

kodisnowhere

SHELFBUTLER

Software Requirement Specification

Document

v1.1

18.01.2013

Changelog

*A: Added, M: Modified, D: Deleted

Version number	Date	Section	A,M,D*	Title or Brief Description
Version 1.0	07/11/12			Original.
Version 1.1	17/01/13	Section 3.1	M	Paragraph modified for clear expressions.
		Section 4.1.1	A	Preconditions and postconditions are added.
		Section 4.1.2	A	Preconditions and postconditions are added.
		Section 4.1.3	A	Preconditions and postconditions are added.
		Section 4.2.1	A	Preconditions and postconditions are added.
		Section 4.2.2	A	Preconditions and postconditions are added.
		Section 4.2.3	A	Preconditions and postconditions are added.
		Section 4.2.4	A	Preconditions and postconditions are added.
		Section 4.3.1	A	Preconditions and postconditions are added.
		Section 4.3.2	A	Preconditions and postconditions are added.
		Section 4.3.3	A	Preconditions and postconditions are added.
		Section 4.3.4	A	Preconditions and postconditions are added.
		Section 4.4.1	A	Preconditions and postconditions are added.
		Section 4.4.2	A	Preconditions and postconditions are added.
		Section 4.4.3	A	Preconditions and postconditions are added.
		Section 4.4.4	A	Preconditions and postconditions are added.

Version number	Date	Section	A,M,D*	Title or Brief Description
		Section 4.4.5	A	Preconditions and postconditions are added.
		Section 4.5.1	A	Preconditions and postconditions are added.
		Section 4.5.2	A	Preconditions and postconditions are added.
		Section 4.5.3	A	Preconditions and postconditions are added.
		Section 4.5.4	A	Preconditions and postconditions are added.
		Section 4.5.5	A	Preconditions and postconditions are added.
		Section 4.5.6	A	Preconditions and postconditions are added.
		Section 4.6.1	A	Preconditions and postconditions are added.
		Section 4.6.2	A	Preconditions and postconditions are added.
		Section 4.7.1	A	Preconditions and postconditions are added.
		Section 4.7.2	A	Preconditions and postconditions are added.
		Section 4.8.1	A	Preconditions and postconditions are added.
		Section 4.8.2	A	Preconditions and postconditions are added.
		Section 4.9.1	A	Preconditions and postconditions are added.
		Section 4.9.2	A	Preconditions and postconditions are added.
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		Section 4.5.1	M	Format corrected.
		Section 4.6.2	M	Modified in order to be more specific.
		Section 6.1	M	Modified in order to be more specific.

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1 Introduction

1.1 Purpose

This document provides the software requirement specifications for the project Shelfbutler. It includes detailed information about the functional and interface requirements of the system, what the system will and can do and the environment in which the system runs. This document is provided for the customer.

The purpose of this project is to provide a convenient mobile application for book collectors to manage their collections with ease.

1.2 Scope

This software product will be a mobile application that is to be used by collectors gathering books. It helps the users arranging their collection by providing features such as recording locations of the items, keeping a wishlist, readlist and a favorite list in which the users can save their wished, read/unread of favorite books, respectively. Moreover, they can see book reviews, recommendations and if they want, they can also review books they own or buy some. They also can share their lists in social media, if they like. The application will also has a web interface. Users will be able to edit their data through it, which makes the application easily accessible.

More precisely, the software employs a mobile application which is capable of adding books to the collection by either entering their ISBN number or scanning their barcode via the camera on the phone or deleting them, adding their physical locations, searching books on the web according to their title, author, press or category, giving an opportunity to the user to buy this book online and recommending books alike. Moreover, it keeps a list of favorite books, read/unread ones and a wishlist which the user can share on social media. The user can review books online. The application also keeps the data of lent items. Furthermore, the mobile application has Turkish and English language support. The project also has a web application that the users can access and edit their library. So the application will be reachable anywhere with an internet connection.

1.3 Definitions, Acronyms & Abbreviations

Term	Definition
User	<i>Person who runs and uses the application.</i>
Developer	<i>Person who implements the method to control the robot.</i>
OS	<i>Operating system.</i>
iOS	<i>iPhone Operating System.</i>

API	<i>Application programming interface.</i>
IEEE	<i>The Institute of Electrical and Electronics Engineers.</i>
ISBN	<i>International Standard Book Number</i>

1.4 References

IEEE STD 830 – 1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.

1.5 Overview

This document includes six chapters. One of which is the Overall Description chapter, which lists all the functionalities of the application and briefly defines them. It is written for users and used to establish a context for the next chapters.

The following chapters provide detailed information of the functionalities of the application. It describes functionality of the product in details. It assists the software developer.

Both sections are cross-referenced by topic, and make the document easy to understand for the users as well as the developers.

2 Background

2.1 Book Cataloging Software

Book cataloging software is used to keep track of growing libraries, missing items, wanted items, borrowed items and track reading habits. Such software is expected to do following:

- Manage the data about owned items
- Track location information
- Search through collection
- Record borrowed/lent books
- Keep a wishlist

Most such software are desktop applications which is not very user friendly considering accessibility concerns.

2.2 Mobile Applications for Book Cataloging

Some applications are developed for mobile platforms, providing handy solutions such as barcode scanning. Mobile applications have advantage over desktop applications thanks to simple management and ease of access.

