Software Requirements Specification

for

E-commerce Group Project

Version 1.0 approved

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Group 6

8 February 2026

1.   Introduction

1.1   Purpose

The Somethingsomething E-Commerce Platform is an e-commerce platform designed to provide customers with an online consumer shopping experience. This document is designed to be digestible to the client in terms of what technical specifications, requirements, scope, and the design of the Somethingsomething E-Commerce Platform are outlined.

1.2   Document Conventions

This document uses a black Arial font. Top-level section headings are typed in a bold 18pt size and are numbered sequentially (1, 2, 3, etc.). Lower-level sections are typed in a 14pt bold size, and are numbered through decimal points that reflect their placement below a specific top-level section (i.e., sections under 1 are numbered "1.1, 1.2, 1.3" etc.).

Descriptions under designated features in Section 3 are specifically written in an italicized 11pt black Arial font. Priority labels are written in a 12pt italicized black Arial font. Stimulus/response-sequences are displayed in a 12pt blue Arial font. Glossary words are written in a bold 12pt black Arial font. Information is otherwise typically conveyed through a black 12pt Arial font.

Page numbers are specified in a courier 10pt black font.

1.3   Intended Audience and Reading

The intended audience of the Somethingsomething E-Commerce Platform SRS document is the platform's administrators and maintenance developers, along with invested shareholders and supervisorial interests.

1.4   Product Scope

The Somethingsomething E-Commerce Platform is an e-commerce platform intended to enable users to register accounts for engaging in buying and selling transactions from and to other users.

1.5   References

- Svelte
    - https://svelte.dev/

- MariaDB
    https://mariadb.org/
- Prisma
    https://www.prisma.io/
- ExpressJS
    https://expressjs.com/

2.   Overall Description

2.1   Product Perspective

The E-Commerce Platform is a new and self-contained product that does not exist within any other pre-existing product line. It is a web application that will facilitate transactions between seller users and buyer users.

2.2   Product Functions

- The user must be able to log into the application using username and password credentials.
- The platform must support the self-assignment of buyer and seller roles, and the delegation of the administrator role.
- Allow administrators to moderate the platform to ensure terms of service and legal compliance.
- The user will be able to browse the platform for products
- The product must be able to store username and password credentials in a relational database.

2.3   User Classes and Characteristics

Three user types are expected to use the application: buyers, sellers, and administrators.
- Buyers are users who will use the application to search for and purchase products.
- Sellers are users who will submit products to the application for sale.
- Administrators are users who will review and approve new users and new products on the web service.

2.4   Operating Environment

The software will operate as a web application and will be compatible with any operating system the user uses, provided he/she has a web browser to access the website hosting the software. The software will operate most optimally for Firefox and Chromium-based browsers.

2.5   Design and Implementation Constraints

2.6   Design:
- Frontend: SvelteJS

- Backend: ExpressJS, Prisma, MariaDB

2.7   Constraints:
- HB1126 (Walker Montgomery Protecting Children Online Act) and similar age and identity-verification laws in various jurisdictions could affect platform availability or feature implementation.
- The platform will be optimized primarily for Firefox and Chromium-based browsers, as these constitute the vast majority of used-browsers and further attempts to increase browser accessibility would yield diminishing returns.
- The platform will primarily target an English-speaking audience and only support English due to a current lack of human resources and capital to moderate non-English content.

3.   System Features

3.1   Account Registration

The system provides a way for new users to create an account via submitting required registration information. The system validates the information, ensures the lack of duplicate accounts, and confirms successful registration.

3.1.1   Description and Priority
High priority: 9 (Essential)
The ability to create a new account and designate its type. This is required for the application to be usable.

3.1.2   Stimulus/Response Sequences

[system validates → system displays/creates/updates]

3.1.3   Functional Requirements

REQ: The system shall allow a guest user to submit a registration request containing a unique username and password.
REQ: The system shall send and display to the user an error message that indicates the username credential is invalid if the provided username credential is already registered.
REQ: The system will send and display to the user an error message upon the entry of credentials that do not meet platform-defined format specifications (see 4.3.4)
REQ: The system shall create a new user account with the selected role upon successful registration.
REQ: The system shall display a confirmation message upon successful registration.

3.2   User Authentication

3.2.1   Description and Priority

High priority: 9 (Essential)

The process for registered users to securely log in and gain access to their personalized account features. This enables registered users to access the system as non-guest users.

3.2.2   Stimulus/Response Sequences

[system validates → system displays/creates/updates]

3.2.3   Functional Requirements

REQ: The system shall allow registered users to log in using correct credentials

REQ: The system shall display an error message if the user enters incorrect login credentials

REQ: The system shall deny authentication when invalid credentials are provided

REQ: The system shall redirect the user to the home page upon successful login.

