COS30017
Software Development for Mobile Devices

Formative Assignment - 01 (Graded as Pass / Fail, Individual Work)

Objectives

This assignment task has the following objectives,

1. Become familiar with the SDK, Emulator, and IDE used to develop software for the Android platform.
2. Explain the basic conceptual framework of Android and coding practice
3. Explore and get familiarised with a variety of layouts by creating a simple app and applying them
4. Compare and identify the strength of different layouts that offer greater flexibility
5. Learn to achieve fluid layouts on different screen sizes.

Complete all the tasks

Task 1

Sub-task 1.1

Design patterns are templates of object-oriented codes to solve commonly occurring problems. Android mobile app development applies a suite of design patterns to provide templates for common solutions to enforce code reusability without re-inventing the wheel. Builder design pattern and adapter design pattern are commonly used in Android. Provide snippets of codes and explain what they do.

Sub-task 1.2

Singleton pattern is one of the simplest concept under creational pattern. Explain Singleton pattern and provide an example (code snippets) used in Android.

Task 2

Sub-task 2.1

In an attempt to explore different layouts supported by Android, create a simple app to with the following interface as shown in Figure 1. The resources (Task 2 Images.zip) are provided on Canvas. You are required to apply a combination of different layouts (linear, relative, table) to achieve the look. Please take note to adhere to good coding practice such as ensuring the string content is placed in their respective resources.

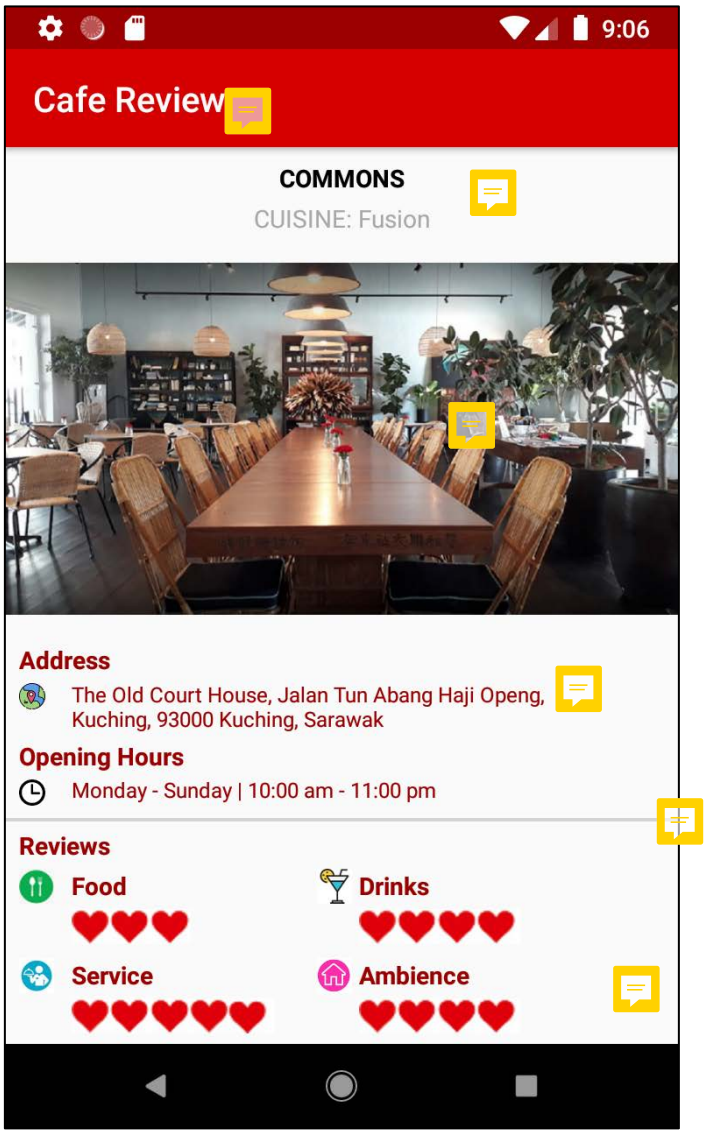

Figure 1

Sub-task 2.2

For this task, you are required to use Constraint Layout to create the above UI.

You are to ensure that the layout is fluid and will be able to fit different screen sizes (XHDPI and HDPI) for sub-task 2.1 and sub-task 2.2. Please ensure that the text is properly aligned according to Figure 1. You are also to include the XML scripts in your report submission with the screenshots of your app in 2 different screen sizes (high resolution and low resolution) for each sub-task.

Sub-task 2.3

Reflect and describe the challenges encountered for sub-task 2.1 and sub-task 2.2. Provide your own opinion on the strength and weaknesses of the layouts used.

Task 3

In UI design, software engineering theory advocates the "separation of concerns". Explain in half a page what this means, and what the underlying principles of this approach are with respect to UI design. Provide examples of how this is achieved in Android app development by relating it to task 2.

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 01)
   - The document does NOT need a table of contents.
   - Scrappy work will not be entertained

ii. You are required to submit a softcopy of your report through Canvas.

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.