

# Software Requirement Specification (SRS) for Online Ecommerce Website

## 1. Introduction

### 1.1 Purpose:

The objective of this project is to develop an E-commerce website that offers a seamless and satisfactory experience for both consumers and sellers. This initial version of the Software Requirements Specification (SRS) aims to comprehensively outline the project's scope. In today's fast-paced and hectic world, E-commerce platforms play a vital role in providing people worldwide with a convenient means to access their desired products, delivered directly to their doorstep. Therefore, it is essential for E-commerce platforms to prioritize speed, convenience, and efficiency to meet the expectations of both buyers and sellers.

### 1.2 Scope:

We describe what features are in the scope of the software and what are not in the scope of the software to be developed.

#### In Scope:

- a) Creation and management of customer and seller accounts.
- b) Sellers can list products with details like name, description, price, and quantity.
- c) Customers can search for products with filtering options.
- d) Secure methods for accepting payments for products.
- e) Customers view order history, and sellers manage product listings and orders.

#### Out of Scope:

- a) The system does not manage physical product delivery.
- b) Customer reviews and product ratings are not included.
- c) Development of mobile apps for this version is not considered.

### 1.3 Definitions, Acronyms, and Abbreviations:

#### Acronyms and Abbreviations:

- a) SRS: Software Requirements Specification
- b) UI: User Interface
- c) UX: User Experience
- d) API: Application Programming Interface
- e) SQL: Structured Query Language

### Definitions:

- a) SRS: A detailed document outlining the functional and non-functional requirements of the E-commerce website to guide its development.
- b) UI: The visual elements and layout of the E-commerce website that users interact with.
- c) UX: The overall quality of a user's interaction with the E-commerce website, encompassing ease of use, satisfaction, and accessibility.
- d) API: A set of rules and protocols that allow different software systems to communicate and interact with each other.
- e) SQL: A domain-specific language used for managing and querying databases, often used for storing and retrieving product information.

### **1.4 References:**

<https://www.behance.net/gallery/35988339/Style-guide-e-commerce-web-app>

<https://developer.android.com/design>

<https://www.projectmanagementdocs.com/template/project-documents/use-case-document/#axzz6V6AbnkX5>

### **1.5 Overview:**

This SRS outlines the scope and requirements for our E-commerce website, designed to offer a user-friendly shopping experience for customers and sellers. It emphasizes compliance with e-commerce laws and support for multiple payment gateways. Adherence to legal and regulatory requirements in the e-commerce industry is paramount, as is the website's compatibility with widely used web browsers, such as Chrome, Firefox, and Safari. To promote customer convenience and trust, the website will support multiple secure payment gateways, and robust security measures, including SSL encryption, will be implemented to safeguard user data.

## **2. Overall Description:**

### **2.1 Product Perspective:**

Our E-commerce system is a comprehensive standalone platform designed to encompass all essential features that customers anticipate when ordering products from their mobile devices or personal computers. It aims to provide a seamless and user-friendly online shopping

experience, offering a wide range of products and secure payment options. Our goal is to meet and exceed customer expectations for convenience and efficiency in the digital shopping realm.

## 2.2 Product Functions

<b>Class of Use Cases</b>	<b>Use Cases</b>	<b>Description of Use Cases</b>
<b>Customer Module</b>	Homepage	Display new products and discounts for customers.
	Product Search & Filtering	Allow customers to search, filter, and sort products.
	Favourites & Cart	Enable customers to mark products as favourites, add to cart, and place orders.
	Order Tracking	Provide customers with the ability to track the delivery status of their orders.
	Payment Options	Offer multiple payment methods, including cash on delivery, debit card, and credit card.
	Product Reviews	Allow customers to post and read product reviews.
	Notifications	Send notifications to customers about sales and discounts.
	Customer Support Portal	Provide a portal for customer support to address discrepancies and inquiries.
	Returns & Replacements	Allow customers to initiate return and replacement requests.
	Voice Recognition	Implement voice recognition for product searches.
<b>Seller Module</b>	Seller Homepage	Display information on current and past shipments for sellers.

## 2.3. User Characteristics

- a) The user should be able to perform online payment transactions

## 2.4. Principal Actors:

The two principal actors in E-Commerce online application are “user” and “system.”

## **2.5. General Constraints:**

- a) For functioning the website requires Internet connection.

