# Software Requirements Specification

For [Non-Functional] Ensure system scalability. Version 1.0

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## 1. Purpose Section

The primary goal of this system is to provide a robust and scalable e-commerce platform for online retail operations. This platform will enable efficient product search and discovery, secure transactions, and seamless integration with existing business systems. The business value lies in increased sales, improved customer satisfaction, and reduced operational costs through automation and efficient data management. The objective is to create a reliable and adaptable system that can accommodate future growth and evolving market demands.

## 2. Scope Section

* **Included Features:** The system encompasses product catalog management, user account management, product search and filtering, shopping cart functionality, secure checkout process, order management, reporting and analytics, integration with inventory management, payment gateway, and CRM systems, and administrative tools.
* **System Boundaries:** The system includes the web application, database, and integrated services. It excludes the physical infrastructure (servers, network) and third-party marketing platforms.
* **Excluded Features:** This version excludes advanced personalization features, AI-powered product recommendations, and support for multiple languages.

## 3. Stakeholders Section

* **Customers:** End-users who browse and purchase products. Their role is to provide feedback and use the system.
* **Administrators:** Responsible for managing the system, including product catalog, user accounts, and system configuration. Their responsibility is to maintain the system’s functionality and security.
* **Marketing Team:** Utilizes the system’s analytics and reporting features to track campaign performance and optimize marketing strategies. Their role is to drive sales and improve customer engagement.
* **Sales Team:** Uses the system to manage orders, track customer interactions, and generate sales reports. Their role is to increase sales and improve customer relationships.
* **Development Team:** Responsible for developing, testing, and maintaining the system. Their role is to ensure the system’s functionality, performance, and security.

## 4. Features Section

* **Product Search & Discovery:** Enables users to easily find products using keywords and filters.
* **User Account Management:** Allows users to register, log in, and manage their profiles.
* **Shopping Cart & Checkout:** Provides a seamless and secure checkout process.
* **Order Management:** Enables administrators to manage orders and track shipments.
* **Reporting & Analytics:** Provides insights into sales, customer behavior, and system performance.
* **Integration:** Connects with inventory management, payment gateway, and CRM systems.
* **Administrative Tools:** Provides tools for managing the system and its data.

## 5. Functional Requirements Section

* **Product Search & Discovery:**
  + [FR-01]: The system shall provide keyword-based search capabilities with auto-suggestions and spell check. [High]
  + [FR-02]: The system shall implement client-side filtering using JavaScript frameworks. [High]
* **User Account Management:**
  + [FR-03]: The system shall implement user registration, login, and access control mechanisms using a robust authentication framework like OAuth 2.0 or OIDC. [High]
* **Integration:**
  + [FR-04]: The system shall provide integration capabilities with inventory management, payment gateway, and CRM systems. [High]
* **Reporting & Analytics:**
  + [FR-05]: The system shall integrate a reporting and analytics module that allows for data collection, analysis, and visualization. [Medium]
* **Payment Processing:**
  + [FR-06]: The system shall implement a custom payment processing solution. [Medium]
* **Administration:**
  + [FR-07]: The system shall have administrative dashboard and tools. [Medium]
* **Notifications:**
  + [FR-08]: The system shall implement a notification system for users and administrators. [Low]

## 6. Non-Functional Requirements Section

* [NFR-01]: The system shall maintain an average response time for search queries under 200 milliseconds. [High]
* [NFR-02]: The system shall maintain optimal performance under high user concurrency and data volume conditions. [High]
* [NFR-03]: The design shall accommodate future scalability, feature extensions, and evolving business needs. [High]
* [NFR-04]: The system shall have a user-friendly and intuitive interface that adheres to accessibility guidelines. [High]

## 7. Security Requirements Section

* [SR-01]: The system shall implement encryption at rest and in transit using AES-256 for sensitive customer data. [High]
* [SR-02]: The system shall ensure compliance with PCI DSS and HIPAA regulations. [High]
* [SR-03]: The system shall ensure compliance with general industry standards for data security. [High]

## 8. Constraints Section

* **Technical Limitations:** The system must be compatible with existing infrastructure and technology stack. The NoSQL database (e.g., MongoDB) must be used for flexible schema and horizontal scaling.
* **Business Rules:** All transactions must adhere to established business rules for pricing, discounts, and shipping.
* **Regulatory Requirements:** The system must comply with all applicable data privacy regulations, including GDPR and CCPA.

## 9. Priorities Section (MoSCoW)

* **Must Have:**
  + Product search and filtering
  + User registration and login
  + Secure checkout process
  + Order management
  + Data encryption
  + PCI DSS and HIPAA compliance
* **Should Have:**
  + Reporting and analytics
  + Integration with inventory management, payment gateway, and CRM systems
  + Administrative dashboard and tools
* **Could Have:**
  + Notification system for users and administrators
* **Won’t Have:**
  + Advanced personalization features (for initial release)
  + AI-powered product recommendations (for initial release)
  + Multi-language support (for initial release)

## 10. Additional Section

The system should be designed with modularity in mind to facilitate future feature additions and integrations. The system should be monitored continuously for performance and security vulnerabilities. Future considerations include implementing a more sophisticated recommendation engine and expanding support for multiple languages and currencies.