For keeping the book data well organized it is convenient to use International Standard Book Number (ISBN) which is a unique numeric commercial book identifier. There are services which provide massive ISBN databases and many mobile applications are implemented using those services. Scanning the cover of the book or getting ISBN number via barcode keeps things clean and simple. For such purposes, we need image processing tools that will process barcodes or covers to get book data. There are free barcode scanning SDKs developed on mobile platforms.

To serve everything in one place, web shopping interfaces are fundamental. There are free APIs to connect users' book databases and wish lists directly to a place where s/he can order online.

2.3 Cloud Storage

Cloud storage is a kind of online storage which can be accessed through APIs, web user interfaces or cloud storage gateways. In background, operators arrange the storage system and show the users as pools of storage and they stock their files in them.

Cloud data storages are often hosted by third parties and users pay to locate their data. Using cloud storages, users avoid managing system storage which is quite a complex task with features like back up.

For the case of collection software, storing collection data on cloud to provide a web interface and synchronization between all user devices makes

everything more accessible. Cloud storages are controlled with the help of user accounts.

3 Overall Description

3.1 Product Perspective

Shelfbutler is a mobile application with a web interface used in order to manage collections of books. The mobile application will work on mobile iOS devices. A web application in addition to this will also be created for the ease of accessing data. All the information will be kept on cloud and may be accessed through both parts. The application enhances the fundamental features of existing products.

3.2 Product Functions

Shelfbutler is composed of the following fundamental features:

1. Collection management
Administer data of the books by adding or deleting them.
2. Search on the collection
Search and receive the data of a specific item in the collection.
3. Search on the web
Search and receive the data of a specific item on the web.
4. Online shopping
Create an opportunity for the user to shop books online.
5. Dividing collection into lists
Divide the collection into groups like unread or favorite books.
6. Book review
Publish review of the user of a specific book online.
7. Sharing collection
Share a part of the collection data such as wishlist on social media.

3.3 User Types, Constraints & Dependencies

Users of the application is classified into two groups, web users and mobile users.

Operating environment for the mobile application is iOS platform. Any device ensuring to have minimum operating system version can be considered as target platform.

For web application, any modern browser can be a target. So, users can use any system with internet connection and capability to operate browsers.

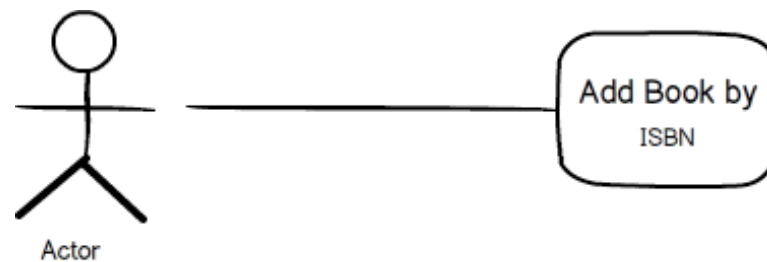
Security is primary constraint for the application. User collections are private and can only be accessed by its owner unless shared.

4 Product Features

4.1 Collection Management Feature

This feature contains adding books to the library either by ISBN or by barcode and removing the book from the library. The mentioned functions are available from the main menu of the application, and can be selected in any state of the application.

4.1.1 Use Case: Add Book by ISBN



The user adds a new book to his library by ISBN of the book he intends to add.

Preconditions : None.

Postconditions : The indicated book will be added to the collection of the user.

Step-by-Step Description:

1. The user chooses "Add Book" option from the main menu.
2. User clicks on "by ISBN" for adding book to his library by the book's ISBN.
3. The user enters the ISBN of the book he intends to add.
4. User selects the book from the returned results.
5. User selects "Add" option for the selected book.

4.1.2 Use Case: Add Book by Barcode



The user adds a new book to his library by scanning the barcode of the book he intends to add.

Preconditions : None.

Postconditions : The indicated book will be added to the collection of the user.

Step-by-Step Description:

1. The user chooses “Add Book” option from the main menu.
2. User clicks on “by Barcode” for adding book to his library by scanning the book’s barcode.
3. User holds the barcode of the book against the camera for letting the application scan the barcode.
4. User selects the book from the returned results.
5. User selects “Add” option for the selected book.

4.1.3 Use Case: Remove Book



The user removes a book from his library indicating its title.

Preconditions : There should be at least one book in the collection of the user.

Postconditions : The indicated book will be removed from the collection of the user.

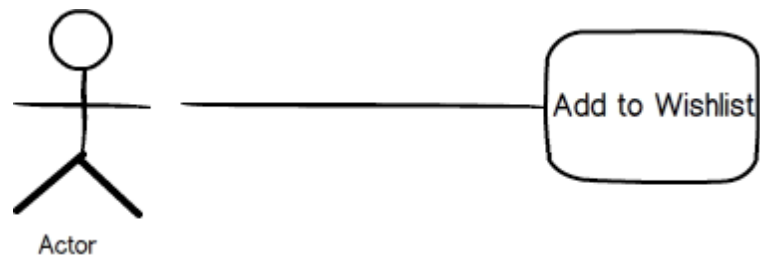
Step-by-Step Description:

1. The user chooses “Remove Book” option from the main menu.
2. User types the title of the book he intends to remove in the given space.
3. User selects the book from the returned results.
4. User selects “Remove” option for the selected book.

