Software Requirements Specification (SRS)

for Online Shopping and Cart System

Version: 1.0

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1. Introduction

1.1 Purpose

The purpose of this document is to define all software requirements for the **Online Shopping and Cart System**. It aims to clearly describe the goals, functionalities, and scope of the system to ensure a common understanding among developers and stakeholders.

1.2 Document Conventions

This document follows the IEEE SRS standard format. Section numbering and headings are used to organize information logically.

1.3 Intended Audience and Reading Suggestions

This document is intended for software developers, project managers, and testers. Developers should focus on system features and interfaces, while testers may review nonfunctional requirements.

1.4 Product Scope

The system is a web-based platform that allows users to browse products, manage shopping carts, and complete secure payments. It integrates AI for smart inventory forecasting and personalized user recommendations.

2. Overall Description

2.1 Product Perspective

The Online Shopping System is an independent, web-based application. It interacts with a backend database for order processing and integrates with external **Payment Systems** via APIs.

2.2 Product Functions

The main functions include:

- Providing a product catalog with search and filter capabilities.
- Executing secure payment transactions.
- Tracking user orders and shopping history.
- AI-driven demand forecasting for administrators.
- Managing inventory and stock levels in real-time.

2.3 User Classes and Characteristics

- **Visitors:** Unregistered users who can browse products and sign up.
- **Customers:** Registered users who manage carts and place orders.
- **Administrators (Admin):** Users responsible for maintaining stock and monitoring sales reports.

2.4 Operating Environment

The system will operate on standard web browsers (Chrome, Firefox, Safari) and will be fully responsive for mobile devices.

3. External Interface Requirements

3.1 User Interfaces

The interface includes a landing page, product details, a shopping cart dashboard, and an admin management panel. The design will be intuitive for both beginners and experienced users.

3.2 Software Interfaces

The system connects to a backend database (MySQL/PostgreSQL) for query execution. It uses REST APIs for external payment gateway integration.

3.3 Communications Interfaces

The system will communicate over **HTTPS** for secure data transfer.

4. System Features

4.1 Cart and Order Processing

This feature allows customers to add items to a cart, calculate totals, and finalize orders.

- **Priority:** High.
- **Logic:** The system evaluates stock availability and processes payments through the integrated gateway.

4.2 AI-Enhanced Admin Tools

Administrators can view AI-generated reports for stock prediction and sales analysis.

- **Priority:** Medium.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The system should load pages within 3 seconds and process transactions in under 2 seconds.

5.2 Security Requirements

- All communications must use HTTPS encryption.
- User authentication will be handled via secure tokens (JWT/OAuth2).
- Role-based access control (RBAC) will restrict access between Students, Admins, and Visitors.

5.3 Software Quality Attributes

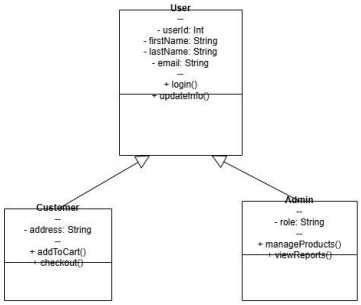
The system emphasizes reliability, usability, and maintainability.

Appendix B: Analysis Models

The following diagrams describe the structural and functional relationships within the system:

Class Diagram: Defines the inheritance between `User`, `Customer`, and `Admin`, as well as associations between `Order`, `Product`, and `Payment`.

Use Case Diagram: Describes the interactions between actors (Customer, Admin, Visitor) and the core system functions like "Place Order" and "Update Stock".


User
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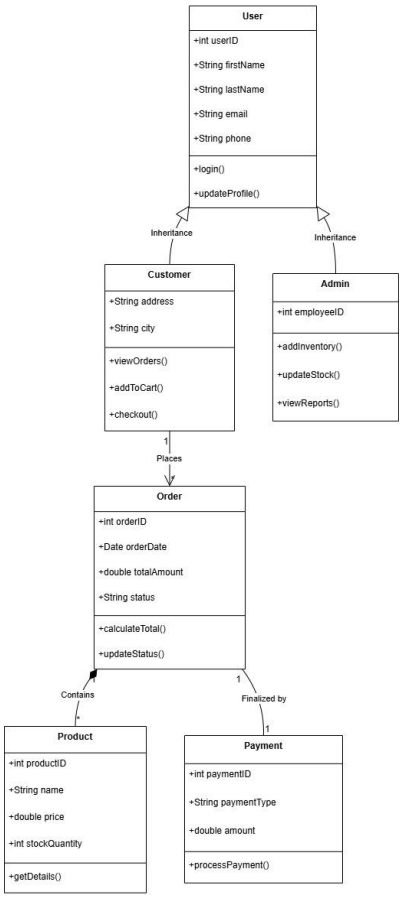
- firstName: String
- lastName: String
- email: String
--
+ login()
+ updateInfo()
Customer
--
- address: String
--
+ addToCart()
+ checkout()
Admin
--
- role: String
--
+ manageProducts()
+ viewReports()


