

**Department of Master of Computer Applications**

**Software Testing (MCAE53)**

**Case Study:** **E-Commerce Website**

**Submitted by:**

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**2025**

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**DEPARTMENT OF**

**MASTER OF COMPUTER APPLICATIONS**

**CERTIFICATE**

This is to certify that the project entitled **E-Commerce Website**

is carried out by**:**

**Pankaj Teron** bearing **1MS23MC068**

Students of 3rd semester, in partial fulfilment for Software Testing (MCAE53) during the academic year 2024-2025.

Guide Head of the Department

Name of Examiners Signature with Date

1.

2.

**Introduction**

The **E-Commerce Shopping Website** is an online platform designed to provide a seamless and secure shopping experience for users. Customers can browse products, add them to a shopping cart, make purchases, and track their orders in real-time. The system integrates user authentication, product search and filtering, secure payment processing, and mobile responsiveness to enhance the overall usability and efficiency of online shopping.

**Objectives:**

* Improve user experience with an intuitive and responsive design.
* Provide an efficient product search and filtering system for easy product discovery.
* Optimize the checkout process to reduce cart abandonment rates.
* Ensure secure transactions through encrypted payment processing.
* Support scalability for handling large product catalogs and user traffic.

**Technology Stack:**

**Frontend Technologies**

* HTML, CSS, JavaScript
* Bootstrap/Tailwind CSS

**Backend Technologies**

* PHP (Laravel) / Java (Spring Framework)
* MySQL
* XAMPP

**Security & Optimization**

* SSL Encryption
* JWT Authentication
* Cloud Hosting (AWS/Azure/Google Cloud)

**Features:**

1. **User Features**

* **User Registration & Login** – Secure sign-up and authentication.
* **Product Browsing & Search** – View detailed product descriptions and images.
* **Category & Filter Options** – Sort and filter products based on price, brand, size, etc.
* **Shopping Cart & Wishlist** – Add/remove products and save favorites for later.
* **Checkout & Payment** – Secure checkout with multiple payment options.
* **Order Tracking** – View real-time updates on orders.
* **Mobile Responsiveness** – Optimized for both mobile and desktop users.

1. **Admin Features**

* **Product Management** – Add, edit, or delete product listings.
* **Order Management** – Process, update, and track orders.
* **User Management** – Monitor customer accounts and support issues.
* **Inventory Control** – Manage stock levels and track sales.

**System Workflow**

1. **User Registration & Login**
   * Users sign up with email/password and verify their account.
   * Secure authentication using JWT tokens.
2. **Product Browsing & Search**
   * Users browse products by category or use the search bar.
   * Advanced filters help refine search results.
3. **Shopping Cart & Checkout**
   * Users add products to the cart and review their selections.
   * Secure payment processing ensures successful transactions.
4. **Order Processing & Tracking**
   * Admin receives the order and updates the order status.
   * Users can track their orders in real-time.
5. **Admin Dashboard**
   * Admin manages inventory, orders, and customer queries.
   * View reports and analytics for business insights.

**User Interface and Experience**

* **Simple and Clean Layout** – Easy to browse products and navigate.
* **Fast Loading Pages** – Optimized to load in under 2 seconds.
* **Mobile-Friendly Design** – Responsive layout for all screen sizes.
* **Secure & Intuitive Checkout** – Reduces cart abandonment.

**Challenges and Solutions**

* **Complex UI/UX design** – Users struggle with navigation and usability.
* **Slow Search Performance** – Large databases slow down searches.
* **High Cart Abandonment** – Users drop out due to long checkout processes.
* **Security Concerns** – Risk of data breaches and unauthorized transactions.
* **Scalability Issues** – Website struggles with increasing users and products.

**Future Enhancements**

* **AI-based Product Recommendations** – Personalized shopping experience using machine learning.
* **Live Chat Support** – AI-powered chatbots for instant customer support.
* **Loyalty Rewards & Discounts** – Reward users with points and discounts.
* **Progressive Web App (PWA)** – Mobile app-like experience for faster browsing.
* **Voice Search Integration** – Hands-free product search for convenience.