4.2 Wishlist Feature

This feature contains adding books to the wishlist of the user, removing books from the wishlist, sharing the wishlist on social networks such as Facebook and Twitter, and displaying the wishlist. The mentioned functions are available from the wishlist menu which is under the main menu of the application.

4.2.1 Use Case: Add to Wishlist



The user adds a desired book to his Wishlist.

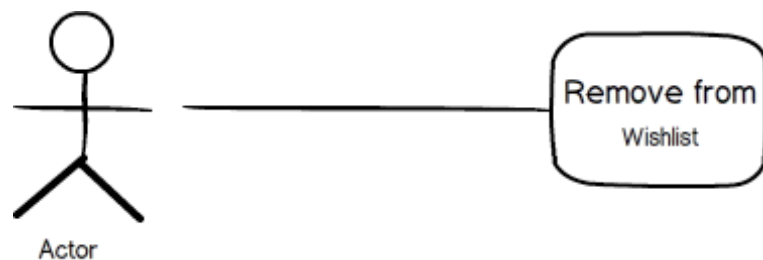
Preconditions : Application must be on the book's page that is intended to be added to wishlist.

Postconditions : The indicated book will be added to the wishlist of the user.

Step-by-Step Description:

1. The user chooses "Wishlist" menu from the main menu.
2. User selects "Add to Wishlist".

4.2.2 Use Case: Remove from Wishlist



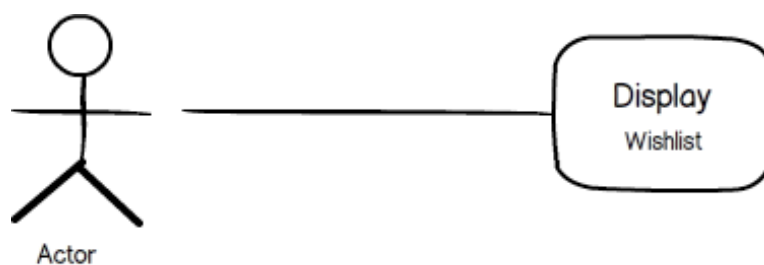
The user removes a book from his Wishlist.

Preconditions : The application must be on the book's page that is intended to be removed from the wishlist.

Postconditions : The indicated book will be removed from the wishlist of the user.

Step-by-Step Description:

1. The user chooses "Wishlist" menu from the main menu.
2. User selects "Remove from Wishlist".



4.2.3 Use Case: Display Wishlist

The user displays his Wishlist.

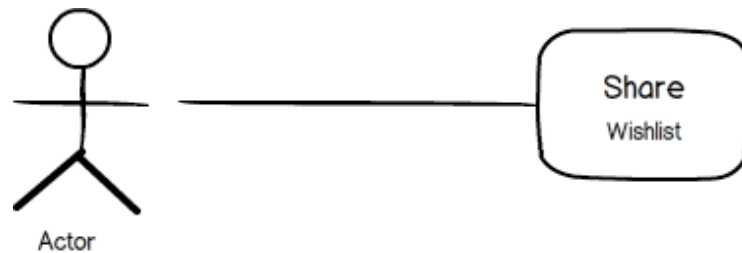
Preconditions : None.

Postconditions : None.

Step-by-Step Description:

1. The user chooses “Wishlist” menu from the main menu.
2. User selects “Display Wishlist”.

4.2.4 Use Case: Share Wishlist



The user shares his Wishlist either on Facebook or Twitter.

Preconditions : None.

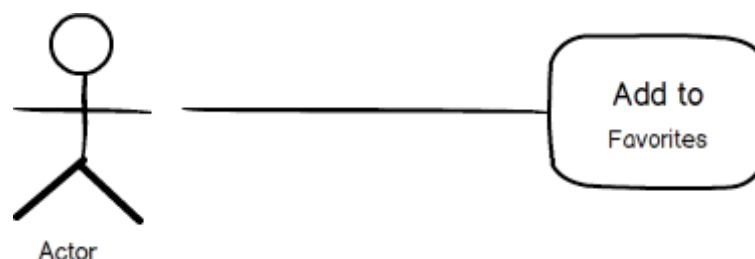
Postconditions : None.

Step-by-Step Description:

1. The user chooses “Wishlist” menu from the main menu.
2. User selects “Share Wishlist”.
3. User either selects “Share” link with the Facebook icon to share it on his Facebook profile or he selects “Share” link with Twitter icon to share it on his Twitter profile.

4.3 Favorites Feature

This feature contains adding books to the favorites list of the user, removing books from the favorites list, sharing this list on social networks such as Facebook and Twitter, and displaying the list. The mentioned functions are available from the favorites menu which is under the main menu of the application.



4.3.1 Use Case: Add to Favorites

The user adds a desired book to his Favorites.

Preconditions : Application must be on the book's page that is intended to be added to favorites.

Postconditions : The indicated book will be added to the favorites of the user.

Step-by-Step Description:

1. The user chooses "Favorites" menu from the main menu.
2. User selects "Add to Favorites".

4.3.2 Use Case: Remove from Favorites



The user removes a book from his Favorites.

