Software Requirements

Specification

ShopSmart

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# 1. Introduction

This section gives a scope description and overview of everything included in this SRS document. Also, the purpose for this document is described and a list of abbreviations and definitions is provided.

## 1.1 Purpose

## The purpose of this document is to specify the requirements for developing an online e-commerce platform named “ShopSmart”. This platform will provide an intuitive and secure environment for users to browse, purchase, and review products online. Additionally, the platform will include management features for store administrators to manage product listings, inventory, and order fulfillment.

## 1.2 Overview

ShopSmart is an online e-commerce platform designed to provide a seamless shopping experience for customers seeking to purchase a variety of products. The platform allows users to browse and search for products based on categories, prices, and other specifications such as brand and user ratings. The application will be accessible via a web browser and optimized for both desktop and mobile devices.

Users can create accounts to manage their profiles, view their order history, and save favorite items for future reference. Product vendors can register and manage their store information, including adding, updating, or removing product listings through a dedicated vendor portal. An administrator will oversee the entire system to ensure data accuracy, verify vendor registrations, and manage user accounts.

The application requires an internet connection for users to access product listings, process transactions, and receive order updates. All data, including user profiles, product information, and transaction records, will be stored in a secure database hosted on a web server. The platform will also support secure payment processing to ensure safe transactions.

ShopSmart will provide both summary and detailed views of products, including high-quality images, descriptions, pricing, and customer reviews. Users will benefit from a user-friendly interface designed for an enjoyable shopping experience.

## 1.3 Scope

This project aims to create a scalable, user-friendly e-commerce platform that supports the following main functionalities:

User Account Management: Registration, login, and profile management for customers.

Product Browsing and Search: Ability for users to view products by categories and perform searches based on keywords or filters.

Shopping Cart and Checkout: Functionality for users to add products to a cart, apply discount codes, and complete purchases securely.

Order Management: Users can track orders, and administrators can view, manage, and fulfill orders.

Admin Dashboard: Allows administrators to add, edit, or delete product listings, manage inventory, and oversee customer orders.

# 2. System Overview

## This section provides a comprehensive view of the ShopSmart e-commerce application, highlighting its core functionalities, user interactions, and integration with external systems. This section serves to clarify the intended purpose of the application and how it fits into the broader landscape of e-commerce solutions. It outlines the key stakeholders involved, the system's main features, and any constraints or assumptions that may influence its development and operation.

## 2.1 Product perspective

## ShopSmart is an online e-commerce platform positioned to enhance the shopping experience for consumers in a competitive digital marketplace. The application operates as a web-based solution accessible from desktop and mobile devices, making it convenient for users to browse, compare, and purchase products anytime and anywhere.

## The platform integrates with payment gateways to facilitate secure transactions, ensuring that user data and payment information are protected. Additionally, ShopSmart connects with third-party shipping services to provide users with real-time tracking of their orders, further enhancing the user experience.

## In terms of architecture, ShopSmart follows a Model-View-Controller (MVC) framework, allowing for a clear separation of concerns in its development. This structure enables easier maintenance and scalability as new features are added over time.

## The product will also interact with a relational database to manage data related to users, products, orders, and vendor information. By leveraging cloud-based hosting, ShopSmart ensures reliability and performance even during peak usage times, catering to a growing user base.

## 2.2 Product functions

# The core functionalities of the ShopSmart e-commerce platform include:

# User Account Management:

# User registration and login capabilities.

# Profile management, including password recovery and account settings.

# Product Browsing and Search:

# Categories for product classification (e.g., electronics, clothing, home goods).

# Advanced search functionality with filters for price, brand, ratings, and availability.

# Shopping Cart and Checkout:

# Add or remove products from the shopping cart.

# Apply promotional codes and discounts.

# Secure checkout process with multiple payment options (credit/debit cards, digital wallets).

# Order Management:

# Users can view order history and track current orders.

# Notifications for order confirmations, shipping updates, and delivery status.

# Admin Dashboard:

# Administrators can manage user accounts, verify vendor registrations, and oversee product listings.

# Inventory management features for tracking product availability.

# Customer Reviews and Ratings:

# Users can leave reviews and ratings for products they have purchased.

# Display of aggregated ratings on product pages.

# Responsive Design:

# User-friendly interface optimized for both desktop and mobile devices.

# Security Features:

# Implementation of SSL encryption for secure data transmission.

# Compliance with data protection regulations to safeguard user information.

# 3. Requirements

This section contains all of the functional and quality requirements of the system. It gives a detailed description of the system and all its features.

