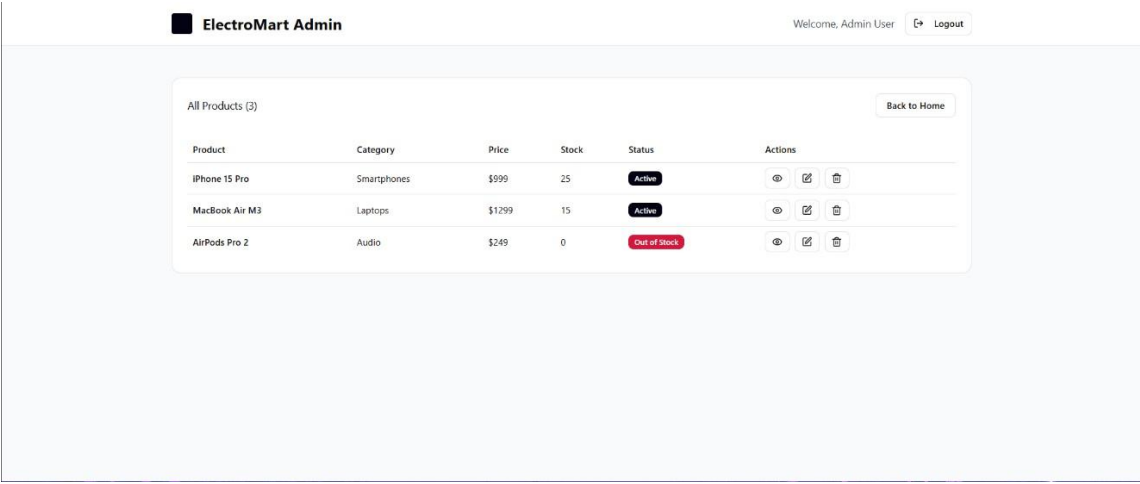
## 5.9 Admin Dashboard



### 5.9.1 Add Products



### 5.9.2 View Products



### 5.9.3 Edit Products

ElectroMart Admin

Welcome, Admin User [Logout](#)

All Products (3) [Back to Home](#)

Product	Category	Price	Stock	Status	Actions
iPhone 15 Pro	Smartphones	\$999	25	Active	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
MacBook Air M3	Laptops	\$1299	15	Active	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>
AirPods Pro 2	Audio	\$249	0	Out of Stock	<a href="#">View</a> <a href="#">Edit</a> <a href="#">Delete</a>

### 5.9.4 Delete Products

ElectroMart Admin

Welcome, Admin User [Logout](#)

Delete Products [Back to Home](#)

Select products to delete:

