Software Requirements Specification

for

E-Commerce Website

Version 1.0 approved

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Revision History

Name	Date	Reason for Changes	Version
Anupam Krishna	07/11/2023	Initial Version	1.0

1. Introduction

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) document is to define the functional and non-functional requirements for the development of a basic E-commerce website. This document will serve as a guide for the design, development, and testing of the website.

1.2 Project Scope

The E-commerce website aims to enable users to browse, select, purchase, and manage products or services online. It will include features for user registration, product browsing, shopping cart management, secure payments, order tracking, and customer support.

1.3 Definitions, Acronyms, and Abbreviations

SRS: Software Requirements Specification
UI: User Interface
API: Application Programming Interface

1.4 Overview

This SRS outlines the requirements for the development of a basic E-commerce website. It encompasses various functionalities and system features required to meet the needs of users, administrators, and other stakeholders.

1.5 References
IEEE Software Engineering Standards Committee, "IEEE Std 830-1998, IEEE Recommended Practice for Software Requirements Specifications," IEEE, New York, 1998.

2. Functional Requirements

2.1 User Registration and Authentication

2.1.1 Description and Priority
This feature allows users to create accounts, log in, and manage their authentication details.

2.1.2 Stimulus/Response Sequences
- User accesses the website.
- User selects the "Sign Up" or "Log In" option.
- System prompts user to input registration details or login credentials.

- System validates the input data.
- If valid, the system grants access; if invalid, the system displays an error message.

2.1.3 Functional Requirements
- REQ-1: The system must provide a user interface for account creation and login.
- REQ-2: Users must input required registration details.
- REQ-3: The system must securely store and manage user authentication data.
- REQ-4: The system must validate user input data and provide appropriate feedback.

2.2 Product Browsing and Search

2.2.1 Description and Priority
This feature enables users to browse products, search for specific items, and view detailed product information.

2.2.2 Stimulus/Response Sequences
- User navigates to the product catalog.
- User utilizes search functionality or browses product categories.
- System displays relevant product listings.
- User selects a product for detailed information.
- System presents detailed product information.

2.2.3 Functional Requirements
- REQ-1: The system must provide an intuitive product catalog interface.
- REQ-2: Users should be able to search for products using keywords or filters.
- REQ-3: The system must display product details, including images, descriptions, and prices.
- REQ-4: Users can add products to the shopping cart from the product page.

2.3 Shopping Cart Management

2.3.1 Description and Priority
This feature allows users to add, remove, and manage items in their shopping cart before proceeding to checkout.

2.3.2 Stimulus/Response Sequences
- User clicks on the shopping cart icon.
- System displays the current contents of the shopping cart.
- User adds or removes items from the cart.
- System updates the cart total.

2.3.3 Functional Requirements
- REQ-1: The system must provide a shopping cart icon for easy access.
- REQ-2: Users should be able to view and manage the contents of their shopping cart.
- REQ-3: The system must update the cart total dynamically based on user actions.
- REQ-4: Users can adjust the quantity or remove items from the cart.

2.4 Checkout and Payment Processing

2.4.1 Description and Priority
This feature enables users to complete their purchase by providing shipping information and making secure payments.

2.4.2 Stimulus/Response Sequences
- User clicks on the "Checkout" button.
- System prompts the user to input shipping details.
- User provides shipping information.
- System calculates shipping costs.
- User selects a payment method.
- System securely processes the payment.

2.4.3 Functional Requirements
- REQ-1: The system must guide users through the checkout process.
- REQ-2: Users should input shipping details for accurate order processing.
- REQ-3: The system must calculate and display shipping costs.
- REQ-4: Users can choose from various secure payment methods.
- REQ-5: The system must securely process payments and provide confirmation.

2.5 Order Tracking

2.5.1 Description and Priority
This feature allows users to track the status of their orders after completing a purchase.

2.5.2 Stimulus/Response Sequences
- User accesses the order tracking page.
- User inputs order details or order confirmation number.
- System retrieves and displays order status and tracking information.

2.5.3 Functional Requirements
- REQ-1: The system must provide an order tracking interface.
- REQ-2: Users should be able to input order details for tracking.
- REQ-3: The system must retrieve and display real-time order status and tracking information.

2.6 User Account Management

2.6.1 Description and Priority
This feature enables users to manage their account settings, including profile information, password changes, and order history.

2.6.2 Stimulus/Response Sequences
- User accesses the account settings page.
- User updates profile information or changes the password.
- System saves the changes and provides confirmation.

2.6.3 Functional Requirements
- REQ-1: The system must provide a user-friendly account settings interface.
- REQ-2: Users should be able to update profile information and change passwords.
- REQ-3: The system must securely save and update user account details.
- REQ-4: Users can view their order history and details.