**Conclusion**

The E-Commerce Shopping Website provides a secure, efficient, and user-friendly platform for online shopping. By integrating advanced search filters, seamless checkout, and secure payment processing, it enhances the overall shopping experience. The system is scalable, secure, and optimized for future expansion, making it a robust e-commerce solution.

**Test Cases**

**4.1 User Sign-Up Module**

| **Test Case ID** | **Test Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Status** |
| --- | --- | --- | --- | --- | --- |
| TC1 | Enter valid username, email, and password | Username: John, Email: [johndoe@gmail.com](mailto:johndoe@gmail.com),  Password: Test@123 | Redirect to login page | Redirected successfully | Pass |
| TC2 | Enter invalid email format | Username: John, Email: john#gmail.com, Password: John@123 | Error message: "Invalid email format" | Displayed correctly | Pass |
| TC3 | Leave password field empty | Username: John, Email: [john@gmail.com](mailto:john@gmail.com), Password: | Alert message: "Please fill out this field" | Displayed correctly | Pass |

**4.2 User Login Module**

| **Test Case ID** | **Test Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Status** |
| --- | --- | --- | --- | --- | --- |
| TC4 | Enter valid email and password | Email: [johndeo@gmail.com](mailto:johndeo@gmail.com), Password: Test@123 | Redirect to homepage | Redirected successfully | Pass |
| TC5 | Enter incorrect password | Email: [john@gmail.com](mailto:john@gmail.com), Password: wrongPass | Error message: "Invalid login credentials" | Displayed correctly | Pass |
| TC6 | Leave both fields empty | Email: , Password: | Alert: "Please fill out all fields" | Displayed correctly | Pass |

**4.3 Shopping Cart Module**

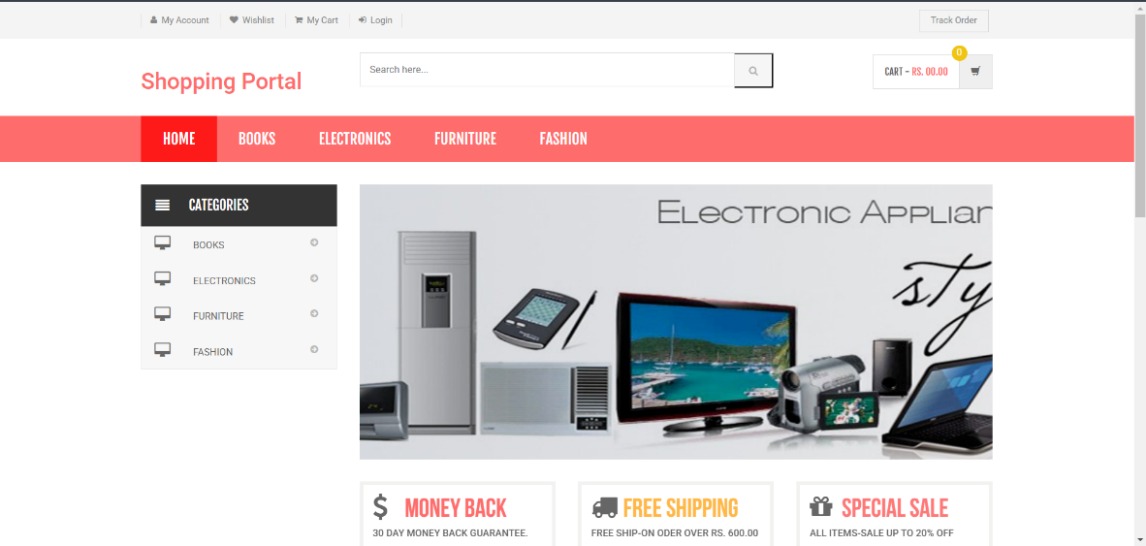
| **Test Case ID** | **Test Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Status** |
| --- | --- | --- | --- | --- | --- |
| TC7 | Add product to cart | Product: Laptop | Cart updated successfully | Updated correctly | Pass |
| TC8 | Remove product from cart | Product: Laptop | Product removed successfully | Removed correctly | Pass |
| TC9 | Checkout without adding product | No product in cart | Error: "Cart is empty" | Displayed correctly | Pass |

