Software Requirements Specification

for

Starkvegas Select

Version 1.0 approved

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1. Introduction

1.1 Purpose

The purpose of the Software Requirements Specifications(SRS) document is to provide a clear, documented model of requirements for an e-commerce book store. The document will provide use cases for web customers to make purchases online. The SRS document will define all software features, functional, and nonfunctional requirements related to an online bookstore, developed based on stakeholder's requirements outlined in reference[1]. The document only refers to systems of version 1.0, updates to the document will be explored if the system changes.

1.2 Document Conventions

The SRS document is composed in different sections ranging 1-5. Each section heading is bolded in Times font size 18 with numerical format that follows the format **Y. Title** where the Z represents the section number and Title represents the section title. Subsection headings are bold in Times font size fourteen with numerical format that follows the format **Y.Z Title** where Y is the section number and Z is the index of the subsection, and Title is the title of the subsection.

1.3 Intended Audience and Reading

The SRS document serves as a guide for stakeholders, users, developers, testers, and documentation writers in the process of creating an e-commerce bookstore. The audience should read all the information presented in this document, but section 2 "Overall Description" provides an overview of the functions, classes, and limits of the online bookstore. Section 3 "System Features" will provide value to documentation writers and stakeholders as it will help understanding the capabilities of the project. Developers and testers should check out sections 3,4,5 which will provide use cases, functional and nonfunctional requirements, which will help with the testing of the system.

1.4 Product Scope

Starkvegas Select, will capture the bustling and robust feeling of other online bookstores platforms The website design will implement reds, browns, and orange colors.The platform will also capture all the functionalities of other online bookstores and provide users a seamless shopping experience. On the lines of functionality ,to name a few, The website will also allow the user to see similar offers of the same book to other online retail bookstores such as Amazon, allowing them to compare prices. Starkvegas Select will only allow for users to store two payment methods on the account and also limit the user to one card upon checkout. Starkvegas Select will implement a price range feature that will allow the user to sort by price range. Moreover, it will have a feature that will allow the user to sort by genre of books. Other functionalities and constraints can be explored in section 3 and 4.

1.5   References

1. Kanduri, A., Project Topic: A E-Commerce Platform, 4 Feb. 2023,
Project Topic.pdf: CSE 4214/6214 Intro to SE Spring 2024 (msstate.edu)

2. mySQL:

https://www.mysql.com/

3. Visual Studio IDE:

https://visualstudio.microsoft.com/

4. Javascript:

https://www.javascript.com/

2.   Overall Description

2.1   Product Perspective

Starkvegas Select is a self-contained, online e-commerce platform dedicated to the purchase of novels and textbooks. It is designed to mimic successful companies in the industry like Barnes and Noble and Amazon. This product is created for the sole purpose of credit in the Intro to Software Engineering course at Mississippi State University.

2.2   Product Functions

- Consumers will be able to create a profile unique to them, including a username and password, allowing them to login and sign out of their profile
- Consumers will be able to add and remove books from their shopping cart and change the quantity of each
- Consumers will be able to search for the title of their desired book and compare them with similar literary works
- Consumers will be able to purchase their books once finished browsing
- Book sellers will be able to create their own profile as well, in addition to controlling inventory by adding and removing books from the platform
- Sellers will be able to receive payment from the consumers after checkout
- An admin figure will have their own account, overseeing the platform, adding or removing any user or product that they choose

2.3   User Classes and Characteristics

class Customer
- login information
- name and profile information

class Seller
- login information
- name and profile information

class Admin
- login information
- name and profile information

class Book
- title and author
- brief description of the text

class Store
- inventory number

2.4   Operating Environment

The software will operate on the Windows operating system and the Windows 11 version. Front end will be done in the javascript language and c++ for back end. Programming will be done on the Visual Studio IDE. The website can be utilized by any operating system and by any country.