User
+int userID
+String firstName
+String lastName
+String email
+String phone
+login()
+updateProfile()
Inheritance
Inheritance
Customer
+String address
+String city
+viewOrders()
+addToCart()
+checkout()
Admin
+int employeeID
+addInventory()
+updateStock()
+viewReports()
1
Places
Order
+int orderID
+Date orderDate
+double totalAmount
+String status
+calculateTotal()
+updateStatus()
1
Contains
*
1
Finalized by
1
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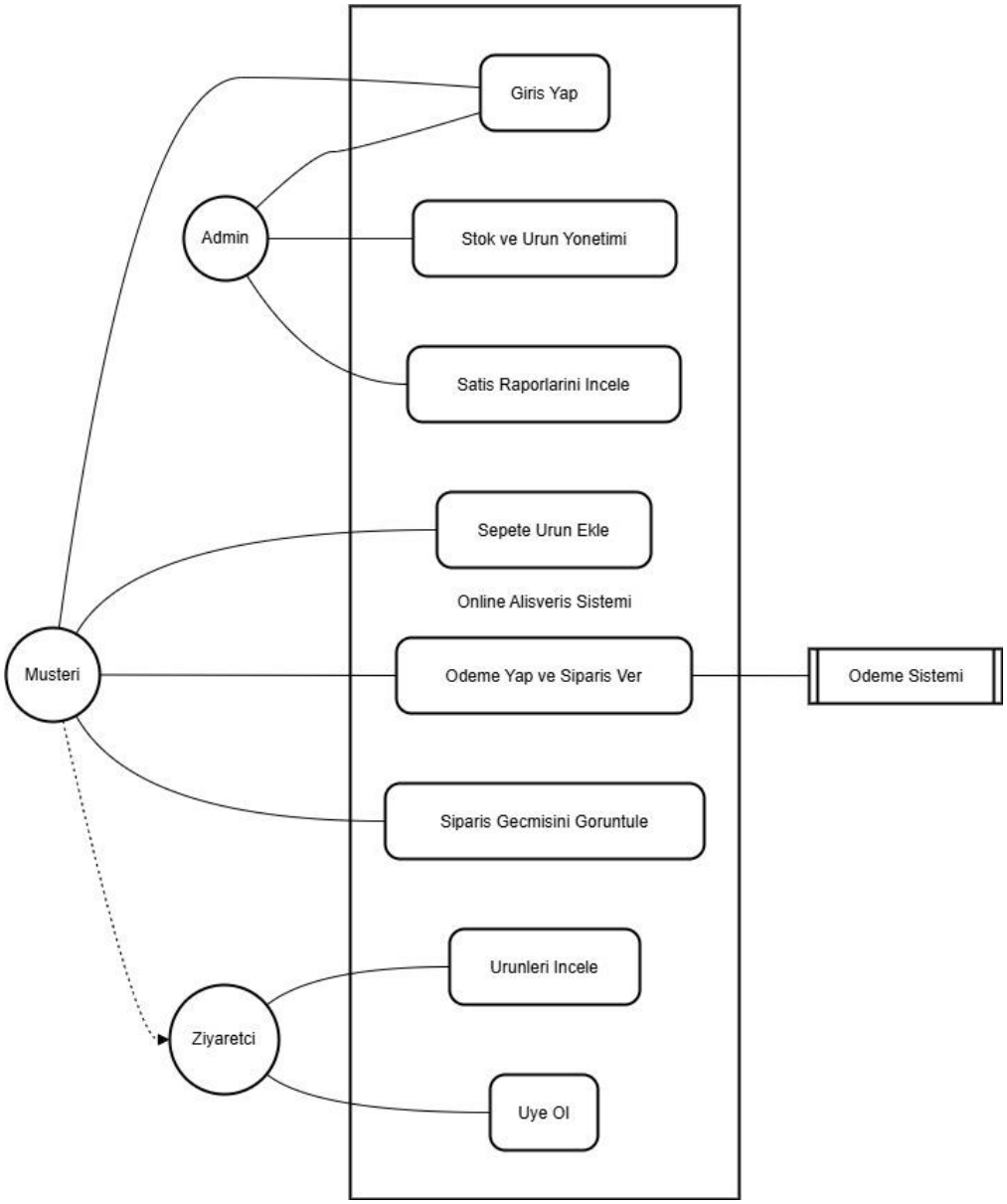
+String name
+double price
+int stockQuantity
+getDetails()
Payment
+int paymentID
+String paymentType
+double amount
+processPayment()


Giris Yap
Admin
Stok ve Urun Yonetimi
Satis Raporlarini Incele
Sepete Urun Ekle
Online Alisveris Sistemi
Musteri
Odeme Yap ve Siparis Ver
Odeme Sistemi
Siparis Gecmisini Goruntule
Urunleri Incele
Ziyaretci
Uye Ol