

## **Product Requirements Document (PRD)**

### **ShoeShop E-commerce System – QA Testing Project**

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#### **1. Business Overview**

The rapid growth of digital transformation and online shopping creates strong demand for reliable e-commerce platforms, especially in the fashion and footwear industry. However, many current systems still suffer from usability issues, slow performance, incomplete payment flows, inaccurate order handling, and weak access control.

This project aims to analyze, test, and evaluate the quality of a simulated online shoe-store system to ensure reliability, correctness, and a seamless user experience.

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#### **2. Objectives of the Study**

The discovery phase aims to understand business operations, identify testing requirements, and define high-risk areas.

##### **Goals**

- Understand end-to-end business processes: browsing, cart, checkout, payment, order management, and discount workflows.
  - Identify critical test points: payment processing, discount calculation, stock validation, order state transitions, and access control.
  - Analyze testing needs for each user role: Customer, Staff, Manager, Admin.
  - Determine automation feasibility and testing strategies (manual vs automated).
  - Establish test coverage requirements for all functional and non-functional aspects.
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#### **3. Research Methodology**

##### **Phase 1 — Field Study & Observation**

- Analyze real shoe-store workflows and comparable e-commerce sites.
- Identify pain points in performance, security, data integrity, and UI/UX.

##### **Phase 2 — Requirement Analysis**

- Extract and classify functional (FR) and non-functional requirements (NFR).
- Map each requirement to a specific testing objective (e.g., VNPay testing, order processing validation, role-based access verification).

### Phase 3 — System Modeling & Test Scope Definition

- Define role model and business workflows to support scenario creation.
  - Prepare test scenarios for core processes such as cart, checkout, order lifecycle, and discount logic.
  - Ensure end-to-end test coverage.
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## 4. User Needs & Requirements

### 4.1 Roles & Responsibilities

- **Customer** – End-user who browses products, places orders, applies discounts, makes payments, and tracks order status.
  - **Staff** – Handles order verification, packaging, status updating, and stock checking.
  - **Manager** – Manages discounts, views reports, oversees staff operations.
  - **Admin** – Full-system administrator responsible for user accounts, permissions, and configuration.
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### 4.2 Functional Requirements (FR)

#### 4.2.1 Customer

##### Product Catalog

- View product list by categories and filter/sort by price, brand, size.
- View detailed product information with stock availability.

##### Shopping Cart

- Add/remove/update items and view cost breakdown in real-time.
- Apply valid discount codes.
- Cart persists across sessions.

### **Checkout & Payment**

- Provide shipping information and choose payment method (COD, VNPay).
- System records order with initial status: CREATED.

### **Order Tracking**

- View order history and status transitions:  
CREATED → CONFIRMED → PREPARING → READY\_FOR\_DELIVERY →  
OUT\_FOR\_DELIVERY → DELIVERED.
- Cancel order when allowed (CREATED/CONFIRMED).

### **Account Management**

- Edit profile, update shipping address, change password.
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#### **4.2.2 Staff**

- View new orders and verify stock before confirming.
  - Update order states: CONFIRMED → PREPARING → READY\_FOR\_DELIVERY →  
OUT\_FOR\_DELIVERY → DELIVERED.
  - Add internal notes or issue reports.
  - Export completed order lists for internal reporting.
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#### **4.2.3 Manager**

- Approve/reject orders and monitor store performance.
  - Create, edit, deactivate discount codes with usage conditions and limits.
  - View sales reports, discount usage reports, and inventory status.
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#### **4.2.4 Admin**

- Manage user accounts and role assignments (Customer, Staff, Manager, Admin).
- Lock/unlock accounts but cannot modify other Admin accounts.
- View system-wide KPIs and operational reports.

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## **5. Non-functional Requirements (NFR)**

### **Performance**

- Product listing and cart updates must load within 2 seconds.

### **Security**

- Enforce role-based access control.
- Secure payment redirection via VNPay.

### **Reliability**

- Order state transitions must follow strict business validation.

### **Usability**

- Clear feedback for discount errors and payment failures.
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## **6. Business Workflow Context**

### **6.1 Product Catalog**

- Customer browses, filters, sorts, and views product details.
- Staff checks stock; Manager/Admin update product info.

### **6.2 Shopping Cart**

- Customer adds products, updates quantities, views pricing breakdown.
- System validates stock, applies discounts, recalculates totals dynamically.

### **6.3 Order Workflow**

- On checkout, system creates order with initial status CREATED.
- Staff or Manager updates order based on business rules.
- Customers track progress and can cancel before fulfillment.

### **6.4 Discount Management**

- Manager/Admin create codes with conditions (min order value, usage limit, expiration).
- Customer applies discount; system validates eligibility.

## **6.5 User Management**

- Customer edits profile; Admin manages accounts and roles.

## **6.6 Access Control**

- Sign-up, login, logout for all roles.
  - Role determines feature permissions.
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## **7. User Stories**

### **7.1 Product Catalog**

#### **Customer**

- As a customer, I want to browse and filter products to quickly find what fits my needs.
- As a customer, I want to view detailed product information to make purchasing decisions.

#### **Staff**

- As staff, I want to view real-time stock to confirm orders accurately.

#### **Manager**

- As a manager, I want to modify product visibility and update product details.

#### **Admin**

- As an admin, I want to standardize product attributes and audit product changes.
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### **7.2 Shopping Cart**

#### **Customer**

- Add/remove/update items and see updated totals in real-time.
  - Save cart across sessions.
  - Apply discount codes at cart or checkout.
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### **7.3 Orders**

### **Customer**

- Checkout and provide shipping details.
- Choose payment method (COD or VNPay).
- Track order progress.
- Cancel order within allowed statuses.

### **Staff**

- Confirm orders based on stock.
  - Update order statuses throughout the workflow.
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## **7.4 User Management**

### **Customer**

- Update personal info and saved addresses.

### **Manager**

- View/lock staff accounts.

### **Admin**

- Create, manage, and assign roles to all users.
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## **7.5 Access Control**

- Secure login/logout for each role.
  - Role-based UI and permission enforcement.
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## **7.6 Discount Management**

### **Customer**

- Apply valid discount codes and receive clear error messages when invalid.

### **Staff**

- View applied discount (read-only) when processing orders.

## **Manager**

- Create, edit, or suspend discount codes and set conditions.
  - View discount effectiveness.
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## **8. Scope of Testing**

Testing focuses on four role groups:

- **Customer** – UI/UX, product actions, cart, checkout, VNPay integration, discount application, order tracking.
- **Staff** – stock validation, order processing, status updates, exception handling.
- **Manager** – discount management, approval flows, reporting.
- **Admin** – system-wide user/role management, access security,

Includes:

- Test Plan creation
- Test Case design
- Manual & Automated Testing
- Bug reporting and tracking
- Quality evaluation and improvement proposal