## **2.6. Assumptions and Dependencies**

- We have assumed a stable internet connection during monetary transactions.
- The buyers as well as sellers have the payment partners registered with our platforms.
- We have not considered different accents for voice recognition.

## **3. Specific Requirements**

### **3.1 Functional Requirements:**

We describe the functional requirements by giving various use cases.

#### System Feature 1: Ordering a product.

##### 3.1.1 Description and Priority

Priority: High

The user is given a feature of ordering a product once the user logs in. Once they are logged in, if the product is available and the seller can ship the product in the user's location, he/she can order it.

##### 3.1.2 Stimulus/Response Sequences

The sequence of actions:

- The user logs in.
- The user searches for the products in the search bar. The system displays matching products.
- After the user has selected the product, the backend fetches the details of the product from the database and there is an option for the user to buy the product.
- When the 'Order' button is clicked, the user is asked for payment options along with a field for entering the address.
- When the order is placed, an entry is added to the database.

##### 3.1.3 Functional Requirements

REQ-1: User must be logged in.

REQ-2: The product must be available.

REQ-3: Seller must allow the product to be shipped to the user's location.

REQ-4: Payment for online methods must be successful.

## System Feature 2: Filtering and searching products.

### 3.1.1 Description and Priority

Priority: Medium

To optimize search, we implement a feature that enables customers to search for products based on criteria. It also allows the customer to sort products according to different attributes.

### 3.1.2 Stimulus/Response Sequences

Sequence of actions:

- a. User logs in.
- b. The user goes to the filter section.
- c. He/she specifies values for different attributes and/or sorts the products according to its price/number of days required to be delivered/reviews.
- d. The database is searched according to the specified filters and the resultant products are displayed.
- e.

### 4.1.3 Functional Requirements

REQ-1: User must be logged in.

REQ-2: TBD

## **3.2 Performance Requirements**

The website/app must be fast, interactive and must provide a quick response. In the case of opening applications, forms, payment handling and saving the settings or sessions there must not be a delay of more than one second. On connection to databases, sorting categories and ordering of products there should be no delays and the operation must be performed in less than 1 second for opening, sorting, computing, etc.

## **3.3 Safety Requirements**

Only authorised administrators should be able to query and change the contents of the database. The website users should be authenticated before they can use the feature exclusively for them. The usernames and passwords of users should be encrypted and

protected from unauthorised access. Data security should be maintained. If the payments get cancelled, there must be provision for credit of the amount in question to the customer.

### **3.4 Security Requirements**

HTTPS protocols are used for communication due to their secure nature.

Payment Card Industry Data Security Standard (PCI DSS) accreditation is highly recommended.

Fraud transaction detection systems can be used to combat fake transactions.

Secure sockets layer (SSL) certificates are files that link a key to transactions on different paths on a network. These certificates are associated with credit card details and transactions to regular queries. SSL certificates encrypt data to protect it from interception in between different destinations.

A CDN is used to protect the website against DDoS attacks and malevolent incoming traffic. Machine learning algorithms are to filter out malicious traffic from regular traffic.

Security plugins provide protection against bad bots, SQLi, XSS, code injections and hundreds of other severe attacks.

Automatic backup service can be used so that even if data is lost, all data will be backed up automatically. Another option is to choose a managed e-commerce web hosting service that automatically creates backups like Cloudways.

### **3.5 Hardware Requirements:**

Hardware requirements describe the physical infrastructure needed to run the E-commerce website.

Web Server:

- Processor: Dual-core CPU
- RAM: 4 GB
- Storage: 100 GB HDD

Database Server:

- Processor: Dual-core CPU
- RAM: 4 GB
- Storage: 500 GB HDD

Load Balancer:

- Dual-core CPU
- 4 GB RAM

Networking:

- 100 Mbps Ethernet connection
- Recommended Requirements:
- 1 Gbps Ethernet connection

Backup and Redundancy:

Implement regular backup mechanisms and redundancy for critical components to ensure high availability.

### **3.6 Software Requirements:**

Software requirements outline the necessary software components and technologies for the E-commerce website:

Web Server:

- Web server software (e.g., Apache, Nginx)
- Web server should support HTTP/HTTPS protocols.
- SSL/TLS certificate for secure communication.