Preconditions : The application must be on the book's page that is intended to be removed from the favorites.

Postconditions : The indicated book will be removed from the favorites of the user.

Step-by-Step Description:

1. The user chooses "Favorites" menu from the main menu.
2. User selects "Remove from Favorites".

4.3.3 Use Case: Display Favorites



The user removes a book from his Favorites.

Preconditions : None.

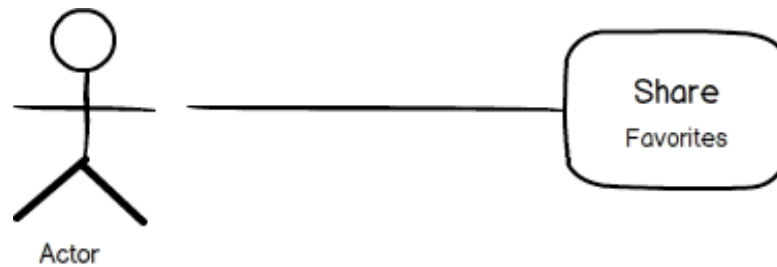
Postconditions : None.

Step-by-Step Description:

1. The user chooses "Favorites" menu from the main menu.

2. User selects "Remove from Favorites".

4.3.4 Use Case: Share Favorites



The user shares his Favorites either on Facebook or Twitter.

Preconditions : None.

Postconditions : None.

Step-by-Step Description:

1. The user chooses "Favorites" menu from the main menu.
2. User selects "Share Favorites".
3. User either selects "Share" link with the Facebook icon to share it on his Facebook profile or he selects "Share" link with Twitter icon to share it on his Twitter profile.

4.4 Readlist Feature

This feature contains adding books to the readlist of the user, removing books from the readlist, sharing this list on social networks such as Facebook and Twitter, and displaying the list. The mentioned functions are available either from the readlist menu which is under the main menu of the application or by the Read/To Be Read icon on the book's page.

4.4.1 Use Case: Add to Readlist



The user adds a desired book to his Readlist.

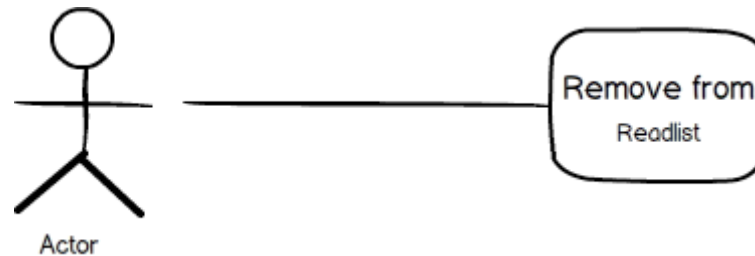
Preconditions : Application must be on the book's page that is intended to be added to readlist.

Postconditions : The indicated book will be added to the readlist of the user.

Step-by-Step Description:

1. The user clicks the “Read” icon on the book’s page.

4.4.2 Use Case: Remove from Readlist



The user removes a book from his Readlist.

Preconditions : The application must be on the book’s page that is intended to be removed from the Readlist.

Postconditions : The indicated book will be removed from the Readlist of the user.

Step-by-Step Description:

1. The user clicks the “To Be Read” icon on the book’s page.

4.4.3 Use Case: Display Read Readlist



The user displays the books which are already read on his Readlist.

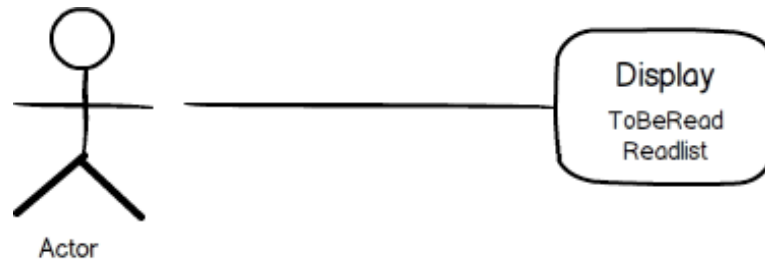
Preconditions : None.

Postconditions : None.

Step-by-Step Description:

1. The user chooses “Readlist” menu from the main menu.
2. User chooses “Display Readlist”.
3. User selects “Read Readlist”.

4.4.4 Use Case: Display ToBeRead Readlist



The user displays the books which are not read yet on his Readlist.

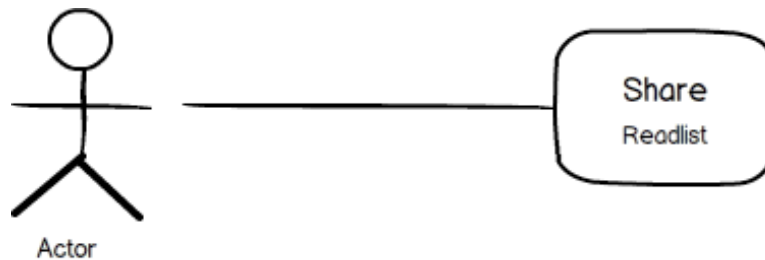
Preconditions : None.

Postconditions : None.

Step-by-Step Description:

1. The user chooses "Readlist" menu from the main menu.
2. User chooses "Display Readlist".
3. User selects "ToBeRead Readlist".

