Logo

Description automatically generated with low confidence

COMP 3900

Information Technology Project

Book Recommendation System

Project Proposal

Group Ascension

|  |  |  |  |
| --- | --- | --- | --- |
| Z5300114 | Zhitong Chen | Scrum Master, Frontend | Z5300114@student.unsw.edu.au |
| Z5275904 | Shuxiao Deng | Frontend | Z5275904@student.unsw.edu.au |
| Z5191423 | Rui Guo | Frontend | Z5191423@student.unsw.edu.au |
| Z5286335 | Dongyi Lin | Backend | Z5286335@student.unsw.edu.au |
| Z5352294 | Linbo Zhang | Backend | Z5352294@studnet.unsw.edu.au |

Submission Date

06 March 2023

Table of Contents

[1. Introduction 1](#_Toc128655548)

[1.1 Problem Statement 1](#_Toc128655549)

[1.2 Existing Work Analysis 1](#_Toc128655550)

[2. User Stories and Sprints 3](#_Toc128655551)

[2.1 User Stories 3](#_Toc128655552)

[2.2 Sprints Timetable 5](#_Toc128655553)

[2.3 User Stories in Scope for Sprint 1 5](#_Toc128655554)

[2.4 Novel Functionality and User Stories 7](#_Toc128655555)

[3. System Architecture 8](#_Toc128655556)

[3.1 System Architecture 8](#_Toc128655557)

[3.2 Database Entity Relationship Diagram 9](#_Toc128655558)

[3.3 Interface and Flow Diagram 10](#_Toc128655559)

[4. Reference 12](#_Toc128655560)

# Introduction

This report details the project proposal for the book recommendation system.

The project proposal for the book recommendation system is elaborated in this report.

## Problem Statement

Despite their love for reading, people often face difficulties in finding the right books and related books. People also find hard to connect to other book lovers, sharing thoughts on the common books they love.

To address this challenge, the book recommendation system is designed to provide a digital platform for easy search. It also invites users to share their thoughts and opinions on the books they have read, to create a vibrant community of book enthusiasts.

In addition, the website provides easy sharing of books and collections to other users with QR code. And the website aims to provide more human-to-human communication by including ChatGPT.

In addition to the book recommendation system, the website also features ChatGPT, an advanced language model designed to provide users with personalized book recommendations based on their individual preferences and reading habits. ChatGPT is an AI-powered chatbot that uses natural language processing to understand user queries and provide relevant recommendations. By engaging with ChatGPT, users can get instant and accurate suggestions for books that match their interests, reading level, and preferred genres.

The system aims to streamline the search process and make it more efficient, while also creating a vibrant community of book enthusiasts who can connect, share ideas and engage in meaningful conversations. The proposed system is poised to revolutionize the way people discover, read, and discuss books, making the entire process more enjoyable and rewarding.

**Too long, will modify later**

## Existing Work Analysis

We can compare the following

ISBN database: the full set of database

<https://www.usabledatabases.com/database/books-isbn-covers/>

open library

<https://openlibrary.org/data>

book db

<http://www.spacejock.com/BookDB.html>

and some online book community

<https://bookclubbites.com/5-best-online-communities-for-book-lovers/>

some book club

<https://www.goodreads.com/group>

# User Stories and Sprints

This chapter details all the user stories of the project and link these stories to the project objectives. In addition, the user stories that are focused in the sprint 1 are analysed in detail.

