**Software Requirements Specification**

**for**

**Group 5 Online Book Exchange**

**Version 3.0 approved**

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# Revision History

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| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
| First Draft | 4/27/2022 | First Draft of the Document | 1.0 |
| Second Draft | 5/4/2022 | Second Draft of the Document | 2.0 |
| Final project | 5/11/22 | Final Draft of the document | 3.0 |
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# 1. Introduction

## 

## 1.1 Purpose

The purpose of this document is to:

* Identify the requirements for Group 5 Online Book Exchange (Version 3.0) which will cover all aspects of the software;
* Provide the reader with enough information to understand the purpose of the project, how the user is intended to interact with the application, how the administrators will interact with the application, and how the application will interact with external services.
* Describe concepts that will help clarify the operations for Group 5 Online Book Exchange (V3).
* Provide necessary requirements for the completion and operation of the product.

## 1.2 Intended Audience and Reading Suggestions

This document is intended for developers, users, and computer science instructors or students at Cal State LA University. The following are suggested readings intended for various readers:

* Developers - Understand the requirements of the product and how to implement the requirements; Recommended Reading: Section(s) 2 through 5
* Instructors - Understand the purpose and requirements of the product to guarantee the proper function, implementation, and development requirements were met; Recommended Reading: Section(s) 1 through 5
* Students - Guarantee that the product meets the basic needs; Recommended Reading: Section(s) 1 through 2

## 1.3 Product Scope

Group 5 Online Book Exchange (Version 3.0) is a web application designed to perform as an online book exchange. The software allows users to interact with an online catalog of books that are added by the users and intended for sale. Users of Group 5 Online Book Exchange (V3) will be able to post books for sale, browse or search through the growing catalog of books, comment on posted books, and add books to their online shopping cart. This software will

provide the functionality of a physical book exchange while benefiting from the global outreach and scalability of a web application. As the publicity of the Group 5 Online Book Exchange increases, the user-posted catalog of books will grow in size and expand the target market to fit a wide diversity of users.

## 1.4 Definitions, Acronyms, and Abbreviations

**See Appendix A - Glossary**

## 1.5 References

* sBootstrap documentation - [Introduction · Bootstrap v5.1 (getbootstrap.com)](https://getbootstrap.com/docs/5.1/getting-started/introduction/)
* Django web framework documentation - [Django documentation | Django documentation | Django (djangoproject.com)](https://docs.djangoproject.com/en/4.0/)
* Django instruction on queries - [Making queries | Django documentation | Django (djangoproject.com)](https://docs.djangoproject.com/en/3.2/topics/db/queries/)

# 2. Overall Description

## 2.1 System Analysis

Book Exchange is designed to solve the communication gap between buyers and sellers by giving them more ways to interact with one another. Users will be able to search for a desired book even if they do not know the full title of the book by searching parts and therefore streamlining the process.

Some complications include, Giving a software that is reliable, easy to use, and flexible enough for scalability as needed, all while giving users the ability to easily navigate the site and find what they need. Sellers will also need to easily post their books onto the site. Some solutions include the use of bootstrap and django framework to both design sites well enough to navigate and function properly. Messages and comments to give feedback for each book and requiring an account to do so.

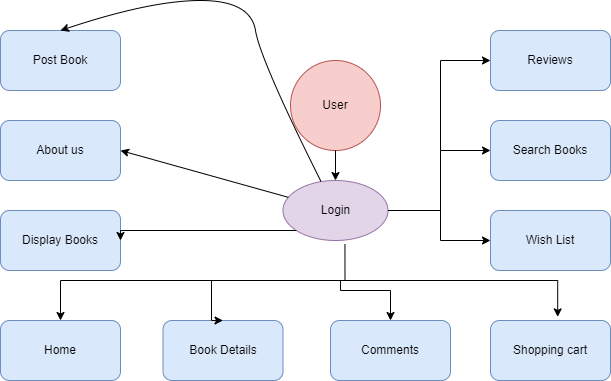
## 2.2 Product Perspective

This software relies on everything mentioned in glossary appendix A.