4.4.5 Use Case: Share Readlist



The user shares the books that are already read on his Readlist either on Facebook or Twitter.

Preconditions : None.

Postconditions : None.

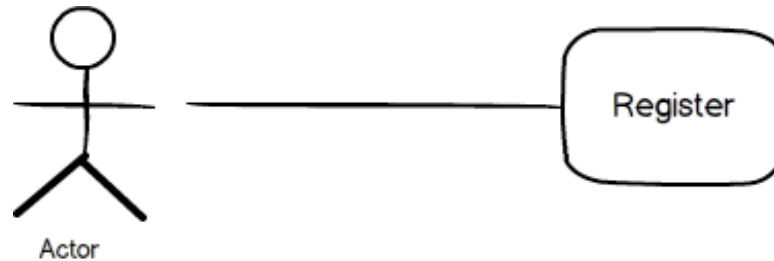
Step-by-Step Description:

1. The user chooses "Readlist" menu from the main menu.
2. User selects "Share Readlist".
3. User either selects "Share" link with the Facebook icon to share it on his Facebook profile or he selects "Share" link with Twitter icon to share it on his Twitter profile.

4.5 User Account Management Feature

This feature aims to manage account settings of the user. The application will contain an account settings menu and an initial opening menu to login and register.

4.5.1 Use Case: Register



A new user registers the application.

Preconditions : None.

Postconditions : None.

Step-by-Step Description:

1. The user chooses "Register" from the initial opening menu.
2. User fills "Name".
3. User fills "Surname".
4. User fills "Password".
5. User fills "Repeat Password" to be same with the "Password field" filled in step 5.
6. User fills a unique "e-mail".

4.5.2 Use Case: Login



User logs in to the system.

Preconditions : None.

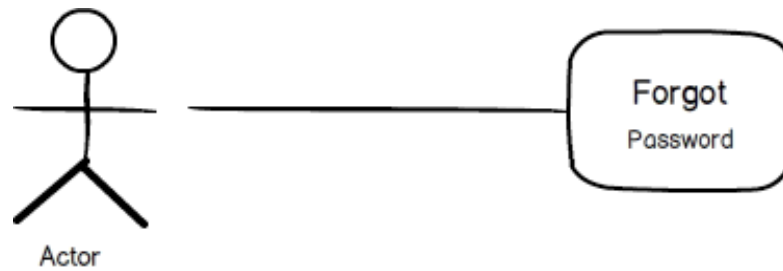
Postconditions : None.

Step-by-Step Description:

1. The user chooses "Login" from the initial opening menu.
2. User chooses "Login".
3. User fills a unique "Username"

4. User fills "Password"

4.5.3 Use Case: Forgot Password



User gets a new password.

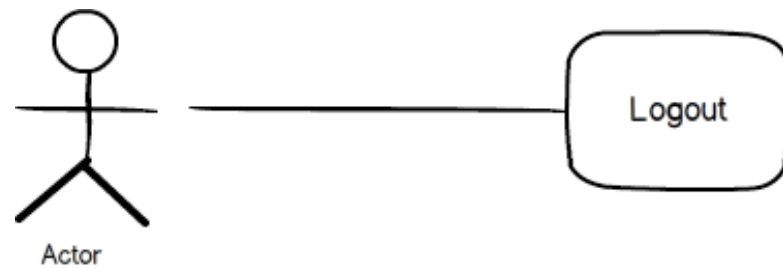
Preconditions : User must have been registered to the system.

Postconditions : None.

Step-by-Step Description:

1. The user chooses "Forgot Password" from the initial opening menu.
2. A new password is set and e-mailed to user.

4.5.4 Use Case: Logout



User logouts from the system.

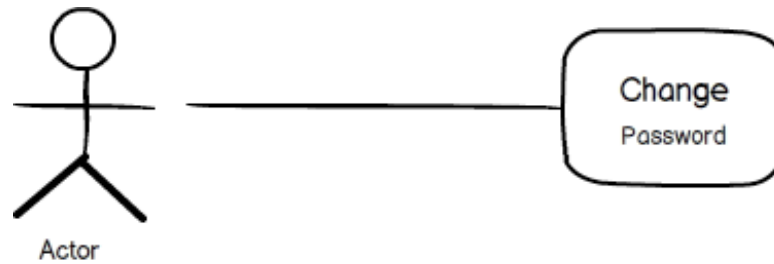
Preconditions : User must be logged in to the system.

Postconditions : None.

Step-by-Step Description:

1. The user chooses "Logout" from the account setting menu.
2. The user logouts from the system.

4.5.5 Use Case: Change Password



User changes his/her password.

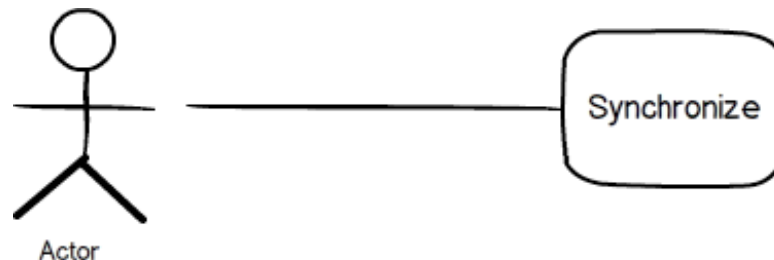
Preconditions : User must have been registered to the system.