2.5   Design and Implementation Constraints

- Time availability
- Budget
- Scope
- Variety of programming languages
- Programming experience

3.   System Features

3.1   User Registration and Authentication/ Login

3.1.1   Description and Priority

This feature allows new users to create accounts and existing users to log in securely with their unique login credentials. User Registration and Authentication is a High-priority feature as it needs to securely hold user information.

3.1.2   Stimulus/Response Sequences

Use Case: Register User

User Class: New Users

New users can use their phone number or email address to create an account. The system then must validate and store user credentials.

3.1.3   Functional Requirements

- The system will prompt the user to enter their credentials such as username, email, password, and other personal information with a user registration window.
- The system will validate the email format (e.g., user@example.com) and check to confirm the email is unique. If there is an error, the system will display an error message and prompt the user back to the registration screen to try again.
- The system will confirm the password meets strength requirements such as checking for unique characters and minimum length requirements. The system will display an error message if the requirements are not met.
- Once the user successfully registers their credentials, the user will store the credentials under a new user account.
- The system will supply a login page that prompts the user to enter their unique credentials.
- The system will check the User Class's database to confirm a login. If no user is found that matches what the user typed, the system will display an error message.

Following a successful account registration and login, the user will be directed to their Home page

3.2   Account Management

3.2.1   Description and Priority
Users can customize account credentials such as password resetting, edit payment, edit shipping, etc.

3.2.2   Stimulus/ Response Sequences

Use Case: Profile Management
User Class: Registered Users

Users can change the credentials linked to their account including payment and shipping information, password resetting, and phone number, for example.

3.2.3   Functional Requirements
- Registered users shall have the ability to edit their profile information with the system.
- The system shall provide a user-friendly interface for users to update details such as name, address, and contact information.
- The system shall use two-factor authentication for password changes, such as prompting the user for their email and phone number to allow password changes.
- Users shall be able to view order history through the system on the account management page.
- Users shall be able to change their status to seller if they meet site requirements.

3.3   Cart and Purchasing

3.3.1   Description and Priority
Users will have a cart in which they can save items to purchase multiple items at once including at a later date.

3.3.2   Stimulus/ Response Sequence

Use Case: Shopping Cart
User Class: Registered Users

Users can add and remove books and products to and from their cart to bulk purchase at any time while supplies last.

3.3.3   Functional Requirements
- Users can view the contents of their shopping cart before proceeding to checkout
- The system shall allow users to modify the quantity of items or remove products from the cart.
- The system shall show the user payment and address confirmation before proceeding to checkout.
- The system shall edit the stock of each item as they are purchased.

3.4   Seller Account

3.4.1   Description and Priority
Qualifying users may use the system to sell items as well as continue their standard customer actions such as purchasing items.

3.4.2   Stimulus/ Response Sequence

Use Case: Sell Item and Customize Listing
User Class: Registered Sellers

Users can post an item to sell as well as edit components about the listing such as price, stock, quality, etc.

3.4.3   Functional Requirements
- The system shall allow qualifying users to unlock "seller" features on their accounts.
- Sellers can publish listings of items with the system storing information such as price, stock, quality, etc.
- The system shall allow Sellers to edit information about their listing.
- The system shall allow Sellers to choose to return to a standard user.
- The system shall be able to remove items from the eCommerce site from a seller who is no longer registered.

3.5   Logging Out / Timing Out and Deleting Account

3.5.1   Description and Priority
Users will be able to log out after using the system, or automatically after some time of inactivity. Users will be able to also select Delete Account, which will then prompt the user through confirmations as the system securely removes all linked data to that user.

3.5.2   Stimulus/ Response Sequence

Use Case: Log Out and Delete Account
User Class: Registered Users

3.5.3   Functional Requirements
- The system shall log users out once a user is done using the service.
- The system shall log users out during periods of inactivity.
- Users shall have the option to delete their accounts from the system.
- The system shall prompt users to confirm their decision before permanently deleting their account.
- The system shall specify a data retention policy for deleted accounts, and ensure the secure and permanent removal of user data after a defined period.
- Upon deletion, the system shall send a confirmation email to the user, notifying them about the successful removal of their account.

