3. Specific Requirements

3.1 Functional Requirements

3.1.1 User Interface

The application shall provide options for existing users to sign in, new users to sign-up, and users to search for a book without logging in. There will be slight variations in search options for logged-in users compared to the users that don't log in. On each page, there will be the Booked logo, as well as a menu on top of the screen to display links to the Home, Sign-In, Sign-Up, and About pages.

3.1.1.1. Main Page

The user shall see a web page with search criteria when entering the Booked Search URL. At the top of the screen, the page will direct users to different sections of the service based on what links the users click on.

It shall have links to the following pages:

- Link to Sign-In
- Link to Sign-Up
- Link back to Home

3.1.1.2. Sign-In Page

The sign-in page shall display the Booked logo on the top, the email address field, the password field, and a sign-in button.

1. If the user logins successfully, then the user will be redirected to their account page.
2. If the login is not successful, then the user will receive an error message and will be prompted to try again.

3.1.1.3. Sign-Up Page

The sign-up page will contain a form with multiple fields for the user to enter. The information needed to create the account is as follows: full name, email address, password, confirm password, and zip code.

Prior to the creation of the account, the inputted information will be checked to verify the name, email address, and password and confirm passwords match and are filled in correctly. The zip code is optional.

3.1.1.4. Home Search Page

Following entering the main page, the user will be brought to the book search page and will have multiple fields to fill in. Both users that have not logged in and users who have logged in will be prompted to enter the listed options:

- Book Title
- Author
- Language
- ISBN
- Condition
- Edition
- Binding
- Format
- Price Minimum
- Price Maximum

After the user has at least entered one of these fields above, the user shall press the search button; which will show a list of locations where the book can be found.

3.1.2 Front-End Functional Requirements

3.1.2.1. Search Results

The application shall provide search results based on the user's IP address, allow the users to compare results from different sellers, and provide the user with a URL to make a purchase and the address of the physical stores that yielded search results.

3.1.2.2. Distance-Based Results

The user shall see results from the inventory of bookshops near them. To accomplish this, the application will use the IP Address of the user to get an approximate location, and provide results from sellers within a pre-configured radius.

Each result listing shall contain the following information:

- Book Title
- Author
- ISBN
- Price
- Seller
- Seller Address
- URL to seller's site

Each result listing may also contain the following details if they were found on the seller's digital catalog:

- Condition
- Edition
- Binding
- Format

3.1.2.3. Variant Comparison

The application shall provide the user with all the items that matched the search criteria. The results may include listings for the same book from the inventory of different sellers, allowing the user to compare prices and details.

3.1.3 Back-End Functional Requirements

3.1.3.1 Database Queries

The application shall first check the current single book database to see if the user's book is already listed in the database. If the book already exists, the application shall return the for-sale listing information to the user. If the book is not found in the database, the application will execute the aforementioned searching script to locate the local independent bookstores selling the book. This information will then be added to the single book database.

3.1.3.2 Single Book Database Data Ordering

The single book database shall contain the following information for each book in the database:

- ISBN
- Title
- Author Name: First, Last
- Binding Type
- Store Location
- Price
- URL to Store Site

3.1.3.3 Single Store Database

The Single Store Database shall contain the following information for each independent bookstore:

- Store Name
- Address
- City
- State
- Zip Code
- Phone Number
- Store URL

3.2 Performance Requirements

This section outlines the performance requirements for the booked application, including the web scraper and the database retrieval system. Each requirement is stated as an individual statement with a unique identifier.

3.2.1 Performance Requirement 1: Pre-existing book in the database

1. Capable of storing a minimum of 100,000 book records, with an average retrieval time of 3 seconds per query.
2. The system shall provide a mechanism for adding newly scraped book data to the database within 1 second when the searched book is not found in the pre-existing database.

3.2.2 Web Scraper Requirements: The web scraper shall meet the following performance requirements

1. Capable of extracting book data from the local bookstore's website within 5 seconds.
2. Provide a fallback mechanism in case the target website is not accessible, returning a "no results found" message within 5 seconds.
3. Upon finding new book records during the scraping process, the web scraper shall automatically populate the database with the newly discovered data if the searched book is not found in the pre-existing database.

3.2.3 Overall System Performance Requirements: The overall system shall meet the following performance requirements

1. Maintain a maximum response time of 5 seconds for all user search queries, including database retrieval, web scraping, and result presentation.

3.3 Assumptions and Constraints

Condition	Type	Effect on Requirements
Only valid data entries will be provided	Assumption	Allows for minimal error checking for the purposes of developing and demonstrating the prototype
Mock data will be provided	Assumption	Allows for the simulation of certain features of the prototype (i.e., most popular titles and distance of store)
No login or sign-up options	Constraint	Limits prototype demonstration to a guest interface
Only websites of Hampton Roads bookstores will be scraped	Constraint	Limits Booked's searchable inventory
Book data consists of ISBN, title, author, binding, price, and URL	Constraint	Limits criteria making searches less specific

3.4 Non-functional Requirements

3.4.1 Security

Booked will maintain the standard industry practices for website security when storing the data of users and books collected in the database. Partnered retailers with Booked can upload verified data of books to the database and remove only their listings.

The website will be secure in the area of listings below:

1. Private Information
2. Database
3. Overall Website Security
4. Email Security
5. Independent Bookstores Partnership Accounts

3.4.2 Maintainability

Booked provides a low-maintenance configuration as a webpage that displays listings of books to the user. Maintaining the website will require admins on both the front-end and back-end to maintain the integrity of the website so users can access it 24/7.

The list below is items that will require maintenance:

1. Database
2. Frontend
3. Backend
4. Customer Support
5. Accounts
6. Security
7. Communication with Independent Bookstores

3.4.3 Reliability

Booked will meet the standards of everyday web pages and must function 24/7. Access to the website must be 24/7 allowing users to shop and buy books online through the website. Booked should be able to complete 95% of its transactions online without error or kickback, however, users must be shown that shopping and ordering books from independent bookstores may have delays if placed outside of their respective operating hours.

The list below is requirements that must be reliable 24/7:

1. Webpage
2. Frontend
3. Backend
4. Database
5. Customer Support/Help
6. Listings
7. Partnered Bookstores Relationship