The software/Systems is very similar to most online book stores in the market today but most closely relates to Amazon.

* Similarities
  + Users may comment and or review books
  + Users of the site may sell their books
  + Searching for books and wishlist
* Differences
  + Buyers and sellers can better communicate more personally

## 2.3 Product Functions



## 2.4 User Classes and Characteristics

Admins: Have the highest level access across the whole site. They make sure the site is running smoothly and moderates when needed. They must have back end knowledge and fully understand the Django framework.

Sellers: A set of users that will mainly post books for sale and communicate with buyers.

Buyers: Other set of users that are registered on the site. They will just spend the least amount of time on the site. They only require that the site is functional and reliable and need not understand how else the site works.

Unregistered Users: Cannot access the site in any way until they register.

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## 2.5 Operating Environment

* OS:
  + Windows
  + Linux
  + IOS/Android
  + MacOS
* Hardware:
  + Any computer capable of running a server
* Others:
  + Any modern browser
  + Internet connect for server testing

## 2.6 Design and Implementation Constraints

Hardware Limitation:

As the userbase and data stored increases from uploads onto the site then so will the hardware have to scale. Therefore storage will be a main concern and users will be required to have a computer with enough RAM and CPU power to operate the site smoothly.

Higher-order language requirements:

The site will rely heavily on Python with django as the framework. It will be limited to the slower speeds but will have great versatility in easily implementing various functions.

Security:

Site will use CSRF token to protect information that will be inputted. Admins will be required to have 2FA for a secure account.

## 2.7 User Documentation

User Documentation will not be provided.

## 2.8 Assumptions and Dependencies

Django will have to be installed in order to easily install and use the software. Bootstrap installed on the local server in order to avoid having to connect to the bootstrap server every time a page needs to be displayed.

Any IDE or text editor can be used. In order to run any computer that is server capable will be able to run the software.

## 2.9 Apportioning of Requirements

* The ability to add more admins to the site.

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# 3. External Interface Requirements

## 3.1 User Interfaces

**3.1.1 About us**

This page shows the information of all members in Group 5.

**3.1.2 Register**

Users can register their own account.

**3.1.3 Login**

This page allows users to login to their account.

**3.1.4 Display Books**

This page displays all the books in our database

**3.1.5 Post Book**

Users can post a book from this page.

**3.1.6 Search Book**

Users can search for any book they want.

**3.1.7 Home Page**

This is the homepage of the Book Exchange software, no login is needed.

**3.1.8 My Book**

The page displays books that have been posted.

**3.1.9 Book Detail**

This page shows the name, writer, publish date and price of books.

**3.1.10 Wish List**

This page is for users to list their book wish list.

**3.1.11 Shopping Cart**

The user can see a list of books they have added to their shopping cart and purchase them.

**3.1.12 Comment**

Users can write comments for each book.

## 3.2 Hardware Interfaces

No Hardware Interface required.

## 3.3 Software Interfaces

3.3.1 PyCharm

3.3.2 Django

3.3.3 HTML 5

3.3.4 Bootstrap v5.1

3.3.5 CSS

3.3.6 SQLite3

## 3.4 Communications Interfaces

3.4.1 Django: Receive user’s data, sending and stored the data in a SQLite 3 database

3.4.2 HTTP GET

3.4.4 HTTPS GET

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# 4. Requirements Specification

## 4.1 Functional Requirements

4.1.1 Application Requirements

4.1.1.1 The application shall run on any Android, iOS, Windows, MacOS, Linux or other

device that supports a relevant web browser

4.1.1.2 The application shall provide a user registration form upon first launch

4.1.1.2.1 The application shall request the user to enter a username

4.1.1.2.1.1 The application shall ensure a valid username of less than 150

characters only containing alphanumeric characters and symbols @, ., +, -,

and \_

4.1.1.2.2 The application shall request the user to enter a password

4.1.1.2.2.1 The application shall ensure the password is not similar to the username

4.1.1.2.2.2 The application shall ensure the password is a minimum of 8

characters

4.1.1.2.2.3 The application shall ensure the password is not a common

password

4.1.1.2.2.4 The application shall ensure the password does not contain

only numeric characters

4.1.1.3 The application shall provide an interface for user login

4.1.1.3.1 The application shall only provide access to the user registration, login, home, and about us pages until the user is logged in

