



## Formative Assignment - 04 (Graded as Pass / Fail, Individual Work)

### Objectives

This assignment task has the following objectives,

1. Exploring material design components, specifically *Card View* widget, *Staggered GridLayout* and *Tabbed Layout*
2. Exploring HTTP data transfer using the *Volley* library to optimize network communication

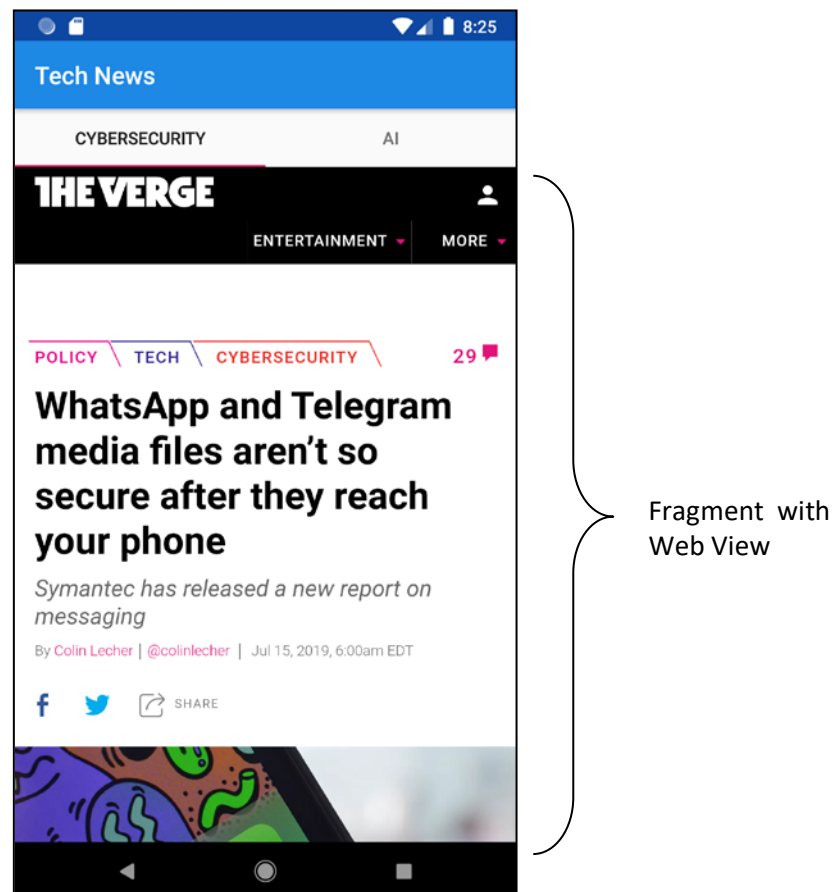
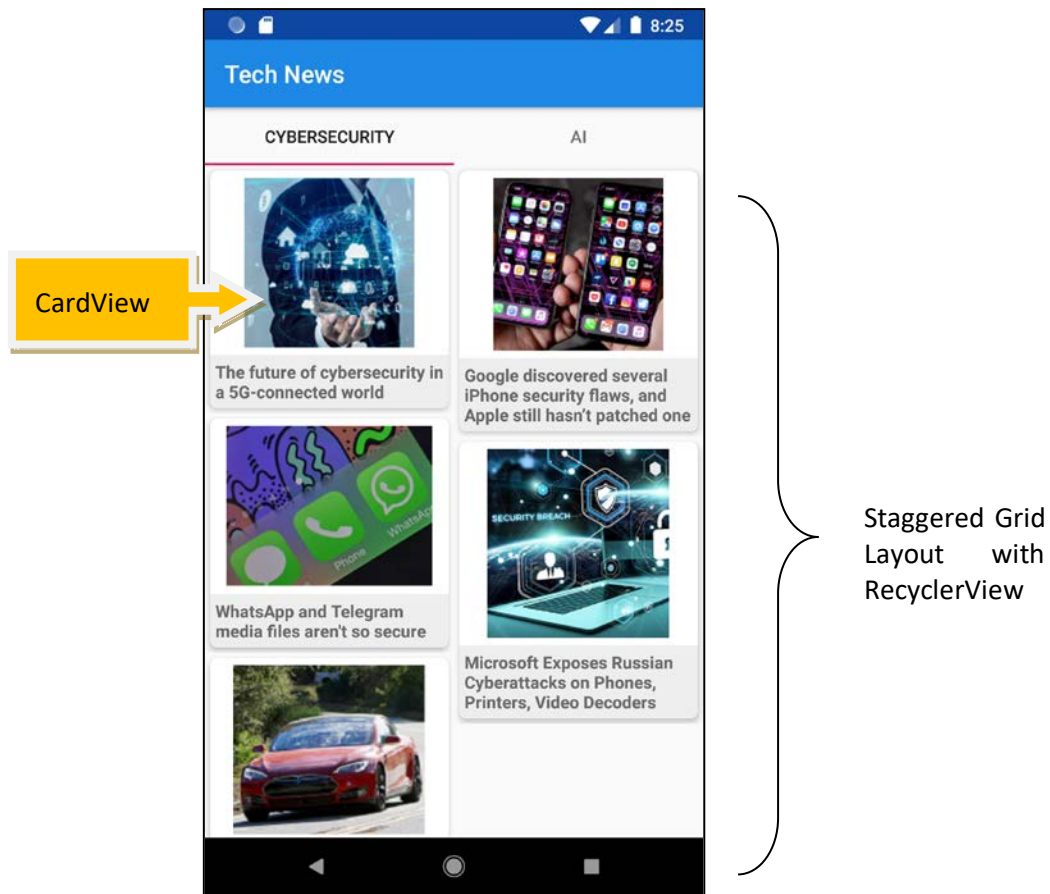
### Task 1