iPhone 15 Pro  
Smartphones - \$999 - Stock: 25

Delete

MacBook Air M3  
Laptops - \$1299 - Stock: 15

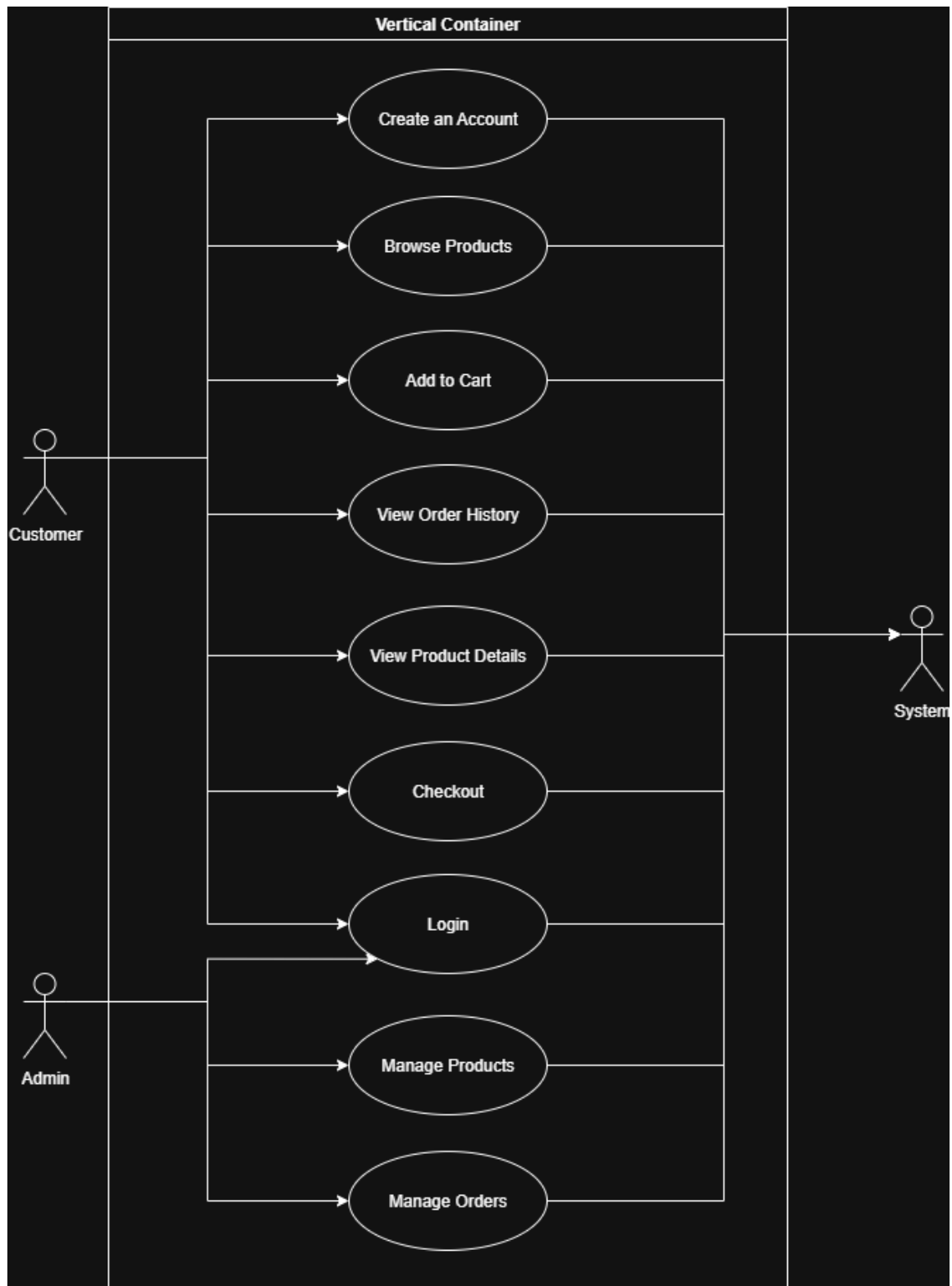
Delete

AirPods Pro 2  
Audio - \$249 - Stock: 0

Delete

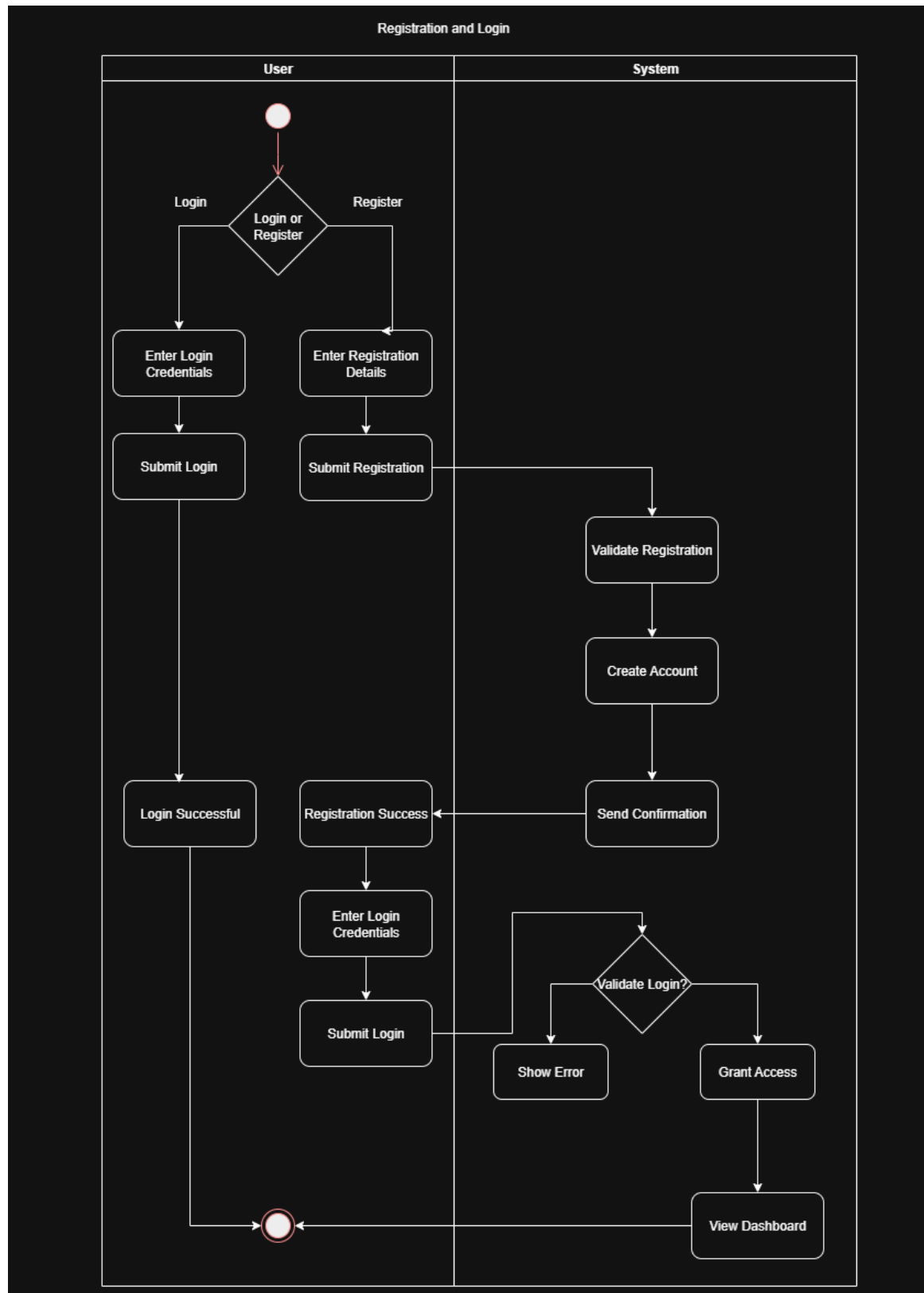
## 6. Diagrams

### 6.1 Use Case

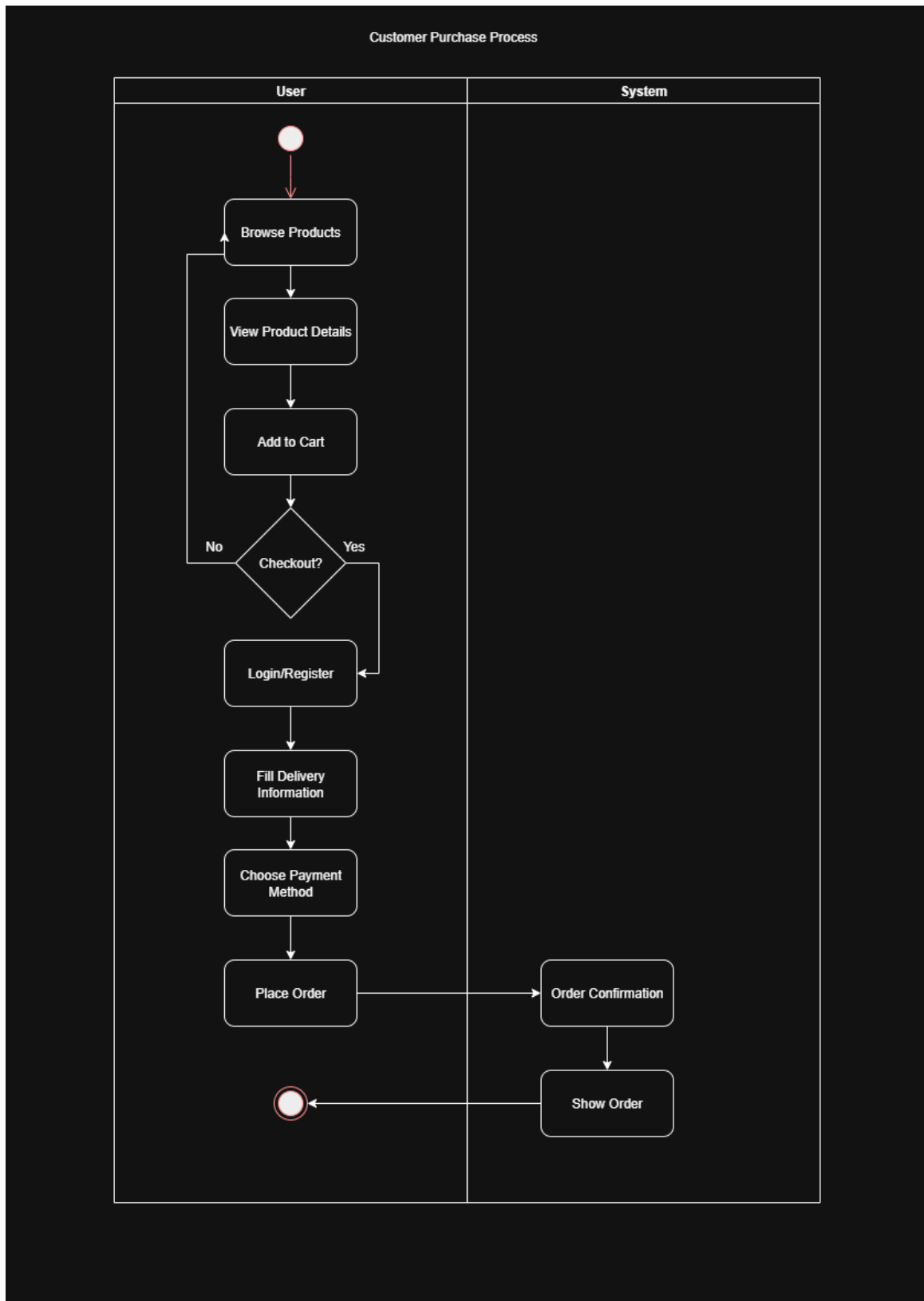