Database System:

- Relational database management system (RDBMS) (e.g., MySQL, PostgreSQL).
- Database should support ACID transactions.
- Implement database backup and recovery mechanisms.

Programming Languages:

- Backend development: Specify the programming language (e.g., Python, Ruby, Node.js, Java).
- Frontend development: HTML, CSS, JavaScript.

Frameworks and Libraries:

- Backend Framework (e.g., Django, Ruby on Rails, Express.js).
- Frontend Framework (e.g., React, Angular, Vue.js).
- Payment gateway integration libraries.

Operating System:

- Specify the operating system for the servers (e.g., Linux distributions like Ubuntu, CentOS).

#### 4. Future extension

- Develop dedicated mobile apps for both customers and sellers to enhance accessibility and provide a more personalized experience.
- Expand the platform's reach by incorporating multi-language support to cater to a broader customer base.

### 5. Appendix

#### 5.1. Appendix A

##### TESTING

The testing of the complete workflow of your e-commerce web/mobile application consists of:

- Login and Signup options
- Search functionality for products
- Product review posting feature and being comment on those reviews.
- Sorting feature
- Applying filters for choosing the desired product(s)
- Add/remove product in the shopping cart.
- Check out process.
- Order number and invoice generation
- Payment gateway and payment processing
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Some other functionalities which can be assessed:

- Performing Security and Vulnerability Assessments

We need to conduct security testing to check for security and vulnerability issues in them. We must use testing methods like SQL Injections and ethical hacks on login, register, payment gateway, and other various pages to ensure security.

- Checking Compatibility with Web Browsers



Browser compatibility of the application must be assessed so that the customers are able to use the website without any trouble.

- Testing for Mobile Responsiveness

The responsive design must be assessed to be sure that it works on multiple screen sizes.

- Checking Compatibility with Android versions

Different Android versions must be assessed so that the app performs well on older versions too.

## **5.2. Appendix B**

### Business Rules

#### 1. Taxes.

Since every state or country has a diverse set of rules and regulations as well as tax laws, the sellers, as well as buyers, must abide by the tax laws according to their locations. There may be some specific taxes for B2B transactions. The e-commerce platform does collect the taxes for specific products from both sellers and buyers. For international sellers, there are separate taxes and customs duty as applicable according to different countries. Besides, sellers also need to show the income statement as well as other financial statements for tax purposes.

#### 2. Payment gateways.

When the users are using payment gateways, they must be sure to ask if they have any limitations around certain products, in addition to whether they are hosted or non-hosted, include anti-fraud features, or require transaction fees, termination fees, monthly fees or setup fees. The e-commerce platform uses third party payment gateways and is not responsible for any fraud occurring due to such usage.

#### 3. Trademarks, patents, and copyrights.

Any user using the platform must abide by the copyright rules including but not limited to the ones mentioned below.

Trademark: A word, phrase, symbol, and/or design that identifies and distinguishes the source of the goods of one party from those of others.

Patent: A limited duration property right relating to an invention, granted by the United States Patent and Trademark Office in exchange for public disclosure of the invention.

Copyright: Protects works of authorship, such as writings, music and works of art that have been tangibly expressed.

#### 4.Shipping restrictions.

Due to the platform covering a vast geographical area, there are some items which may be restricted in certain areas as well as the rules may allow you to ship usually restricted items, but will require some extra paperwork and fees, hence it is the seller's responsibility to identify such areas and try to restrict such activities in the specific areas. Also, we as the platform provider do not allow the sale of any restricted products and will automatically cancel the selling request sent by the seller. For the usually restricted items in any area, the item will be posted only if due paperwork for licenses and permits is done and checked by the platform as well as the local legal entities.

#### 5. Inventory.

If the seller would be holding substantial inventory, he/she should also check the lease, deed, or zoning codes to see if there are any prohibitions on running a business like the one, they are doing along with the licenses/permits and other restrictions.

#### 6. Age restrictions.

The platform is the Children's Online Privacy Protection Act (COPPA) compliant, and the sellers must be abiding by the same.

#### 7. Business insurance.

If the product carries any warranty or there is any business insurance, it should be mentioned on the platform, otherwise, the insurance/warranty related to that product/business will be treated as null on the platform. It is intended for companies that manufacture, wholesale, distribute and retail a product and may be liable for its safety.