4. Other Nonfunctional Requirements

4.1 Performance Requirements

For our e-commerce website, we are considering these in terms of improving performance to ensure a smooth and efficient user experience: Page Load Time and Search Response Time: All web pages and product searches should have a load time within 3 seconds on standard broadband connection. This is to ensure that we do not lose customers due to slow loading times. We plan to implement a server-side caching technique to store frequently accessed data in the memory to reduce the load on the database. Also, we want to minimize HTTP requests by consolidating files, using CSS sprites and minimizing the use of scripts and plugins.

4.2 Safety Requirements

Our e-commerce platform is developed with a focus on a select user base, thus minimizing extensive security and safety concerns. User IDs and passwords are strictly confidential and inaccessible to other users. Unauthorized access to any account is effectively prevented through robust authentication mechanisms. All sensitive credentials are securely stored in a dedicated database, with access strictly limited to administrators only. Our platform leverages Amazon Web Services (AWS) for cloud infrastructure, benefiting from AWS's comprehensive security best practices to safeguard all data stored in the cloud. Consequently, the safety and security of our platform are closely aligned with, but not exclusively dependent on, the robust security and safety standards upheld by AWS.

4.3 Security Requirements

Our e-commerce platform prioritizes robust security measures to safeguard user data and ensure a secure shopping experience. We have implemented stringent data protection protocols, including advanced encryption methods, to protect sensitive user information and transaction details. In terms of user authentication, our system requires users to log in to access or post information. This process is streamlined to avoid repeated authentication for users within the same valid session on a recognized device, enhancing user convenience while maintaining security integrity. Furthermore, our platform employs a sophisticated intrusion detection and prevention system. This system actively monitors for and mitigates potential security breaches, ensuring a secure environment for all users. These measures collectively ensure that while users enjoy a seamless and efficient experience on our platform, their data and interactions are comprehensively protected against evolving security threats.

4.4 Software Quality Attributes

In terms of usability, we have meticulously developed an interface that is both easy to understand and navigate. This user-friendly design promotes the application's usage, ensuring that customers can enjoy the full range of services without facing a steep learning curve or encountering complexities in operation. Furthermore, we have optimized the platform's performance to provide a seamless and efficient shopping experience, even under high traffic conditions. This includes rapid page loads and quick response times for customer interactions and transactions. Scalability is also a key attribute of our platform; it is engineered to efficiently handle a growing number of users and increased data volumes, ensuring that the platform remains responsive and reliable as our customer base expands.

5. Other Requirements

Functional Requirements:
- The bookstore is intended for a global audience, for consumers outside of the United States of America , they will only be able to purchase books digitally. For our US consumers we can implement features into the system that take into consideration the user's location. For our global audience we would have to incorporate multiple languages into our system.
- Consumers and sellers should be able to view their order history, providing details such as order status, items purchased, and transaction timestamps.
- We will promote inclusivity and usability for consumers with various disabilities, including but not limited to visual, auditory, motor, and cognitive impairments.
  - For users with visual disabilities we can include features such as adjustable font sizes, high color contrast, and resizable interface elements.
- Consumers will be able to search based on price, reviews, ratings, seller, availability etc.

Nonfunctional Requirements:
- We will specify any constraints related to integrating third-party services Ensure that the chosen third-party services align with the project's goals and security standards.
- Regular automated backups and updates of the database to prevent data loss.
- Ensured compliance with any data regulations in relation to the government and other third parties.
- Starkvegas Select should be able to support the latest version of the following web browsers: Google Chrome, Mozilla Firefox and Apple Safari.
- Consumers will be able to search based on price, reviews, ratings, seller, availability etc.

Appendix A: Glossary

- SRS - System Requirements and Specifications: A document that outlines all of the system features, classes, functional / nonfunctional requirements and any other subjects related to the development of the software.
- REQ - Requirement
- AWS - Amazon Web Services
- CSS - Cascading style sheets
- HTTP - Hypertext Transfer Protocol
- C++ - High level programming
- Javascript - High level programming