## 6.2 Activity Diagrams

### 6.2.1 Login and Registration

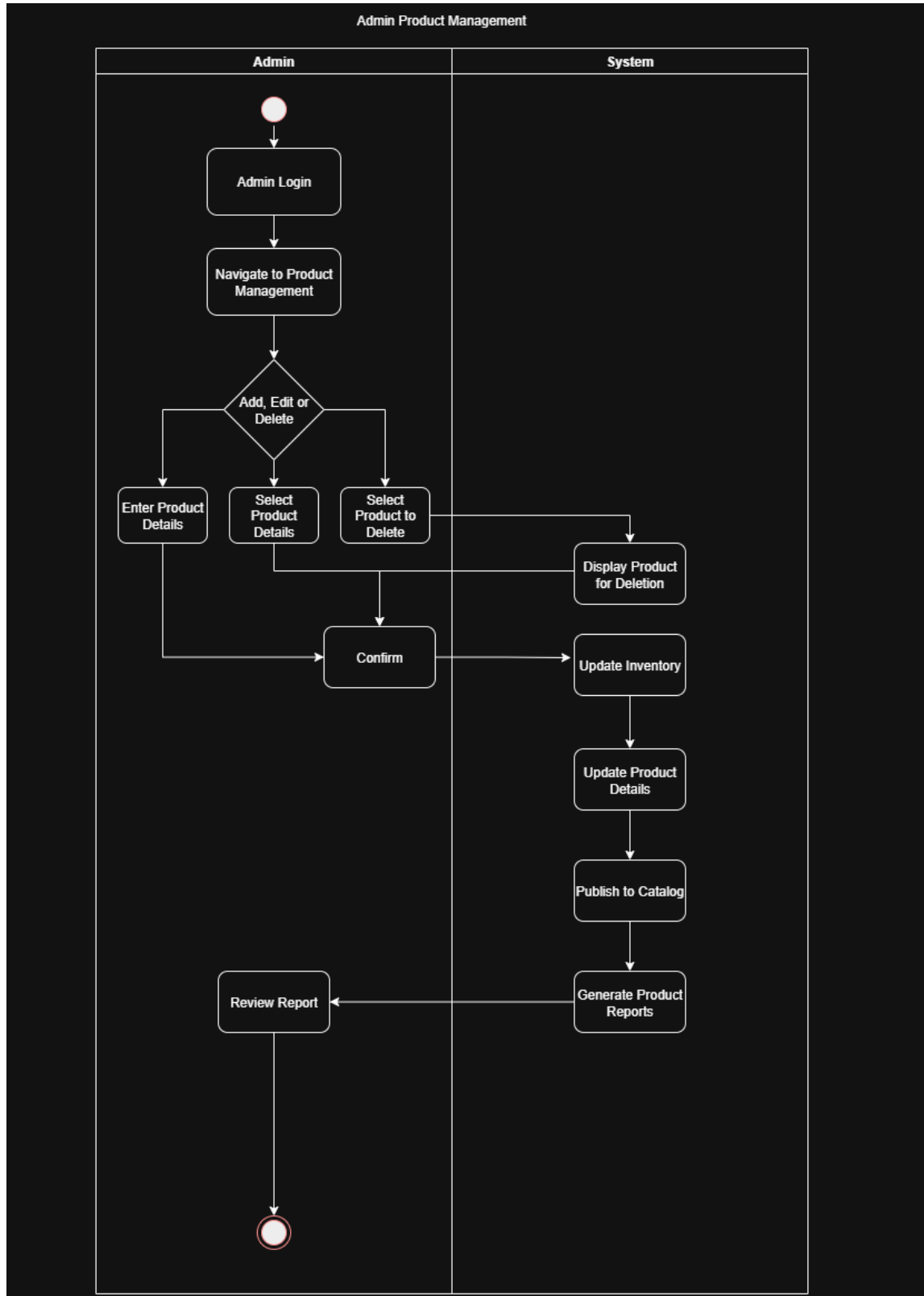


## 6.2.2 Customer Purchase Process

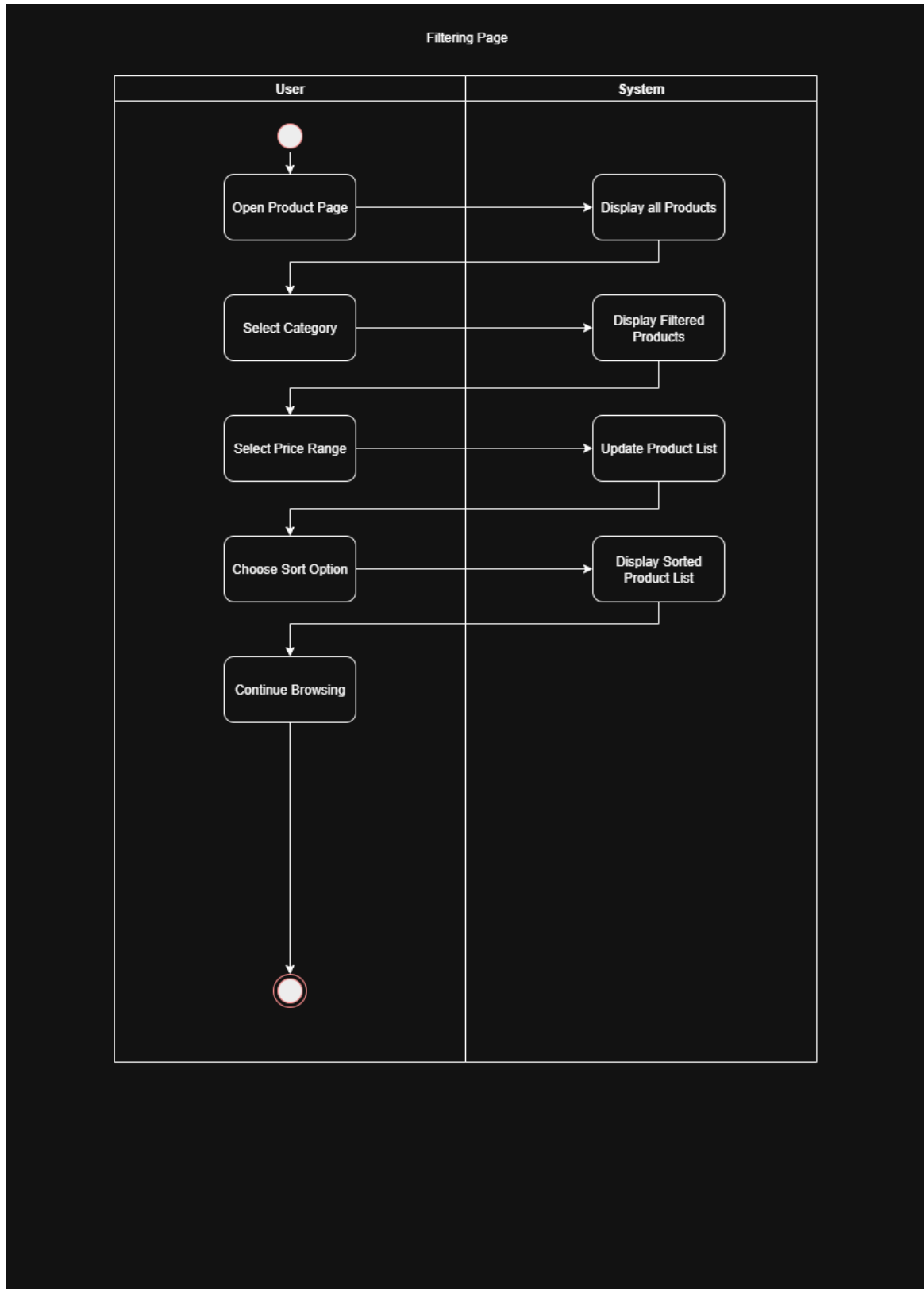




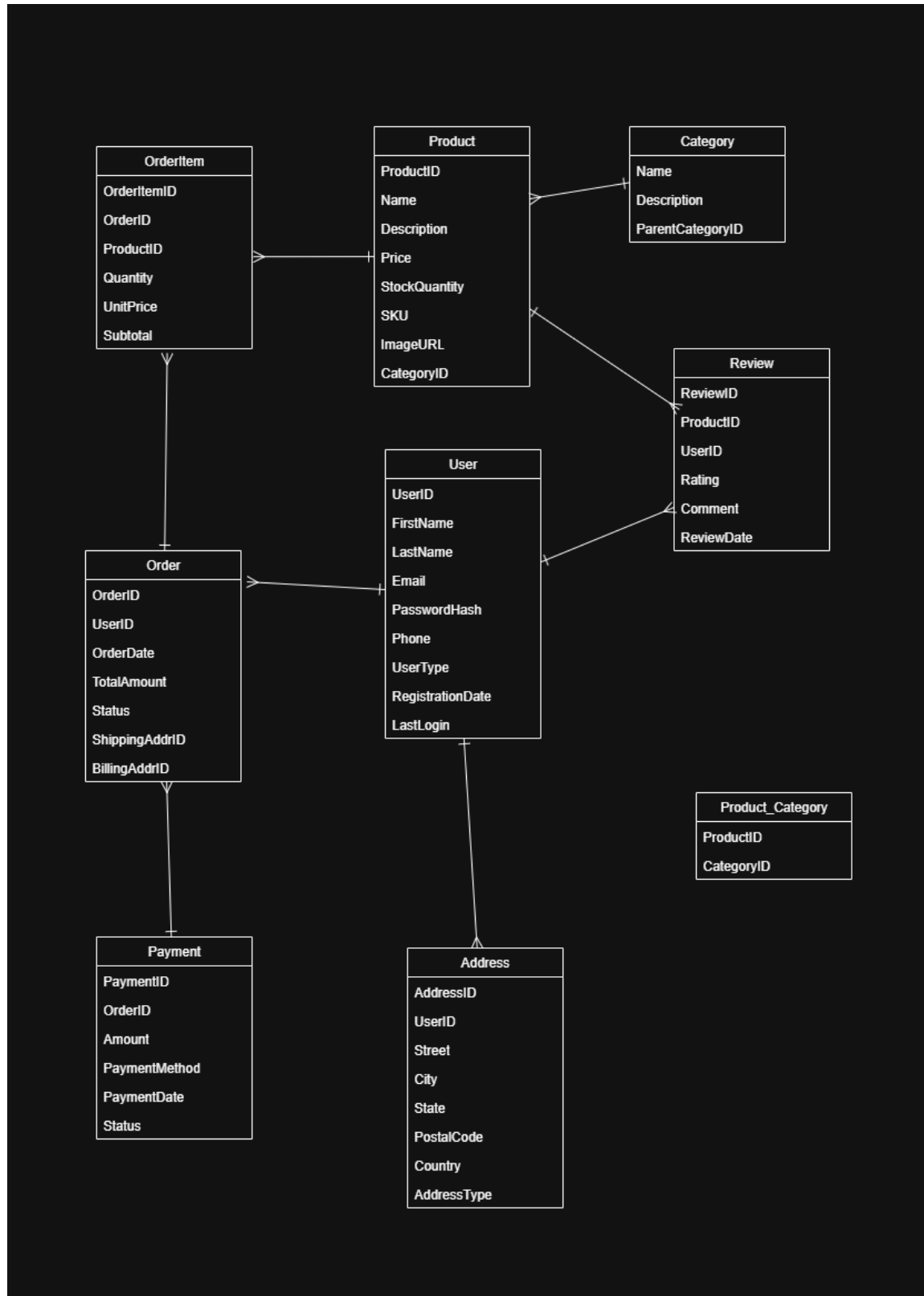
### 6.2.3 Admin Product Management



## 6.2.4 Filtering and Sorting



### 6.3 Logical ERD



## 7. Test Cases

TestcaseID	Category	Description	Prerequisites	Test Procedure	Input Data	Expected Results	Pass/Fail
AUTH_001	Authentication	Register with valid details	App running; DB reachable	Go to registration.php → Fill all mandatory fields → Submit	Name=Suthan; Email=suthan@gmail.com; Password=User@123 ; Confirm=User@123	Account created; success message; user record stored; redirected to login	
AUTH_002	Authentication	Registration fails with duplicate email	Existing user with Email=suthan@example.com	Go to registration.php → Fill form with an already registered email → Submit	Email=suthan@gmail.com; Password=User@123	Error shown for duplicate email; no new account created	
AUTH_003	Authentication	Login with valid credentials (customer)	User account exists and activated	Go to login.php → Enter valid email/password → Submit	Email=suthan@gmail.com; Password=User@123	Login success; session created; redirected to homepage or products	
AUTH_004	Authentication	Login fails with invalid password	User account exists	Go to login.php → Enter valid email + wrong password → Submit	Email=suthan@gmail.com; Password=Wrong@123	Error shown; no session created	
AUTH_005	Authentication	Role-based access: admin page blocked for customer	Logged in as customer; no admin role	Directly navigate to admin_dashboard.php	N/A	Redirected to login or access denied; no admin content visible	