Postconditions : None.

Step-by-Step Description:

1. User chooses "Change Password" from the account setting menu.
2. User fills "Current Password" with his/her current password.
3. User fills "New Password" to be his/her desired new password.
4. User fills "Repeat Password" to be same with the "New Password" filled in step 5.
5. The account is updated with the new password.

4.5.6 Use Case: Synchronize



The mobile application synchronizes with the server, that is cloud.

Preconditions : None.

Postconditions : Mobile system will be synchronized with the web interface.

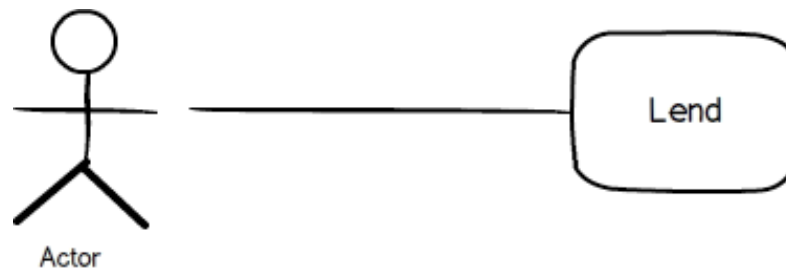
Step-by-Step Description:

1. User starts the application.
2. If the mobile device has an internet connection, the application synchronizes with cloud server.

4.6 Item Tracking Feature

This feature aims to keep track of the collection of books. The user can lend and receive a book he/she landed with this feature.

4.6.1 Use Case: Lend



The user lends a book.

Preconditions : User must have the indicated book in his collection.

Postconditions : None.

Step-by-Step Description:

1. The user chooses “Lend” menu from the main menu.
2. The user fills the “Name” with the name of the person who lent the book
3. The current date/time is added automatically to be time of the book lent.
4. The book is updated as lent.

4.6.2 Use Case: Receive



The user receives a lent book.

Preconditions : The application must be on the book’s page that is intended to be received.

Postconditions : None.

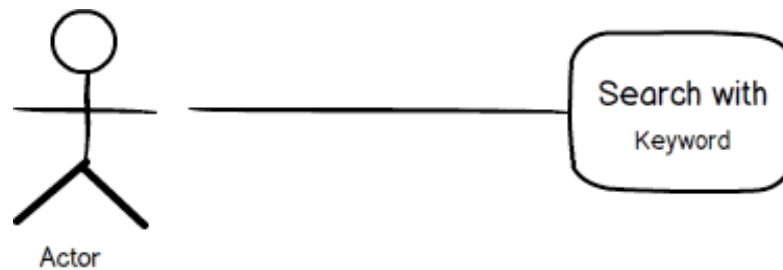
Step-by-Step Description:

1. The user chooses “Receive” menu from the main menu.
2. The book is updated as received and receive data is saved (i.e.. Not lent anymore).

4.7 Search Feature

This feature aims to search a book. The book may or may not be in the collection, the search gives an option to look one.

4.7.1 Use Case: Search with a Keyword



The user searches a book with keyword.

Preconditions : None.

Postconditions : None.

Step-by-Step Description:

1. The user fills the “Search” bar.
2. The user selects one of the tabs: “on the web” or “in your collection”.
3. The user may select one of the filters: “all”, “author”, “title”, “category”, “ISBN” or “publisher”
4. The tab lists the books with the given search filter

4.7.2 Use Case: Search with Barcode Scan



The user searches a book with taking photo of the barcode of a book.

Preconditions : None.

Postconditions : None.

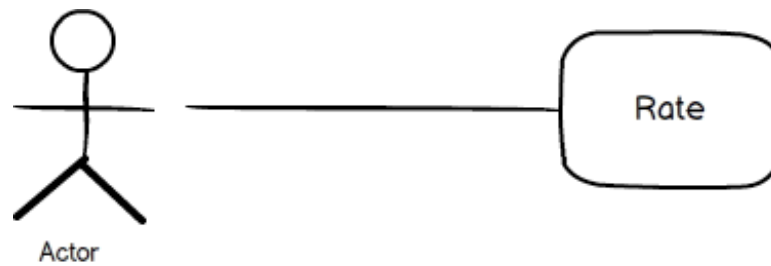
Step-by-Step Description:

1. The user selects “Search with barcode”.
2. The user takes a photo of the barcode.
3. The user selects one of the tabs: “on the web” or “in your collection”.
4. System processes the image and make search with “ISBN” filter.
5. The tab lists the books with the given ISBN.

4.8 Book Evaluation Feature

User can give review/rating to a book with this feature. The given reviews/ratings will be sent to Goodreads API.

4.8.1 Use Case: Rate



User rates the book in the range of 0 to 5.

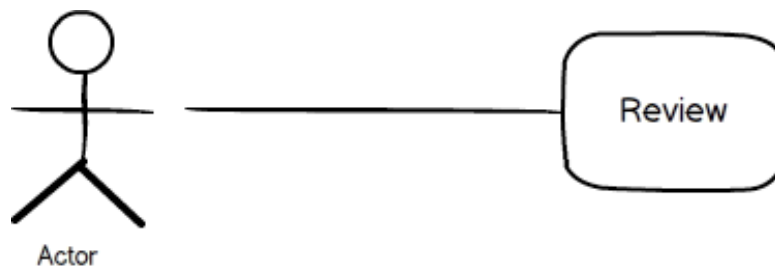
Preconditions : The application must be on the book's page that is intended to be rated.