In this task, you will have to apply the combination of a few components: *Tabbed Layout*, *Card View*, *Recycler View* and *Staggered GridLayout* to learn to improve the visual layout of your app. Create a simple news portal which displays the latest news in technology which is categorised based on the two topics: Cybersecurity and AI.

Your app should load the list of news from *news\_list.txt* and the images (provided on Canvas) in a *Staggered Grid Layout* using *RecyclerView* as shown below. Create assets directory and place the *news\_list.txt* in it. You are not to change the content of *news\_list.txt* file.

The loading process should be handled by the *FragmentPagerAdapter*, which helps to create the fragment as a placeholder to display the list of news. Then, make use of *Recycler View* to populate the news in a *Staggered Grid Layout*. Wrap each item on the list in a *CardView*. Create separate fragment for each tab.

When the user clicks on any of the news item, load the website on a new fragment with a web view. Include a progress spinner while the webpage is loaded.

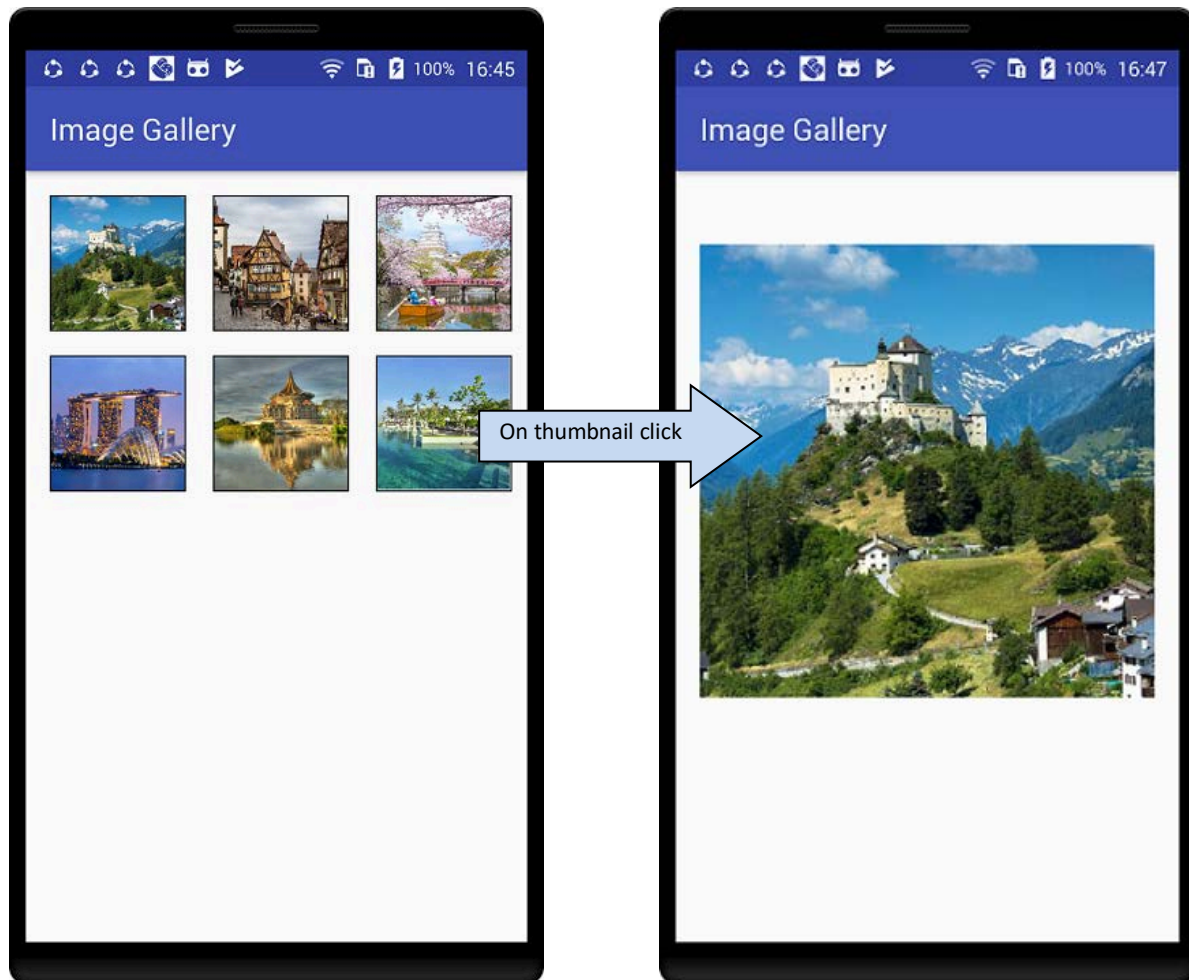




## Task 2

To improve on the networking capabilities, Android makes use of *Volley* library putting aside *AsyncTask*. In this task, you are to set up a HTTP web server either by using *Xampp* or by installing a virtual machine (Oracle Virtual Box) to run the web server. You may try to use *Nginx*, which is an open-source HTTP server. Load the images provided on Canvas for this task on the server.

Create a new project with *Grid view* filled with *Image view* display the images from the web server that you have started. Use custom base adapter to manage the *Grid view*. You are to send an HTTP request using the *Volley* library to load the images, making use of the *Singleton pattern* to cache the images to optimize the performance. Resize the images programmatically to thumbnail size before display it on the *Grid view*.



By clicking on the thumbnail, load the full size image on another activity.

### Core/Extension Tasks

All tasks in this assignment are “core”. You must complete all core tasks, submit for feedback, and achieve a pass for all tasks in order to be eligible for a pass grade in this unit.

