# Assignment 3: Fragments and Adapters

**Turn in Instructions**: Submit one zip file containing: 1) PDF file with answers for part 1, and 2) your entire Android Studio project file.

## Part 1: Case study on mobile technology in various domains (20 points)

In this part, you will analyze the use of mobile technology in various sectors such as: ***safety, entertainment, health care, and education***.

### Task:

Select one of the above highlighted sectors, and find a research paper (select one paper that seems interesting to you) published in last 5 years on it. You might use the **ACM Digital Library** , **Google Scholar**, **IEEExplore** to search for a paper.

Read the paper and write up a summary of one page, describing:

- What paper did you read (authors, title, venue, year)?
- What problem were the authors trying to solve or question were they trying to answer? Why is it important?
- What approach did they take?
- How did they evaluate if their solution worked or if they answered the question?
- What are the limitations of their approach?
- What future directions might build on this work?
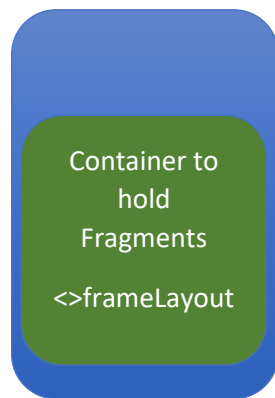
## Part 2 – Book store App (80 points)

In this part you will build a book store app, and for this you will fuse the concepts of fragments and custom adapters.

## Application description

The application would display a list of Books along with the book name. The user should be able to tap on the books, and it should direct them to its description page. The user should be able to come back to the main page by tapping on the back button. The assets (resources for images, and names) are provided on Blackboard, and you can pick any 15 Books of your choice (You can find this on your BlackBoard -> Course Material -> Course Documents -> Media Files for in-class exercises -> Assignment 3 – Assets(ZIP file))

## App Functionality

This app should comprise one activity and two fragments. When user enters the app, you need to show the set of books in a gridview, and when user taps on any of the books then you need to open up a detailed view of the clicked item from the gridview (this transition should be done using fragments).



Main-XML

Fragment 1

Fragment 2

**Main.xml**

In your Main Layout file include a container (Frame Layout) to add/replace the fragments during runtime.

You will create two fragments:

## Fragment 1 (Book List – Main Fragment):

- Create a Fragment, name it as BookList , and include a GridView. Each grid item should represent the picture and title of the book (You need to use custom Adapter to create this, and we will check for View Holder pattern implementation). The number of columns in a grid will be 2.
- Use an Arraylist to hold the book items (15 books) – each item should have an image and name of the book. Pass the array list to your custom adapter as data source.
- Include an onItemClickListener on the customAdapter - on click of each GridItem (book), the user should be directed to a detailed view (Fragment 2).
- For transitioning from Fragment 1 to Fragment 2 you need to use Fragment Transaction and perform a replace functionality (replace Fragment 1 with Fragment 2).
- Before transitioning from fragment 1 to fragment 2, make sure to pass the data (Book Image (int – Image ResID) and Book Name (String) from fragment 1 to fragment 2 through the Bundle. You need to create a bundle and setArguments for Fragment 2 to receive them.

- This Fragment should be added to Main Layout file. You should create a Fragment Container in xml layout of main to add/replace the fragments to it.

## Fragment 2 (Detailed view of Book):
- This fragment should contain an ImageView and TextView.
- You need to store a short description of books in .txt files or strings.xml(this is your choice). Make sure your description is long enough to provide the book details, and short enough to be rendered on a screen without occluding the rest of the components.
- Open this fragment when user clicks on the book. Get the details from the previous fragment, and restore it in this fragment (use getArguments() to grab the data (image and book name that you sent from previous fragment)
- The image should correspond to the book that was clicked and text should include a detailed description of the selected book (load the text from txt file/string.xml).



## Main Activity:
- In main activity use Fragment Transaction to add Fragment 1 (BookList – Main Fragment) to the container in main.xml (Fragment Container - FrameLayout) .
- Whenever the user presses the back button from Fragment 2, fragment 1 will be loaded. For this, you need to replace the container (in Main.xml) with Fragment 1 by overriding onBackPressed.
- This app should only work in portrait mode. So you need to set the orientation of this activity to be portrait in the Manifest file.

## Grading scale for part 2
1. Implementation of CustomAdapter with gridview (as mentioned in the above description) – 20 points
2. Use of ViewHolder model in Custom Adapter – 20 points
3. Fragments creation (Fragment 1 and Fragment 2) based on the specified description (check the above images). – 20 points
4. Transition between fragments and passing data between fragments – 10 points
5. Overriding BackButton functionality (by restoring Fragment 1 on tap of back button) and setting the application orientation to portrait – 10 points