3.3   Home Page Display

3.3.1   Description and Priority

High priority: 9 (Essential)

The platform will provide a usable, visual interface that provides the user with immediate access to key features of the system (such as Account Management, Order Tracking, and Order History). This system's usability is contingent on the home page display feature.

3.3.2   Stimulus/Response Sequences

[system validates → system displays/creates/updates]

[user selects search index entry area → system receives request; indicates search area is selected and awaiting input]

[user inputs data in search entry → system accepts input; retrieves database entries; creates a list of results; displays the resultant list]

[user selects link to alternate page → system receives request; retrieves alternate page data; loads alternate page data; displays alternate page]

[user selects home page icon → system receives request; retrieves home page data; loads home page; displays home page]

3.3.3   Functional Requirements

REQ: The system shall accept user input for option selection and textbox entries

REQ: The system shall display categories for the user to select for filtered searching

REQ: The system shall display context specific options for logged in accounts, such as creating a new product listing, viewing cart list, viewing banned accounts listing, etc

3.4   Product Search

3.4.1   Description and Priority
High Priority: 9 (Essential)
Unique account object which provides a user with the ability to browse product listings and consider them for purchase.

3.4.2   Stimulus/Response Sequences

[system validates → system displays/creates/updates]

3.4.3   Functional Requirements

REQ: The system shall allow users to search for products by entering keywords into a search bar.

REQ: The system shall provide filters to narrow search results by product category.

REQ: The system shall provide filters to narrow search results by price range.

3.5   Product Viewing

3.5.1   Description and Priority
High Priority: 9 (Essential)
Unique account object which provides a user with ability to browse product listings and consider them for purchase.

3.5.2   Stimulus/Response Sequences

[system validates → system displays/creates/updates]

3.5.3   Functional Requirements

REQ: The system shall display the price of the product.

REQ: The system shall display the product description and specifications.

REQ: The system shall display one or more images associated with the product.

3.6   Cart/Checkout

3.6.1   Description and Priority
High Priority: 9 (Essential)
Unique account object which provides a user with ability to browse product listings and consider them for purchase.

3.6.2   Stimulus/Response Sequences

[system validates → system displays/creates/updates]

[user requests to view cart → system receives request; retrieves cart list; displays products in list]

[user requests product removal from cart → system receives request; removes product from cart list; updates displayed products]

[user requests to add product to cart → system receives request; creates product entry; adds entry to cart list; updates displayed products]

[user requests to continue with cart to checkout → system receives request; retrieves individual product cost for each in cart; sums costs; applies relevant extra costs; displays total]

3.6.3   Functional Requirements

REQ: The system shall allow buyers to view the products stored in their cart.
REQ: The system shall allow buyers to remove products from their cart.
REQ: The system shall allow buyers to add products to their cart.
REQ: The system shall allow buyers to initiate a purchase transaction for available products.
REQ: The system shall allow buyers to review order details before confirming their purchase.
REQ: The system shall prevent users from adding out-of-stock products to their cart.

3.7   Seller Inventory Management

3.7.1   Description and Priority
High Priority: 9 (Essential)
The system provides a way for sellers to update product listings and stock level information. This feature allows sellers to maintain accurate inventory for items offered on the platform.

3.7.2   Stimulus/Response Sequences

[system validates → system displays/creates/updates]

[seller requests to view inventory → system receives request; retrieves seller inventory list; displays products in list]

[seller requests to remove product from account inventory → system receives request; removes product from seller inventory list; updates displayed products]

[seller requests to add product to account inventory → system receives request; creates product entry; adds entry to seller inventory; updates displayed products]

3.7.3   Functional Requirements

REQ: The system shall allow sellers to view their inventory.
REQ: The system shall allow sellers to remove products from their inventory.
REQ: The system shall allow sellers to add products to their inventory.
REQ: The system shall allow sellers to create product listings.
REQ: The system shall allow sellers to delete product listings.
REQ: The system shall allow sellers to edit product listings.
REQ: The system shall allow sellers to update product stock.
REQ: The system shall automatically update seller inventory upon a buyer purchasing their stock.
REQ: The system shall not allow sellers to add negative amounts of product.
REQ: The system shall not allow sellers to remove more product than what is currently available in inventory.
REQ: The system shall not allow sellers to create empty listings.

3.8   Order Tracking

3.8.1   Description and Priority
Mid Priority: 5 (Useful)
The system allows the buyer to track active orders and their status.

3.8.2   Stimulus/Response Sequences

[system validates → system displays/creates/updates]

[buyer requests to view ongoing orders → system receives request; retrieves page data; loads page; displays page]

[buyer selects ongoing order to view → system receives request; retrieves order details data; loads details page; displays details page]

3.8.3   Functional Requirements

REQ: The system shall allow users to view orders that are ongoing.
REQ: The system shall display the current status of an ongoing order.
REQ: The system shall allow buyers to view tracking info for orders being delivered / in transit.
REQ: The system shall update order status as it progresses.