### Submission

- i. You are required to submit a printed report:
  - With the assignment cover page
  - The document must have a title (e.g. Submission for Assignment 04)
  - (a) The document does NOT need a table of contents.
  - (b) Scrappy work will not be entertained
- ii. You are required to submit a softcopy of your report through the Blackboard.

The report is assessed and returned to you with feedback. You are expected to incorporate the feedback (esp. if changes are required) and submit the changed reports as part of the final portfolio.

Late submission will reflect on your performance. Any submission after 1 week of the due date will **NOT** be entertained.

**Note:** This is a formative assignment. That is, an assignment designed to provide feedback. If you fail this assignment, you have a maximum of **1 week** to make corrections and resubmit to pass.

## **Breach of Academic Integrity**

Cases of improper academic integrity includes plagiarism (re-producing in whole or substantial part of the codes/report from book, or the internet) and cheating (copying from your friends). Violation of academic integrity will have its consequences depending on the severity. A repeat offence could lead to a fail in this unit.

## **Demonstration**

You may be asked to demonstrate your assignment in the lab or during the signed-off sessions. You should be able to do this and explain your code when asked. Failure to do so will have an adverse effect on your performance.

## **FAQ**

### **What happens if a student is unable to submit the assignment?**

If you are unable to submit due to medical reasons, then a doctor's certificate will have to be shown. In exceptional circumstances, an email submission is permitted (with prior agreement with convenor). In normal conditions, all students are expected to make a submission by the due date, else the assignment is graded as a fail.

### **What happens if assignment submission is graded as a 'fail'?**

You will have to repeat the task and submit in the following weeks lab session. Students can repeat the task and submit for feedback up to **twice**. If your submission is graded as 'fail' twice then you may fail this unit.