Postconditions : None.

Step-by-Step Description:

1. The user gives a rate from 0 to 5 to the rate interface.
2. The given rate is sent to the Goodreads.

4.8.2 Use Case: Review



User writes a review about the book.

Preconditions : The application must be on the book's page that is intended to be rated.

Postconditions : None.

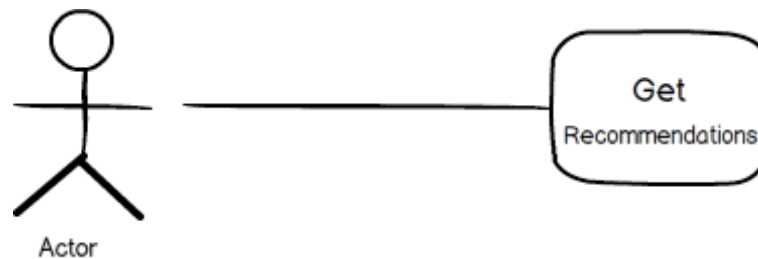
Step-by-Step Description:

1. The user selects the review tab.
2. The user writes review.
3. The review is sent to the Goodreads.

4.9 Recommendation Feature

This feature aims to give a recommendation list of books taken from the Goodreads to the user or recommend books to public.

4.9.1 Use Case: Get Recommendation



The user gets the list of similar books (in terms of category or the books with the same author) with the book he is searching.

Preconditions : The application must be on a book's page to get recommendations about similar ones to that book.

Postconditions : None.

Step-by-Step Description:

1. The user selects "Get Recommendations" on the book's page.

4.9.2 Use Case: Recommend Book



The user shares a book's title and author from his library either on Facebook or Twitter, in order to recommend his friends/followers.

Preconditions : The application must be on the book's page that is intended to be recommended.

Postconditions : None.

Step-by-Step Description:

1. User either selects "Share" link with the Facebook icon to share it on his Facebook profile or he selects "Share" link with Twitter icon to share it on his Twitter profile.
2. The title and the author of the book are written in a template sentence and written on user's Facebook or Twitter page.

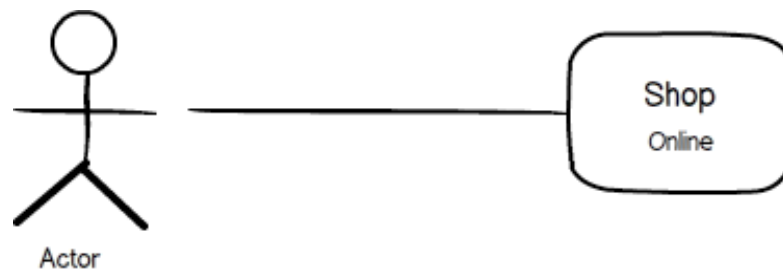
4.10 Online Shopping Feature

This feature aims to give an opportunity to the user to buy a book online.

Preconditions : None.

Postconditions : None.

4.10.1 Use Case: Shop Online



The user is directed to websites that sell books.

Step-by-Step Description:

1. User searches a book online.
2. A "Buy Online" option appears for each item on the list of results.
3. User chooses "Buy Online" option.
4. User is directed to Amazon.com to purchase the item.

5 External Interfaces

5.1 User Interfaces

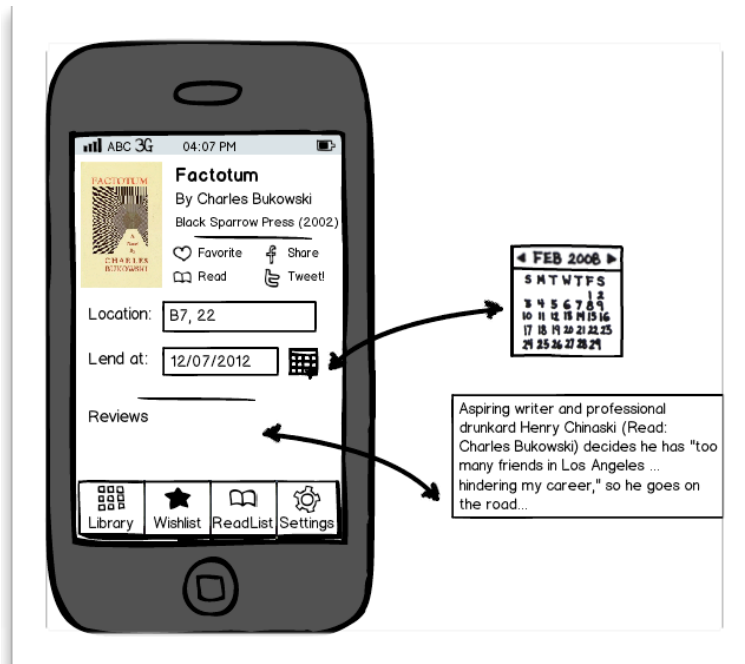
5.1.1 Collection View

Shelfbutler provides a collection view to present ordered set of books using a flexible and changeable layout. Collection view will present items in a grid-like arrangement or cover flow with respect to device orientation.