REQ: The system shall automatically send orders marked as completed to order history.

3.9   Order History

3.9.1   Description and Priority
Mid Priority: 5 (Useful)
The system provides the buyer a means to view records of previously-conducted orders.

3.9.2   Stimulus/Response Sequences

[system validates → system displays/creates/updates]

3.9.3   Functional Requirements

REQ: The system shall maintain a record of completed orders.
REQ: The system shall allow buyers to view their completed purchases in reverse-chronological order.
REQ: The system shall display the product name, the product thumbnail image, and the seller username with each purchase.
REQ: The system shall provide the user with a "reorder" action for each product that adds the product to the buyer's cart.

3.10 Buyer Account Management

3.2.1   Description and Priority
High Priority: 8 (Essential)
Page that acts as a personal hub of useful information for buyer users

3.1.2   Stimulus/Response Sequences

[buyer selects valid file from device → system checks file extension for .png or .jpg; system checks file size is under limit; system saves file to server's image directory]

[buyer selects file of an invalid format → system checks file extension for .png or .jpg; system displays error message: "Invalid file type, upload .png or .jpg"]

[buyer selects file exceeding file size limit → system checks file extension for .png or .jpg; system checks file size is under limit, system displays error message: "File exceeds maximum size"]

[buyer submits completed payment credentials form → system validates payment format; system generates unique payment token id and stores in database table]

3.1.3   Functional Requirements

REQ: The system shall enable the buyer to provide shipping address details, including name, street address, city, state/region, postal number/zip, and country.

REQ: The system shall allow the buyer to update their profile picture through uploading a .png or .jpg file.

REQ: The system shall allow the buyer to input and save credit/payment card or bank details.

3.11 Seller Account Management

3.2.1 Description and Priority
High Priority : 8 (Essential)
The system will allow seller accounts to display their products on their own page that is accessible to all buyer accounts

3.1.2   Stimulus/Response Sequences

[system validates → system displays/creates/updates]

3.1.3   Functional Requirements

REQ: The system shall allow sellers to update their profile image through uploading a .jpg or .png image.

REQ: The system shall allow sellers to update their store text description.

REQ: The system shall allow sellers to update their profile name through a text field.

REQ: The system shall allow the seller to input and update their contact information

3.12 Administration

3.2.1 Description and Priority
High Priority: 9 (Essential)
The system will allow administrator accounts to ban seller and buyer accounts. This will ensure the platform is adequately moderated and that fraudulent or illegal behaviors are discouraged.

3.1.2   Stimulus/Response Sequences

[system validates → system displays/creates/updates]

3.1.3   Functional Requirements

REQ: The system shall provide an administrative panel that allows to update the status of a user account between banned and active.

REQ: The system shall hide all product listings from seller accounts with ban status.

REQ: The system shall display a notification of the registered account's banned status upon an attempt at authentication.
REQ: The system shall provide a filter to view users by banned or active status.
REQ: The system shall deny authentication to buyer users with ban status.

4. Other Nonfunctional Requirements

4.1 Performance Requirements

4.1.1   The system shall support multiple users at once without significant performance decline
4.1.2   The system shall load pages within two seconds.
4.1.3   The system shall return search results within less than a second.
4.1.4   The system shall limit image uploads to a maximum of 2MB to optimize storage and load times.

4.2 Safety Requirements

4.2.1   The system shall prevent unintentional loss of user data
4.2.2   The system shall provide system failure recovery mechanisms
4.2.3   The system shall ensure that transactions are reliably processed

4.3 Security Requirements

4.3.1   The system shall require authentication for user account access
4.3.2   The system shall verify user credentials before granting access to administrative features
4.3.3   The system shall only collect and store personally identifiable information (PII) that is necessary for the legitimate commercial operations of the platform
4.3.4   The system shall enforce a password policy requiring a minimum of 8 characters, including a mix of uppercase letters, lowercase letters, numbers, and symbols.
4.3.5   The system shall only allow the uploading of specific image file types

4.4 Software Quality Attributes

4.4.1   The system shall provide a user-friendly interface
4.4.2   The system shall be maintainable to support future updates
4.4.3   The system shall be scalable to accommodate growth
4.4.4   The system shall be designed to support high uptime

5.   Other Requirements

5.1   The system shall verify the inventory level of products within less than a second

Appendix A: Glossary

- **Actor** - a person interacting with the software application.
- **User** - actor with credentials and an account
- **Buyer**- user with the buyer role
- **Seller**- user with the seller role
- **Admin** - user with the administrator role.

Appendix B: Analysis Models

<Optionally, include any pertinent analysis models, such as data flow diagrams, class diagrams, state-transition diagrams, or entity-relationship diagrams.>

Appendix C: To Be Determined List

   1.
<Collect a numbered list of the TBD (to be determined) references that remain in the SRS so they can be tracked to closure.>