***Software Engineering***

***Software Requirements Specification***

***(SRS) Document***

**Spartan Sellers Campus Marketplace Application**

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Version 0.1

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1. **Introduction**
   1. Purpose

The goal of the Spartan Sellers Campus Marketplace Application is to enable UNCG students to advertise used academic and housing items to other university students and faculty, in order to reduce the hassle of finding affordable housing materials each year.

* 1. Document Conventions

The purpose of this Software Requirements Specifications document is to detail the needs for the user and developer sides of the Spartan Sellers Campus Marketplace Application. The developer side requirements are the necessary functions, methodologies, and systems that need to be installed, edited, and maintained in order to build the back-end functionality of the application. The user-side requirements detail the data visibility, user interaction, user experience, and user views that need to be available and functional for our users. These requirements outline the necessary tasks that need to be accomplished by our software application, and from these we will derive the process by which these tasks are to be built.

* 1. Definitions, Acronyms, and Abbreviations

|  |  |
| --- | --- |
| HTML | Hyper Text Markup Language. This is the code that will structure and design the content of our website. |
| CSS | Cascading Style Sheets. This code creates the visual styling of the website. |
| JavaScript | A programming language that we will use to build the front-end behavior and some backend functionality as well. |
| Node.JS | A programming language that builds on JavaScript to program back-end functionality for web applications, |
| PostgreSQL/SQL | An open-source relational database. |
| Heroku | A cloud platform that will host our server and provide additional database functionality. |
| Visual Studio Code | A multi-platform IDE in which we will do our development work. |
| API | Application Programming Interface. This will be used to retrieve Google Maps information about where on campus a user is listing an item. |
| Git/GitHub | A version control system that we will use to collaborate on this project efficiently. |

* 1. Intended Audience
  2. Project Scope
  3. Technology Challenges
  4. References

1. **General Description**
   1. Product Features

The SpartanSellers Campus Marketplace Application is an application that allows UNCG campus students to easily browse used dorm and school supplies from other students. In addition, SpartanSellers allows buyers to leave reviews for sellers, making sure that students who are frequent users of the application throughout their time at university are held accountable to maintain a professional demeanor when selling their used items. Sellers are able to list items for sale on the site. Sellers are also able to view historic pricing by category for items they post, allowing them to be more informed when pricing their items. In addition, sellers must be approved by the admins before listing their items, and admins must approve each listing before it is live to the site.

* 1. User Class and Characteristics

Our website application is designed specifically for UNCG students attending the university in person. The website content will not be available to non-account holding UNCG students in order to best preserve the safety of an online student platform. Users will need to have prior knowledge of using a web browser, and be familiar with navigating the basic menu options of a typical website.

* 1. Operating Environment

This software application is designed to operate on the internet across a variety of online compatible platforms.

* 1. Constraints
  2. Assumptions and Dependencies

The application will be dependent on Heroku for server hosting and database functionality. In addition, the application will be dependent on the Google Maps API to display the location of a listing on the product details page.

1. **Functional Requirements**
   1. Primary

FR0: The system enables users to login as either a regular user or as an Administrator, where they will be taken to a corresponding main menu page.

FR1: The system enables regular users to browse listed items by category.

FR2: The system enables regular users to search for items by keyword.

FR3: The system enables regular users to list items for sale.

FR4: The system enables regular users to view historic pricing data by category.

FR5: The system enables users to view their profile information.

FR6: The system enables users to update their email and password.

FR7: The system enables users to update their profile information.

FR8: The system enables admin users to view listing waiting to be approved.

FR9: The system enables admin users to approve/not approve listings.

FR10: The system enables admin users to view a list of users that are registered with the application.

FR11: The system enables admin users to remove users from the system entirely.

FR12: The system enables new users with a UNCG email to register with the site in a secure account.