## User Stories

|  |  |
| --- | --- |
| Project Objectives | User Stories |
| Users can register and login on the website. | * As a customer, I want to register an account on the website with my username and password, so that I can use all the functionalities of the website. * As a customer, I want to login my account on the website with my username and password, so that I can continue my usage on the website. |
| Users can view book details on the website. | * As a customer, I want to view book details on the website, including book title, author(s), publisher, publication date, and category, so that I can have more in depth knowledge about this book. |
| Users can add/remove a book to their collection. | * As a customer, I want to add any books to my collections at any time, so that I can read these books later. * As a customer, I want to remove any books from my collections at any time, so that I can manage my collections. |
| Users can add ‘named’ collections to their account. | * As a customer, I want to name each of my collections, so that I can distinguish them easily. |
| Users can view a list of their collections and click into any of these collections to view books inside. | * As a user, I want to view my collections and the books inside, so that I can see what books I am intended to read. |
| Users can view other users’ collections. They can also view the top 10 most recently added books to any of their collections. | * As a user, I want to view other users’ collections, so that I can learn from them. * As a user, I want to view the chronological order of book addition to the collection, so that I can know the collection formation timeline. * As a user, I want to view the top 10 most recently added books to other users, so that I can know what they are interested recently. |
| Users can add a review and rating for any books that they have read. | * As a user, I want to mark a book as ‘read’, so that I can be reminded that I have read this book. * As a user, I want to leave reviews after finishing reading the book, so that I can share my written thoughts with others. * As a user, I want to rate the book with 0 – 5 after finishing reading the book, so that I can numerically present my thoughts with others. |
| Users can see a total count of the number of readers that have read a given book. | * As a user, I want to see the total count of the number of readers finishing reading the book, so that I can know the trending books on the website. |
| Users can filter books with various factors. | * As a user, I want to filter books with average rating, so that I can quickly get the high rated books from the website. * As a user, I want to search books with book names, so that I can quickly get the books I want. * As a user, I want to filter books with the number of readers finishing reading the book, so that I can quickly get the trending books on the website. |
| Users can receive recommendation from the website. | * As a user, I want to receive recommendation for a particular book, so that I can get the related books easily. * As a user, I want to receive recommendation based on my collections, so that I can get similar books easily. * As a user, I want to receive recommendation based on the category, so that I can get similar books easily. * As a user, I want to receive recommendation based on how often a particular books appear in other readers’ collections, so that I can get the trending books on the website easily. |
| Users can set a goal for reading books. Users can also see whether they met their goals. | * As a user, I want to set my goal for the number of books I would like to read per month, so that I can encourage myself into more reading. * As a user, I want to see whether I have met my reading goal for a particular month, so that I can review my progress. |
| Users can share a book or collection with a QR code. | * As a user, I want to share a book with the QR code generated by the website, so that my friends can easily locate that book. * As a user, I want to share a collection with the QR code generated by the website, so that my friends can easily locate the collection. |
| Users can talk to a chatbot about books. | * As a user, I want to talk with a chatbot, so that I can get more knowledge about a particular book. |

**Jira screenshot of all user stories !!!!!!**

## Sprints Timetable

|  |  |  |  |
| --- | --- | --- | --- |
| Sprint | Description | Date Range | Time Duration |
| 1 | Progressive demo A | 03 March to 16 March | 14 days |
| 2 | Progressive demo B | 17 March to 06 April | 21 days |
| 3 | Final demo | 07 April to 20 April | 14 days |

## User Stories in Scope for Sprint 1

|  |  |
| --- | --- |
| Attribute | Values |
| User story | * As a customer, I want to register an account on the website with my username and password, so that I can use all the functionalities of the website. |
| Assignee | Zhitong Chen, Dongyi Lin |
| Estimated Time | 10 hours |
| Implementation Details | The user can use username and password to signup on the website. The website needs to check the uniqueness of the username and ask the user to change another name if the previous username has been taken already.  The password require at least 8 characters, with at least one character from the uppercase letters, lowercase letters, and numbers. The use is also required to confirm the password by entering the password again. |

|  |  |
| --- | --- |
| Attribute | Values |
| User story | * As a customer, I want to login my account on the website with my username and password, so that I can continue my usage on the website. |
| Assignee | Zhitong Chen, Dongyi Lin |
| Estimated Time | 10 hours |
| Implementation Details | The user can login to the website with username and password. The password is at least 8 characters long. On successful login, the website will use the token issued by the backend to identify that user. The token is not visible to the user. |

|  |  |
| --- | --- |
| Attribute | Values |
| User story | * As a customer, I want to view book details on the website, including book title, author(s), publisher, publication date, and category, so that I can have more in depth knowledge about this book. |
| Assignee | Shuxiao Deng, Dongyi Lin, Linbo Zhang |
| Estimated Time | 25 hours |
| Implementation Details | The backend needs to prepare at least 500 books in the database. Each book should contain the information about the book title, author(s), publisher, publication date, and category. In addition, each book should have an image about the book cover.  The frontend shows at least 30 books on the website front page. And the user can view the book details on the book detail page, with all the information related to this book displayed on that page. |