**4.4 Order Placement Module**

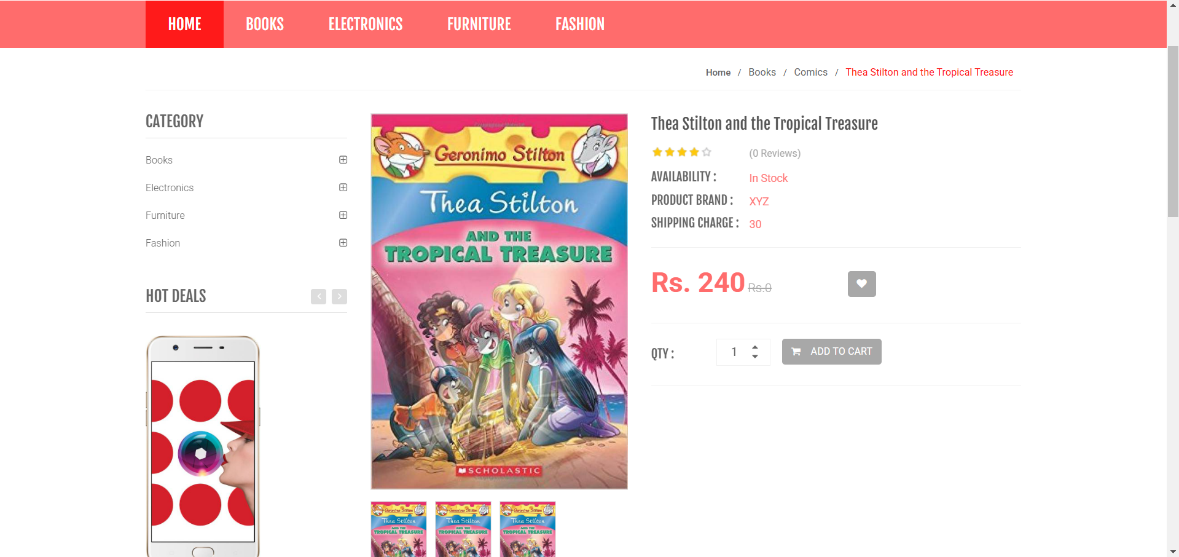
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test Case ID** | **Test Steps** | **Test Data** | **Expected Results** | **Actual Results** | **Status** |
| TC10 | Select COD as payment method | Click on COD and proceed | Product added to order list successfully | Product added | Pass |
| TC11 | Select Card Payment | Click on Card and proceed | Product added to order list successfully | Product added | Pass |
| TC12 | Select UPI Payment | Click on UPI and proceed | Product added to order list successfully | Product added | Pass |

