CIS 3515 Assignment Worksheet 8

Instructions: **Create a new GitHub Branch** and update your **Audio Book Player** app with new features.

You application will use a Web Service API (see Appendix below) to fetch book information, and display those books in the app's various modes (portrait, landscape, etc). Your application will allow a user to retrieve all available book titles via the API, as well as allow a user to search for a subset of titles that match a user-provided search term.

1. Start a new branch of your previous project (Or **FORK** the Instructors version as a starting point if you prefer)

2. Remove the test books that were used in the previous assignment. We do not need them now that we have a new source for book information. You application does not need to show any books when it starts (the list can be blank) .

3. Update your application's Book class and add the following fields:

    1. id: Int – A system provided ID for the book

    2. coverURL: String – A URL to the image representing the book cover

4. Modify **BookDetailsFragment** to display the book cover image along with the the book title, and author.

5. Add a button to your activity's layout(s) that will trigger a search function in your application. To create this search feature, we will integrate with Android's built-in Search Dialog (https://developer.android.com/guide/topics/search/search-dialog)

    1. The example detailed in the Android Developer Guide shows a method to implement search using 2 activities: the activity that **triggers** the search, and the activity that **performs** the search. Unlike the guide however, your application should use a **single** activity to perform ***both*** roles. That is, your application must only contain one activity (Main); you will not add a second activity to perform a search. Modify the approach presented in the guide to match this constraint.

6. When the user types in a search term, you will performed the search action using a web service (see Appendix).

    1. When a user performs a search, they will receive a subset of books as a resposen from the web service. The response may contain zero, some, or all available books depending on the search term provided.

    2. A user can search for books by title or author by providing any string as the search term

7. When a search result is returned, the collection of books being displayed to the user in the

BookListFragment should be updated to only show the books returned. You may choose to do this using a ViewModel, **but it isn't required**. Regardless of whether or not you use a ViewModel, look at RecyclerView.Adapter's notifyDataSetChanged() function to see how to have a RecyclerView show updated information when its datasource changes (https://developer.android.com/reference/androidx/recyclerview/widget/RecyclerView.Adapter#notifyDataSetChanged())

8. When a user performs a search, the application must always display the BookListFragment showing the results returned by the search. Therefore, if the application is in single-pane mode, and is not currently displaying the BookListFragment, it should remove the BookDetailsFragment and show the list of books in the BookListFragment. If it is already showing the BookListFragment, or it is in two-pane mode, it doesn't have to change the fragments; it should just update the BookListFragment that is already being displayed.

9. Once the list of books have been searched for and the display updated, that subset of books must always be maintained by the application until the user performs a new search, even if the activity is restarted. In other words, if the activity is reloaded after a search is preformed (because of a configuration change, such as rotating the device), then the activity should not forget the books, nor should it perform another search. Instead, it should retain the list of books from the previous search.

10. **Push your project to GitHub and upload the link to the new repository branch to Canvas.**

CONSIDERATIONS

- Depending on your design, this note might be useful for you to remember: When an object is passed from one component to another, for example, A BookList object passed from an Activity to a Fragment, it's important to realize that there are not two copies of the object, but rather the same object is now being referenced by both the Activity and the Fragment. That means if the object is changed by the Activity, the Fragment would see the changes.

- Recall that by default, multiple instances of an activity can be launched whenever Android wants to deliver a new intent. If you want to prevent this from happening, you need to change the android:launchMode attribute of your activity declaration in the Android Manifest to a value that will prevent multiple instances from being launched. Once you have selected on of those launch modes, whenever Android wants to send your activity a new Intent, it will be delivered to that activity's **onNewIntent(Intent)** function instead.

Appendix

Audio Book Player API

Get a subset of books in JSON Array format based on a provided search term:

Format: https://kamorris.com/lab/cis3515/search.php?term=***search_term***

Return value: JSON Array of JSON objects. Each object represents a book with the following string:value pairs:

1. id: Number – the ID of the book

2. title: String – the name of the book

3. author: String – the author of the book

4. cover_url: String – the URL of an image of the book cover

Example:

Query URL: https://kamorris.com/lab/cis3515/search.php?term=***the***

Result: [{"id":"2","title":"The Island of Doctor Moreau","author":"H. G. Wells","cover_url":"https:\/\/kamorris.com\/lab\/abp\/covers\/IslandOfDrMoreau.jpeg"},{"id":"5","title":"Through the Looking-Glass","author":"Lewis Carroll","cover_url":"https:\/\/kamorris.com\/lab\/abp\/covers\/through_the_looking_glass.jpeg"}]

Notes:

1. You can (and should) test your web service queries in a browser. Just copy and past the example query above to see the result.

2. Querying the web service with an empty search term will return all available books.

Rubric

Search button added to main activity to launch Search	5%
Android’s built-in Search Dialog is successfully launched when use clicks search button	15%
BookDetailsFragment is updated to show book cover image	5%
User is able to perform a search to the Web Service and receive all or a subset of books	25%
App always shows the BookListFragment after a search is performed	15%
Updates BookListFragment’s RecyclerView with new books after search is complete	20%
Once retrieved, a list of books is retained if the activity is restarted (device rotated from portrait to landscape or vice-versa), until the user performs another search – books returned from new search will always replace old books	15%