AUTH_006	Authentication	Logout destroys session	Logged in as any user	Click logout link (logout.php)	N/A	Session cleared; redirected to login/home; protected pages no longer accessible via back button	
PROD_001	Products (Customer)	View products list loads successfully	At least 1 product exists	Open products.php / productsview.php	N/A	Product cards/list are displayed with name, price, image	
PROD_002	Products (Customer)	Search returns matching products	Products exist with names containing 'Phone'	Open search.php → Enter 'Phone' → Submit	Keyword='Phone'	Result list shows products whose name/desc match 'Phone'	
PROD_003	Products (Customer)	Search no results	N/A	Open search.php → Search for non-existent term	Keyword='XYZ_NOT_FOUND'	Empty state message shown; no crash	
PROD_004	Products (Admin)	Add product with valid data	Logged in as admin	Open add_product.php → Fill form → Submit	Name='iPhone 17 Pro'; Price=1500.00; Stock=10; ImagePath='../images/iphone17pm.png'	Product created; visible in admin list and customer listing	
PROD_005	Products (Admin)	Add product validation: missing required field	Logged in as admin	Open add_product.php → Leave Name empty → Submit	Name=''; Price=999.99	Validation error; product not created	

PROD_006	Products (Admin)	Edit product updates details	Logged in as admin; product exists	Open edit_product.php?id=<product_id> → Change fields → Submit	Price new=1399.99	Changes saved; updated values shown in lists	
PROD_007	Products (Admin)	Delete product removes it from catalog	Logged in as admin; product exists and not in active order (if restricted)	Open delete_product.php?id=<product_id> → Confirm delete	product_id	Product no longer visible in listings; DB row removed/flagged	
PROD_008	Products (Admin)	View products list (Admin) shows all with controls	Logged in as admin; products exist	Open view_products.php	N/A	Table/list shows products with Edit/Delete actions	
CART_001	Cart	Add to cart from product listing	Product exists; user logged in or guest supported	On products.php → Click 'Add to Cart' for a product	product_id, qty=1	Item appears in cart; cart count updates	
CART_002	Cart	View cart shows added items and totals	At least one item in cart	Open cart.php	N/A	All items listed with quantity, price, subtotal and total	
CART_003	Cart	Add the same product twice increments quantity	Product exists	Add same product two times	product_id, qty=1 then qty=1	Quantity increases; totals recalc	

CART_004	Cart	Remove item from cart / set qty to 0 (if supported)	Cart has at least one item	In cart.php remove item or update qty to 0	product_id	Item removed; totals updated	
ORDER_001	Order	Place order with items in cart	Logged in as customer; cart has items; payment method as per implementation	Open order_place.php → Confirm order	Cart items	Order created; redirected to order_success.php; cart cleared	
ORDER_002	Order	Order success page displays order details	Order placed	After placing order, view order_success.php	Order ID (implicit)	Success message and summary shown	
ORDER_003	Order	Purchase history shows past orders	Logged in; user has at least one past order	Open purchases.php	N/A	List of past orders with totals and dates	
ORDER_004	Order	Cannot place order with empty cart	Logged in; cart empty	Directly open order_place.php	N/A	Error or redirect to cart with message; no order created	
ADMIN_001	Admin	Admin dashboard accessible only to admin	Admin user exists; logged in as admin	Open admin_dashboard.php as admin then as customer	N/A	Admin sees dashboard; customer is blocked/redirected	
ADMIN_002	Admin	Analytics page shows sales/order data	Admin login; at least one order in DB	Open analytics.php	N/A	Charts/tables populated with order totals and counts	

INFO_001	Navigation/Info	Homepage loads with featured sections	App running	Open index.php	N/A	Hero/banner and featured content visible without errors	
INFO_002	Navigation/Info	About page visible from header/footer	Header/footer linked correctly	Click About in navigation	N/A	about.php loads; content present	
INFO_003	Navigation/Info	Header & footer appear across pages (except login/registration if specified)	Includes configured	Open multiple pages and observe header/footer behavior	N/A	Header/footer consistent; hidden on auth pages if designed so	