COS30017/COS80019
Software Development for Mobile Devices

Formative Assignment - 03 (Graded as Pass / Fail, Individual Work)

Due: By the day of your Week 6 Lab

YOU MUST SUBMIT YOUR ASSIGNMENT TO DOUBTFIRE !

Objectives

This assignment task has the following objectives,

1. Create an application with multiple activities.
2. Understand late run-time binding pattern used to communicate between components.

Tasks

Task 1

Create an app. that will offer two features:

(i) Convert temperature from *celsius* to *fahrenheit*.

(ii) Covert distance measurements provided as either inches, feet or miles into either millimetres or metres (kilometres optional).

The main screen (activity) of the app. must provide a method to select one of the two conversions offered. You can use two buttons or two images to offer the selection.

The app. must,

- Have a total of three different activities.
- Make use of the distance convertor built for Assignment 2.
- Properly support orientation changes. Specifically, it should not lose values/state information.
- Make use of the temperature convertor code discussed in the lectures. You will however need to make minor changes to the code provided as part of the lectures to support orientation changes.

Once you have completed, take screen shots of your app. showing all of the activities. Include key source code snippets (Java and XML) as part of your submission. These code snippets must be commented.

Task 2

Create a simple image browser app.

The app must:

- have two activities: Main Activity and an Image Display Activity.
- display 4 images (of your favourite food items) using Table Layout.
- display a larger version of the image in the Image Display Activity when the user touches an image in the Main Activity.

- The Image Display Activity must show the image and a brief description of the image.
- All string values must be stored in XML values file

Once you have completed the task, take screen shots of your app. showing the main screen and the image display. You must include key source code snippets (Java and XML) as part of your submission.

Task 3

The Android developer documentation describes an Intent as follows:

"Activities in Android are activated through messages called intents. Intent messaging is a facility for late run-time binding between components in the same or different applications. The intent itself, an Intent object, is a passive data structure holding an abstract description of an operation to be performed."

Briefly answer the following questions within the context of the above information:

(a) Why is the intent messaging facility considered as a late run-time binding between components?

(b) What are the contents of the passive data structure (of an intent)?

(c) Why is the word "passive" used for the intent data structure? (Hint: What is the responsibility of an Intent object? Do they have any inherent intelligence built into them?)

(d) Use an example to better explain the sentence "abstract description of an operation to be performed".

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

You are required to submit a PDF report using doubtfire:

- login to doubtfire at http://doubtfire.ict.swin.edu.au
- The header (or) footer of the document must contain your name, student id, and unit code.
- The document must have a title (e.g. Submission for Assignment 01)
- Evidence that shows you completed each task must be presented in a separate section.
- The document does NOT need a table of contents (or) a cover page.

The reports are assessed and feedback given via doubtfire and, if required, in your lab. You are expected to incorporate the feedback (esp. if changes are required) and submit the changed reports as part of the final portfolio.

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

Demonstration

You may be asked to demonstrate your assignment in the lab. You should be able to do this and explain your code when asked in the lab session.

References

Android Activity Life Cycle - http://developer.android.com/sdk/index.html

Intent Reference - http://developer.android.com/reference/android/content/Intent.html

Intents and Filters - http://developer.android.com/guide/topics/intents/intents-filters.html

Working with Multiple Activities - http://apcmag.com/working-with-multiple-activities.htm

FAQ

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

If you are unable to submit due to medical reasons, then a doctors 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.

Cross Reference for Assignment 3

The following checklist will help you check that you have covered key points required in order to pass this formative assessment.

Task 1

- App has a total of three different activities.
- Properly support orientation changes. Specifically, it should not lose values/state information.
- Provide code snippets showing how different activities are connected.
- Provide code snippets showing how orientation change is managed.
- Provide code snippet showing the XML layouts of the activities.
- Code snippets are commented appropriately.

Task 2

- Code snippets show how the two activities are connected.
- Code snippet shows the XML layouts of the activities.
- Code snippets are commented appropriately.
- Code snippet shows how the image and text are loaded/set
- String values are in external XML values (not within layout)
- Screen shots show how the app works

Task 3

- Intent messaging facility as a late run-time binding is explained
- Passive data structure of an intent is explained with a code snippet or example
- Explain if intents have have any inherent intelligence built into them
- An example (code snippet) is provided to explain how intents provide the “abstract description of an operation to be performed”.