2.7 Customer Support

2.7.1 Description and Priority
This feature provides users with options for seeking customer support, including FAQs, live chat, or submitting support tickets.

2.7.2 Stimulus/Response Sequences
- User navigates to the customer support section.
- User selects the desired support option (FAQs, live chat, or submit a ticket).
- System provides relevant support information or connects the user to live chat or ticketing.

2.7.3 Functional Requirements
- REQ-1: The system must include a customer support section.
- REQ-2: Users should have access to frequently asked questions (FAQs).
- REQ-3: The system should offer live chat support.
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3. System Features

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4. External Interface Requirements

4.1 User Interfaces

The user interface will be graphical, intuitive, and responsive. It will include pages for product browsing, shopping cart management, checkout, order tracking, and user account settings.

4.2 Hardware Interfaces

The E-commerce website will be accessible from any device with internet connectivity, including desktop computers, laptops, tablets, and smartphones.

4.3 Software Interfaces

The website will interact with the device's operating system, web browsers, and secure payment gateways. It will use standard APIs for authentication, product searches, and order processing.

4.4 Communications Interfaces

The website will use standard internet protocols for secure data transmission. Communication with external services, such as payment gateways, will be encrypted to ensure data security.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- **Response Time:**
  - The E-commerce website should have a response time of less than 3 seconds for loading pages, including product listings, checkout, and user account pages.
- **Scalability:**
  - The system should be scalable to handle an increasing number of concurrent users during peak times, such as promotions or sales events.

5.2 Security and Privacy Requirements

- **Data Encryption:**
  - All sensitive data, including user credentials, payment information, and personal details, should be encrypted during transmission using industry-standard encryption protocols (e.g., SSL/TLS).
- **Payment Security:**
  - Payment processing must comply with Payment Card Industry Data Security Standard (PCI DSS) to ensure secure handling of credit card information.
- **User Data Protection:**
  - Implement measures to protect user data from unauthorized access. This includes robust access controls, secure storage, and regular security audits.

5.3 Usability Requirements

- **User-Friendly Interface:**
  - The website should have an intuitive and user-friendly interface to enhance the overall user experience, ensuring easy navigation and efficient interaction.
- **Mobile Responsiveness:**
  - The website should be responsive and provide a seamless user experience across various devices, including desktops, tablets, and smartphones.

5.4 Reliability Requirements

- **System Uptime:**
  - The E-commerce website should aim for a minimum of 99.9% uptime to ensure continuous availability for users.

- **Data Integrity:**
  - Implement measures to maintain the integrity of product information, order details, and user data, minimizing the risk of data corruption or loss.

5.5 Maintainability Requirements
- **Code Modularity:**
  - The codebase should be modular and well-documented to facilitate ease of maintenance and future enhancements.
- **Regular Updates:**
  - Regularly update the website to incorporate security patches, bug fixes, and feature improvements.

5.6 Interoperability Requirements
- **Integration with Third-Party Services:**
  - The website should be designed to integrate seamlessly with external services, such as payment gateways, shipping providers, and inventory management systems.
- **Cross-Browser Compatibility:**
  - Ensure compatibility with major web browsers (e.g., Chrome, Firefox, Safari, Edge) to reach a wider audience.

5.7 Scalability Requirements
- **Database Scalability:**
  - The database architecture should be scalable to accommodate a growing product catalog and increasing user data.
- **Server Scalability:**
  - Ensure that the server infrastructure can scale horizontally to handle increased traffic and demand.

5.8 Accessibility Requirements
- **WCAG Compliance:**
  - The website should comply with Web Content Accessibility Guidelines (WCAG) to ensure accessibility for users with disabilities.
- **Alternative Text:**
  - Provide alternative text for images to assist users with visual impairments.

5.9 Legal and Compliance Requirements
- **Data Protection Compliance:**
  - Adhere to relevant data protection laws and regulations, such as GDPR or local privacy laws, to protect user privacy.
- **Terms of Service and Privacy Policy:**
  - Clearly communicate and enforce terms of service and a privacy policy to users, detailing how their data will be used and protected.

6. Other Requirements

6.1 Deployment
- **Standard Hosting:**
  - Deployable on common web hosting servers.

6.2 User Interaction
- **Notifications:**
  - Email and in-app notifications for order updates.
  - User-friendly error messages.

6.3 Maintenance and Support
- **Backup and Recovery:**
  - Automated regular backups.
  - Documented recovery procedures.
- **Testing and Documentation:**
  - Cross-browser and cross-device testing.
  - Comprehensive user and technical manuals.