4.1.1.3.2 The application shall provide an input field for the username

4.1.1.3.3 The application shall provide an input field for the user password

4.1.1.4 The application shall provide an interface to browse posted books

4.1.1.4.1 The application shall provide the book title

4.1.1.4.2 The application shall provide the book image

4.1.1.4.3 The application shall provide the book price

4.1.1.4.4 The application shall provide the book website link

4.1.1.4.5 The application shall provide the book upload date

4.1.1.4.6 The application shall provide comments related to the book

4.1.1.4.7 The application shall provide the username that posted

the book

4.1.1.5 The application shall provide an interface to search posted books

4.1.1.5.1 The application shall provide a search bar to enter a book title

4.1.1.5.2 The application shall retrieve book(s) with a matching or similar title

4.1.1.6 The application shall provide an interface to upload a book

4.1.1.6.1 The application shall provide an input field for the book title

4.1.1.6.2 The application shall provide an input field for the book image

4.1.1.6.3 The application shall provide an input field for the book price

4.1.1.6.4 The application shall provide an input field for the book website link

4.1.1.6.5 The application shall provide an input field for the book upload date

4.1.1.6.6 The application shall save the username that posted the book

4.1.1.7 The application shall allow the user to comment on a book

4.1.1.7.1 The application shall provide an input field to add a user comment

4.1.1.7.2 The application shall provide a button to submit the comment

4.1.1.7.3 The application shall save the username of the commenter

4.1.1.7.4 The application shall save the submission date of the comment

4.1.1.8 The application shall allow the user to maintain a book favorites list

4.1.1.8.1 The application shall provide an option to add a book to the user’s

favorites list

4.1.1.8.2 The application shall provide a page to view the favorites list

4.1.1.8.3 The application shall provide an option to remove a book from the

user’s favorites list

4.1.1.9 The application shall all the user to utilize a book shopping cart

4.1.1.9.1 The application shall provide an option to add a book to the user’s

shopping cart

4.1.1.9.2 The application shall provide a page to view the user’s shopping cart

contents and total price

4.1.1.9.3 The application shall provide an option to remove a book from the

user’s shopping cart

4.1.1.9.4 The application shall provide a button to purchase the user’s shopping

cart contents

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## 4.2 External Interface Requirements

4.2.1 Website Interface

4.2.1.1 The website asks new users to register an account.

4.2.1.1.1 Username

4.2.1.1.2 Password has been at least 7 digits (numbers, capital letters, and lower-case letters combination)

4.2.1.2 The website asks users to log in.

4.2.1.2.1 Password is hidden while inputting.

4.2.2 User Interface

4.2.2.1 Search shows the matching book in the database.

4.2.2.2 Post a Book

4.2.2.2.1Fill the book’s cover in JDP format, title, writer, price, and website in text format on a form, and store the data in the database

4.2.2.3 Display Books

4.2.2.3.1 Shows all the books all users have posted on a table from the database

4.2.2.3.2 User can access the book detail

4.2.2.3.3 User can add the book in their own wish list database

4.2.2.4 Book Details

4.2.2.4.1 Shows the book’s cover, title, writer, price, and website on a table.

4.2.2.4.2 User can add/delete the book in their own favorites list database and shopping cart database.

4.2.3 Software Interface

4.2.3.1 SQLite 3 database involves books, user’s information, and comments.

4.2.4 Network Communications

4.2.4.1 HTTPS Using HTTPS protocol to transfer the data.

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## 4.3 Logical Database Requirements

