

SOFTWARE REQUIREMENTS SPECIFICATION

E-Commerce Order Management System

Version 1.0

1. INTRODUCTION

1.1 Purpose

This document specifies the functional and non-functional requirements for the E-Commerce Order Management System. The system shall enable customers to place orders, track shipments, and manage their accounts.

1.2 Scope

The Order Management System covers the complete order lifecycle from placement to delivery, including inventory management, payment processing, and customer notifications.

2. DEFINITIONS

DEF A Customer is a registered user who has a customerId, emailAddress, fullName, phoneNumber, and registrationDate.

DEF An Order is a purchase transaction that contains an orderId, orderDate, totalAmount, status, and shippingAddress.

DEF A Product is an item available for purchase with a productId, productName, description, price, stockQuantity, and category.

DEF An OrderItem represents a product within an order and includes a quantity, unitPrice, and subtotal.

DEF A Payment is a financial transaction with a paymentId, paymentMethod, paymentDate, amount, and transactionStatus.

DEF A ShoppingCart is a temporary collection that contains cartId, createdDate, and lastModifiedDate.

DEF A Review is customer feedback that includes reviewId, rating, comment, and reviewDate.

DEF An Address contains street, city, state, postalCode, and country.

3. FUNCTIONAL REQUIREMENTS

REQ-1 The system shall allow a customer to register with an email address and password.

REQ-2 Each customer must have exactly one shopping cart.

REQ-3 A customer shall be able to place one or more orders.

REQ-4 Each order must contain one or more order items.

REQ-5 An order item must reference exactly one product.

REQ-6 The system shall allow a customer to add products to their shopping cart.

REQ-7 A product can be included in zero or more order items.

REQ-8 Each order must have exactly one payment associated with it.

REQ-9 A payment must reference exactly one order.

REQ-10 The system shall allow a customer to write reviews for products they have purchased.

REQ-11 A product can have zero or more reviews.

REQ-12 Each review must be written by exactly one customer.

REQ-13 A customer shall be able to save multiple shipping addresses.

REQ-14 Each order must be delivered to exactly one address.

REQ-15 The system shall send email notifications to customers when order status changes.

4. CONSTRAINTS

CON-1 The emailAddress must be unique across all customers.

CON-2 The productId must be unique within the system.

CON-3 The stockQuantity must not be negative.

CON-4 The price must be greater than zero.

CON-5 The rating in a review must be between 1 and 5.

CON-6 The orderId must be unique and auto-generated.

CON-7 Payment amount must match the order totalAmount.

CON-8 The system must process orders within 24 hours.

CON-9 Customer passwords must be encrypted before storage.

CON-10 All financial data must comply with PCI-DSS standards.

5. NON-FUNCTIONAL REQUIREMENTS

NFR-1 The system shall support up to 10,000 concurrent users.

NFR-2 Order placement response time shall not exceed 2 seconds under normal load.

NFR-3 The system shall maintain 99.9% uptime during business hours.

NFR-4 All customer data shall be backed up daily.

NFR-5 The system shall be accessible via web browsers and mobile applications.

6. BUSINESS RULES

BR-1 Customers cannot place orders if their cart is empty.

BR-2 Products with zero stock quantity cannot be added to carts.

BR-3 Orders cannot be modified after payment is confirmed.

BR-4 Customers can cancel orders only if status is "pending" or "processing".

BR-5 Free shipping applies to orders with totalAmount greater than 50 dollars.

7. USER STORIES

US-1 As a customer, I want to search for products by category so that I can find items I'm interested in.

US-2 As a customer, I want to view my order history so that I can track past purchases.

US-3 As a customer, I want to receive order confirmation emails so that I have proof of purchase.

US-4 As an administrator, I want to update product inventory so that stock levels remain accurate.

US-5 As a customer, I want to apply discount codes during checkout so that I can save money.

8. ADDITIONAL INFORMATION

INFO This system will be deployed on AWS cloud infrastructure.

INFO The development team consists of 5 backend developers and 3 frontend developers.

INFO The expected launch date is Q2 2026.

INFO Integration with existing CRM system is planned for Phase 2.