**3.1 Functional Requirements**

### This section outlines the key functionalities of the ShopSmart e-commerce application, categorized by user classes to clarify the essential requirements for each type of user.

### 3.1.1 User Class: Customer

User Registration and Login:

Customers must be able to register for an account using their email and a secure password.

Customers can log in using their credentials.

Product Browsing:

Customers should be able to view a catalog of products with images, descriptions, prices, and ratings.

Customers must have the ability to filter products by category, price range, and rating.

Shopping Cart Management:

Customers can add, edit, or remove products in their shopping cart.

Customers should see a summary of their cart, including total price and items.

Checkout Process:

Customers must be able to proceed to checkout and enter shipping and billing information.

Customers should receive order confirmation via email after completing a purchase.

Order Tracking:

Customers can view the status of their orders and track shipment progress.

### 3.1.2 User Class: Vendor

Vendor Registration and Login:

Vendors must be able to register for an account and log in to manage their products.

Product Management:

Vendors can create, edit, and delete product listings.

Vendors must be able to view their sales data and performance analytics.

Order Management:

Vendors should have access to view and manage customer orders.

### 3.1.3 User Class: Admin

Admin Login:

Administrators must be able to log in securely to access the admin portal.

User Management:

Administrators can view, edit, and delete user accounts (both customers and vendors).

Product Management:

Administrators can view all product listings, edit details, and remove inappropriate content.

System Monitoring:

Administrators should have access to system logs and reports for monitoring activities and troubleshooting issues.

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## 3.2 Non-Functional requirements

### This section outlines the major non-functional requirements critical to the ShopSmart application’s performance, security, and usability.

 **Performance Requirements**

* The application should load within 3 seconds for users on a standard broadband connection.
* The system should support at least 500 concurrent users without degradation of performance.

 **Security Requirements**

* All user passwords must be securely hashed and stored.
* The application should utilize HTTPS to ensure secure data transmission.
* Sensitive data (such as payment information) must comply with PCI DSS regulations.

 **Usability Requirements**

* The application should have a user-friendly interface, ensuring that users can navigate and perform tasks without requiring extensive training.
* All essential functions should be accessible within three clicks from the homepage.

 **Scalability Requirements**

* The application should be designed to accommodate future growth in user traffic and product listings without significant rework.

# 4. Constraints and Dependencies

## This section outlines the constraints and assumptions relevant to the e-commerce system project. Understanding these elements is crucial for effectively managing the project scope, schedule, and risk.

## 4.1 Constraints

The following constraints must be considered during the development of the e-commerce application:

1. **Regulatory Compliance:** The application must comply with local and international laws regarding online commerce, including data protection regulations (e.g., GDPR) and consumer rights legislation.
2. **Technical Standards:** The system must adhere to industry best practices for web development and security standards, including SSL encryption for data transmission and secure coding practices to mitigate vulnerabilities.
3. **Performance Requirements:** The application should handle a minimum of 1,000 concurrent users without degradation in performance. Load testing will be necessary to ensure this requirement is met.
4. **Platform Limitations:** The application will primarily be hosted on a cloud service provider, which may impose certain limitations on server configuration and resource allocation.
5. **Time Constraints:** The project must be completed within a specified timeline, with defined milestones and deadlines to ensure timely delivery.

**4.2 Assumption and Dependencies**

The following assumptions and dependencies are identified for the e-commerce project:

1. **User Adoption**: It is assumed that users will be familiar with online shopping and will have basic internet literacy to navigate the e-commerce platform effectively.
2. **Vendor Participation**: The success of the application depends on the timely onboarding of vendors who will provide a diverse range of products. It is assumed that vendors will engage with the system as expected.
3. **Third-Party Integrations**: The project will rely on third-party services for payment processing, shipping, and customer authentication. It is assumed that these services will be stable and reliable throughout the project lifecycle.
4. **Availability of Resources**: The project assumes that necessary human resources (developers, designers, testers) will be available and committed to the project for its duration.
5. **Technology Stack**: It is assumed that the selected technology stack (e.g., ASP.NET MVC, Entity Framework) will be suitable for meeting the project’s functional and non-functional requirements.
6. **Internet Connectivity**: The application’s functionality relies on consistent internet connectivity for users, and it is assumed that users will have access to reliable internet service.