4.3.1 Types of Information

4.3.1.1 User Data

4.3.1.1.1 Username

4.3.1.1.2 Password hash

4.3.1.1.3 Books posted by users

4.3.1.1.4 Comments on books posted by users

4.3.1.1.5 Favorites list of books maintained by users

4.3.1.1.6 Shopping cart of books maintained by users

4.3.1.2 Book Data

4.3.1.2.1 Book Title

4.3.1.2.2 Book Image

4.3.1.2.3 Book Price

4.3.1.2.4 Book Website Link

4.3.1.2.5 Book Upload Date

4.3.2 Frequency of use

4.3.2.1 User Data

4.3.2.1.1 Username and password hash will be used on every login to verify the

user

4.3.2.1.2 Username will be displayed on any books or comments posted by the

user

4.3.2.1.3 Comments will be displayed alongside their relevant books

4.3.2.1.4 Favorites list will be viewable by the user upon their selection

4.3.2.1.5 Shopping cart will be viewable by the user upon their selection

4.3.2.2 Book Data

4.3.2.2.1 Information related to the books will be displayed for each book

4.3.2.2.2 Deletion of a posted book by its user will remove all book data

4.3.3 Accessing capabilities

4.3.3.1 HTTPS GET

4.3.3.2 HTTP GET

4.3.3.3 User Data

4.3.3.3.1 Accessed only through the methods related to handling and displaying

user data

4.3.3.4 Book Data

4.3.3.4.1 Accessed only through methods related to saving or displaying book

data

4.3.4 Data entities and their relationships

4.3.4.1 User Data and Book Data

4.3.4.1.1 Usernames and associated posted books

4.3.4.1.2 Comments and associated books

4.3.4.1.3 Favorites list and associated books

4.3.4.1.4 Shopping cart and associated books

## 4.4 Design Constraints

4.4.1 Lack of session tracking requires users to be logged in to comment

4.4.2 Favorites list does not allow users to directly add book to shopping cart

4.4.3 Book Details does not explicitly tell users if a book is in favorites list or shopping cart, instead it does not provide the option

# 5. Other Nonfunctional Requirements

## 5.1 Performance Requirements

1. The software will run the actions fairly quickly and at most retrieve and store data within a second.
2. The software will allow ten books to be added into the database at a time by regular users within two seconds.

## 5.2 Safety Requirements

* + - 1. Sellers should not put any confidential information on the site.
      2. Users should not put any personal information on the site.
      3. Any information posted on the site will be available for all to see.
      4. ALL users should conduct themselves respectfully at all times when communicating on the site.

## 5.3 Security Requirements

1. All users on the site must login in order to use any of the features supported by the site.
   1. Username requirements:
      1. at least 8 characters long with max of 24
      2. Letters, digits
   2. Password:
      1. At Least one special character ‘!@#$%^&\*’
      2. Password cant be the same as username
      3. At Least 8 characters long
      4. There will be a password confirmation asking the user to input the same password again.

## 5.4 Software Quality Attributes

1. Software is very easy to adapt and add new features as it uses the Django framework. Templates allow the ability to create new pages using Templates.
2. Reusability is simple: users can all get unique webpages as the MVT architecture makes the software highly reusable.
3. SQLite is used for the database, making it relatively fast and maintainable.
4. Software is highly maintainable as Django and python allow for easy fixes when needed.

## 5.5 Business Rules

1. Admins have the highest administration power and can remove anything such as users, reviews, books, and pages.
2. The customers may add and create any roles desired.
3. Customers may remove roles although removing the admin role is not advised.

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# 6. Legal and Ethical Considerations

6.1 Any user registered with Group 5 Online Book Exchange realizes that the username and books posted will be publicly viewable by other registered users.

6.2 Any comment uploaded by a user shall be appropriate for the scope of the site and respectful of other users

# Appendix A: Glossary

1. HTTPS: Hypertext Transfer Protocol. It is used for secure communications over a network and is widely used. The communication protocol is encrypted using Transport Layer Security.
2. Django: Python based free and open-source web framework that follows the Model-View-Template (MVT) architecture.
3. Bootstrap: Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains HTML, CSS and JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.
4. SQLite3: relational database management system contained in a C library. Not a client–server database engine. Rather, it is embedded into the end program.
5. CSS: Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a markup language such as HTML.

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# Appendix B: Analysis Models

No Analysis Models were made for this Software Requirement Specification document.

# Appendix C: To Be Determined List

No To Be Determined references remain in this Software Requirement Specification document.