|  |  |
| --- | --- |
| Attribute | Values |
| User story | * As a customer, I want to add any books to my collections at any time, so that I can read these books later. * As a customer, I want to remove any books from my collections at any time, so that I can manage my collections. * As a customer, I want to name each of my collections, so that I can distinguish them easily. * As a user, I want to view my collections and the books inside, so that I can see what books I am intended to read. |
| Assignee | Shuxiao Deng, Dongyi Lin, Linbo Zhang |
| Estimated Time | 5 hours |
| Implementation Details | The website should display the collection page on the user account profile page. Each collection contains some books. The user can add a book or remove a book from his/her collection at any time. The user can also create new collection with a name, and remove a collection completely.  In addition, the website should store the creation time of the collection, and the added time for each book inside the collection.  The user can click on one collection, and the website shows all the books inside the collection. The user can then click on one of the books, and is directed to the book detail page. |

|  |  |
| --- | --- |
| Attribute | Values |
| User story | * As a user, I want to view other users’ collections, so that I can learn from them. |
| Assignee | Rui Go, Dongyi Lin |
| Estimated Time | 3 hours |
| Implementation Details | The user can view other users’ collection, and the account profile pages, without login. So the user’s collections, profile page (and user reviews), area all public to the login users and not-login users. However, if the user wants to create collection (or write a review), he/she has to login first. |

|  |  |
| --- | --- |
| Attribute | Values |
| User story | * As a user, I want to mark a book as ‘read’, so that I can be reminded that I have read this book. |
| Assignee | Rui Go, Dongyi Lin |
| Estimated Time | 3 hours |
| Implementation Details | For each book inside a user’s collection, the backend stores the status of the book as ‘finished’ or ‘not finished’. This will be displayed on the user collection page. |

**Jira screenshot of the user stories for sprint 1!!**

## Novel Functionality and User Stories

|  |  |
| --- | --- |
| Related User Stories | Novel Feature Explanation |
| * As a user, I want to share a book with the QR code generated by the website, so that my friends can easily locate that book. * As a user, I want to share a collection with the QR code generated by the website, so that my friends can easily locate the collection. | QR code is used quite extensively these days, especially since the Covid pandemic. QR code is now used in many restaurants for customers to make orders on the website. QR code is also used in the advertisements to share the web page to customers who are interested to the product detail. So, we include the QR sharing feature to the website. The user can click the ‘share’ button or icon to share a particular book page or share a particular collection page. |
| * As a user, I want to talk with a chatbot, so that I can get more knowledge about a particular book. | Chatbots are now used extensively for big websites to handle some preliminary customer support. The recent development with the ChatGPT opens a new era to the chat bot industry. We consider to include this ChatGPT to provide more human-like communication to the user, as an additional feature with the traditional clicking and searching. , as an additional feature with the traditional clicking and searching. |

# System Architecture

This chapter details the system architecture, database design, interface design, and others.

## System Architecture

Diagram, text

Description automatically generated

The website system includes three distinct layers, the frontend, backend, and data layer. Each layer is designed to ensure efficient and reliable functioning. The frontend will be built with the React framework, written in JavaScript. It offers an intuitive and easy-to-use interface for the users. The material UI used in conjunction with the React framework ensures seamless design and consistent user experience. The backend will be built with Flask Restx, written in Python. It provides a flexible and scalable API framework. Additionally, the use of Flask SQLAlchemy has enabled us to bypass traditional SQL language, making data management more efficient and streamlined. The data layer is powered by SQLite, which is known for its reliability and speed, ensuring that the system is responsive and able to handle large volumes of data with ease. We do not go for traditional database engine such as MySQL or PostgreSQL, since our website does not have a very large scale data to store. Overall, the architecture of the system is designed to maximize functionality, efficiency, and reliability, ensuring that users can enjoy an exceptional experience while using the website.

## Database Entity Relationship Diagram

Diagram

Description automatically generated

## Interface and Flow Diagram

画一些网页图，待做

考虑画

Sign in page, login page, front page (with many books), book detail page, collection page, account profile page, author page, book goal page

Book detail page include some customer reviews

Diagram

Description automatically generated

Diagram

Description automatically generated

# Reference