* 1. Secondary
* Login protection so that passwords are stored securely and are not visible to administrators or regular users.
* Protection to prevent other uses from viewing what items a certain seller has listed or has purchased.
  1. Use-Case Model
     1. Use-Case Model Diagram

A diagram of a person with text

Description automatically generated

* + 1. Use-Case Model Descriptions
       1. **Actor: Buyer (Alli)**
* **Search for/Browse Items:** The buyer can search for items by keyword, and look through lists of items for sale.
* **Post Seller Reviews:** The Buyer can post reviews on the sellers they interact with, creating accountability between buyers and sellers to create a safe interactive online space.
* **Login:** All users must login to the application with a unique UNCG email address and password in order to view and manipulate the website’s content.
  + - 1. **Actor: Seller (Meghan)**
* **Post Listings**: Sellers are able to post listings to the platform, visible to buyers to search for and browse.
* **View Historic Pricing Information:** Sellers are able to view historic pricing information by item category, allowing them to better price their own item to the area’s standards.
* **Login:** All users must login to the application with a unique UNCG email address and password in order to view and manipulate the website’s content.
  + - 1. **Actor: Administrator (Carrissa)**
* **Approve Sellers:** Administrators must approve sellers when they initially try to register as a “Seller” on the application.
* **Approve/Remove Listings:** Administrators must approve listings against a set of university approved criteria in order for a listing to be shown as content on the site.
* **Login:** All users must login to the application with a unique UNCG email address and password in order to view and manipulate the website’s content.
  + 1. Use-Case Model Scenarios
       1. **Actor: Buyer (Alli)**

**- Use-Case Name:** Search for/Browse Items

* + - **Initial Assumption:** The Buyer has access to the website (has successfully logged in) and is in the buyer role.
    - **Normal:** The buyer will enter item keyword(s) into the search bar, and hit enter. Or the buyer will select a category to view all available items in that category.
    - **What Can Go Wrong:** The buyer enters invalid keywords that do not match any items listed, thus returning no items.
    - **Other Activities:**
    - **System State on Completion**: The application delivers an interactive list of all matching available items, and/or the user is able to browse a master list of available items by category.

**-** **Use-Case Name:** Post Seller Reviews

* + - **Initial Assumption:** The Buyer has access to the website (has successfully logged in) and is in the buyer role.
    - **Normal:** The buyer will navigate to the seller’s profile and select the option to write a review. They will type their review and post it to the list of reviews.
    - **What Can Go Wrong:**
    - **Other Activities:**
    - **System State on Completion**: The application successfully posts the review to the seller’s profile.

**-** **Use Case Name:** Login

* + - **Initial Assumption:** The user has access to the website via the internet.
    - **Normal:** The user will navigate to the login page, enter their UNCG email and password, and hit log in.
    - **What Can Go Wrong:** The user enters an email or password that is not recognized by the system; thus the system responds with an error message to indicate that the user must re-enter the correct UNCG email and password combination.
    - **Other Activities:** A new user may also choose to register as a new user, where they must enter required fields, those fields must be validated, and a new user id will be created for them.
    - **System State on Completion**: The application successfully validates the login of the user, and they are brought to the main menu of the application.
      1. **Actor: Seller (Meghan)**

**- Use-Case Name:** List Item for Sale

* + - **Initial Assumption:** The Seller has access to the website (has successfully logged in) and is in the seller role.
    - **Normal:** The Seller will navigate to the page to list an item, they will enter the necessary information into the fields, and submit their item for approval.
    - **What Can Go Wrong:** The seller enters invalid information into the fields, thus the system returns an error message requesting the seller to re-enter the correct information.
    - **Other Activities:**
    - **System State on Completion**: The data entered is successfully validated, an item id is created for the item, and the item will be submitted to the admin user for approval, where it will be either approved and listed on the site, or not approved and removed from the system. The seller will receive a message on the status of the approval process once completed.

**-** **Use-Case Name:** View Historic Pricing Information

* + - **Initial Assumption:** The Seller has access to the website (has successfully logged in) and is in the Seller role.
    - **Normal:** The Seller will navigate to the page for viewing historic pricing information. They will select a category from a list, and then view in read-only-mode the average price, median price, and range of prices for items in this category.
    - **What Can Go Wrong:** The seller selects a category in which no items have been listed yet, thus displaying no data.
    - **Other Activities:**
    - **System State on Completion**: The application successfully loads the data, and it is displayed to the user for them to view.