**Development of the Application**

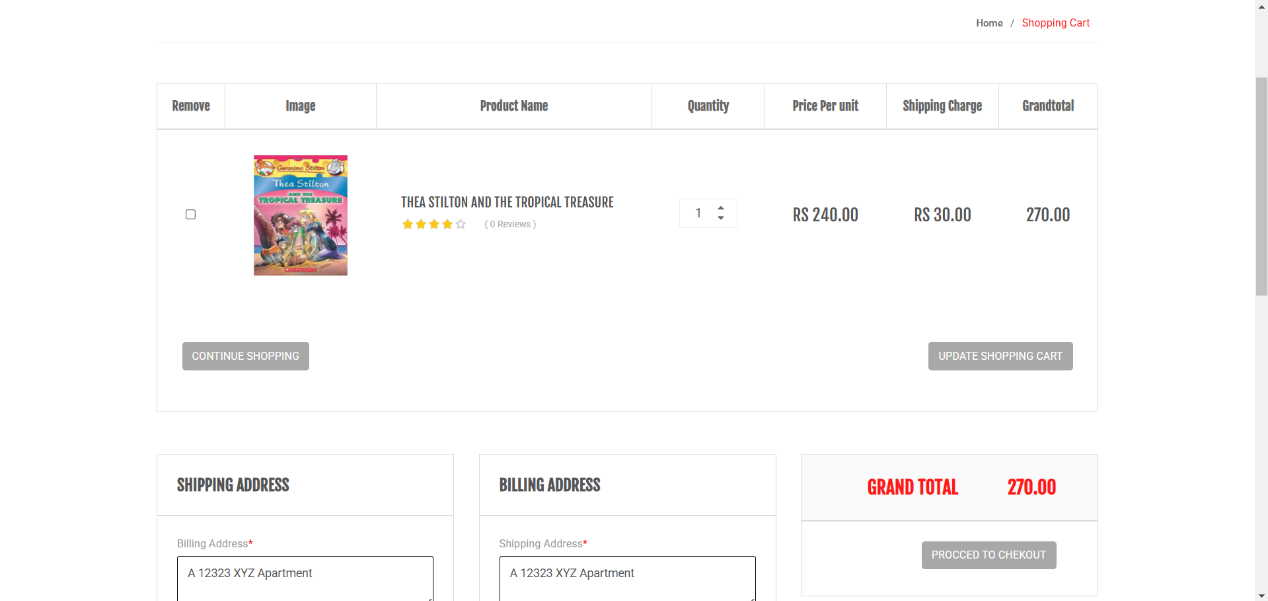
**Home Page**

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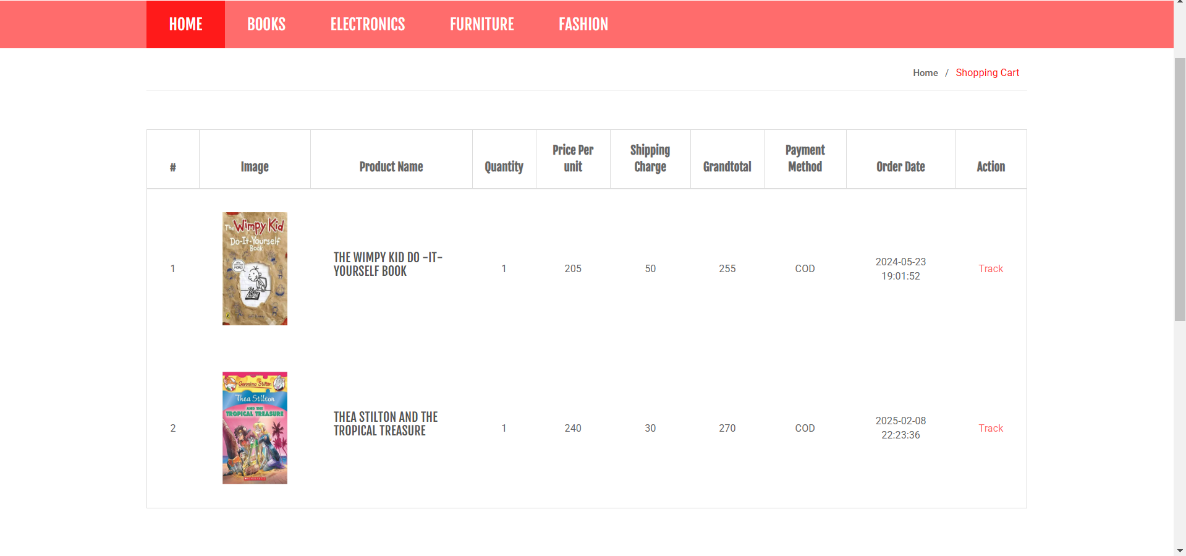
**Product**

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**Add to Cart**

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**Order**

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