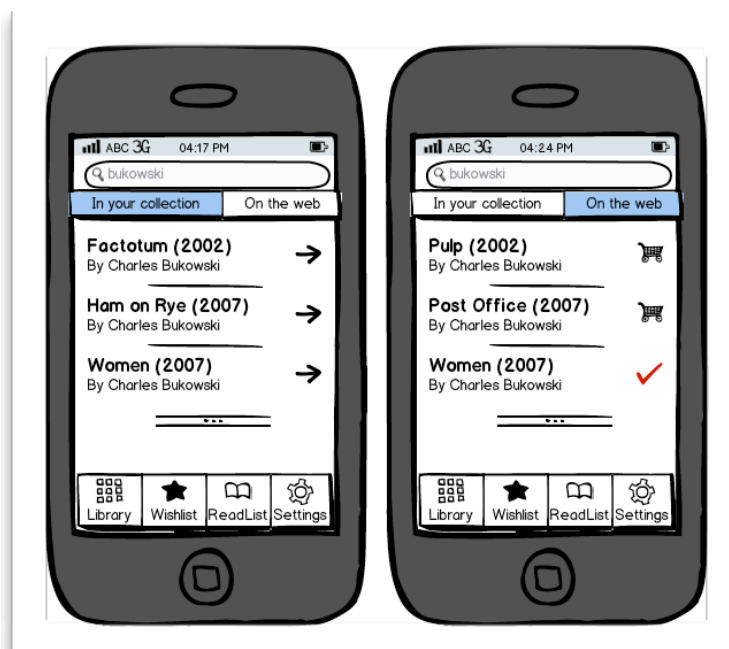
5.1.2 Book View

This interface shows fundamental information about a book on the collection. User will be able to view location information, reviews and tracking data as well as edit those fields.



5.1.3 Book Search

Shelfbutler offers a search interface with different constraints such as author, ISBN, name or publisher. User will be able to search in the collection or over the web. Web search results will come with a shopping option if the book is not already in the collection.



5.1.4 List View

Shelfbutler will implement some list views such as wishlist, read list, favorite list to increase usability and meet user's needs.



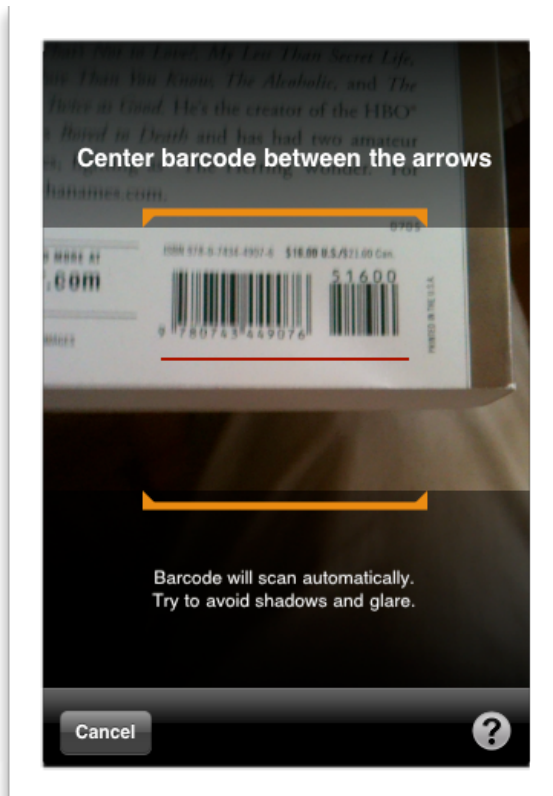
5.2 Hardware Interfaces

Shelfbutler needs specific hardware components in order to provide some crucial features.

5.2.1 Camera

Shelfbutler app gives you a few ways to look up books: you can search by entering keywords, you can browse through recommendations, or you can search by scanning barcodes as well.

Book management service - that is adding and removing books - and search component will provide a barcode scanning interface via camera. Barcode will automatically be scanned on the image transmitted by camera. ISBN data will be extracted through some image processing. An example interface is presented below.



5.2.2 Network Connection

Shelfbutler offers accessibility to a great extent by storing your collection data on cloud. This brings out the requirement of a network interface on the device. User should have a device with valid internet connection, Wi-Fi or 3G, to be able to keep collection synchronized with cloud.

6 Design Constraints

6.1 Performance

Shelfbutler is an application that takes performance into account for some certain services.

Barcode scanner component is one of them. For usability concerns, application should be able to process image in reasonable time.

Since the application offers cloud, every change in the collection should be reflected to the server via web services. Although, they will work on the background, response time of the web services should be max 5 seconds to complete synchronization quickly with minimal system resource usage. This implies, in case application grows, the server should be able to handle up to 100 requests in a second.

6.2 Security

Users must have registered accounts to use Shelfbutler application. Since user accounts contain personal information, security design is important in the application.

Besides, since Shelfbutler allows sharing on multiple social platforms, proper authentication on these platforms should be provided with respect to term of use.

6.3 Accessibility

Accessibility is a main concern for Shelfbutler. User should be able access the collection from both mobile device and web with similar interfaces.