**-** **Use Case Name:** Login

* + - **Initial Assumption:** The user has access to the website via the internet.
    - **Normal:** The user will navigate to the login page, enter their UNCG email and password, and hit log in.
    - **What Can Go Wrong:** The user enters an email or password that is not recognized by the system; thus, the system responds with an error message to indicate that the user must re-enter the correct UNCG email and password combination.
    - **Other Activities:** A new user may also choose to register as a new user, where they must enter required fields, those fields must be validated, and a new user id will be created for them.
    - **System State on Completion**: The application successfully validates the login of the user, and they are brought to the main menu of the application.
      1. **Actor: Administrator (Carrissa)**

**- Use-Case Name:** Approve Sellers

* + - **Initial Assumption:** The Admin has access to the website (has successfully logged in) and is in the admin role.
    - **Normal:** The admin will navigate to the page displaying the list of sellers waiting to be approved. They will view the profile and select either approve or not approve the seller.
    - **What Can Go Wrong:**
    - **Other Activities:**
    - **System State on Completion**: The application records the seller as either approved or not approved. If the seller is approved its profile is added and the UNCG email and corresponding password are registered for use. If the seller is not approved, they receive a message, and their information is scrapped from the system.

**-** **Use-Case Name:** Approve Listings

* + - **Initial Assumption:** The Admin has access to the website (has successfully logged in) and is in the admin role.
    - **Normal:** The Admin will navigate to the page listing all of the items waiting to be approved. For any one item, they will view its info, and select either approve or not approve.
    - **What Can Go Wrong:**
    - **Other Activities:**
    - **System State on Completion**: The application records the item as either approved or not approved. If the item is approved its profile is created on the sire under its appropriate category. If the item is not approved, they seller receives a message, and the item information is scrapped from the system.

**-** **Use Case Name:** Login

* + - **Initial Assumption:** The user has access to the website via the internet.
    - **Normal:** The user will navigate to the login page, enter their admin email and password, and hit log in.
    - **What Can Go Wrong:** The user navigates to the admin login portal, enters an email or password that is not recognized by the system; thus the system responds with an error message to indicate that the user must re-enter the correct UNCG email and password combination.
    - **Other Activities:**
    - **System State on Completion**: The application successfully validates the login of the user, and they are brought to the main menu of the application.

1. **Technical Requirements**
   1. Interface Requirement
      1. User Interfaces
      2. Hardware Interfaces

This software application will run on any hardware device that is able to connect to the internet and display a webpage on a screen, including but not limited to PCs, mobile phones, and tablets.

* + 1. Communication Interfaces

The application must be able to connect to the internet via the Heroku server, in addition to the PostgreSQL relational database hosted by Heroku. The application must also be able to connect to the Google Maps API to display the location of an item listing.

* + 1. Software Interfaces

We will use HTML, CSS, and JavaScript to design the front-end, a Heroku hosted database with PostgreSQL for the database, and JavaScript with Node.js for the backend functionality. We wil use Heroku to host our server and make our software application available for users to find on the internet.

1. **Non-Functional Requirements**
   1. Performance Requirements
   2. Safety Requirements

(turn into NFRx: list)

Listings must be able to be approved by admins to prevent any inappropriate language or photos from being posted to the site.

Users must be able to be removed by admins if deemed necessary.

* 1. Security Requirements

(turn into NFRx: list)

The system will only be accessible to registered users and a single administrator.

* 1. Software Quality Attributes
     1. Availability

The software application should allow FR1-4 to be available to users registered as regular users. The software application should allow FR8-11 to be available to the administrative user. The software application should allow FR1-12 to be available to all users.

* + 1. Correctness
    2. Maintainability
    3. Reusability
    4. Portability
  1. Process Requirements
     1. Development Process Used

Waterfall Model

* + 1. Time Constraints

This project will be completed by the end of the semester, Spring 2024.

* + 1. Cost and Delivery Date

The cost of the project should be $0. However, depending on the needs of the project minimal cost (<$100) might need to be spent to host the website and database to the Heroku server.

* 1. Other Requirements