

## **COS30017/COS80019 - Software Development for Mobile Devices**

### ***Formative Assignment - 02 (Graded as Pass / Fail, Individual Work)***

***Due: By the day of your Week 5 Lab***

***YOU MUST SUBMIT YOUR ASSIGNMENT TO DOUBTFIRE !***



## **Objectives**

This assignment task has the following objectives,

1. Understand Activity life-cycle and the concept of string externalisation.
2. Create a simple interactive application.

## **Tasks**

### ***Task 1***

Compile and Run the Static Clock App. provided along with Assignment handout. Change the orientation of the emulator and observe the time (esp. seconds). When the orientation changes, the time is also updated.

- (a) Explain why the time information updates when the orientation changes. You must include two images of the app (one portrait, the other landscape). You should also include the Activity life-cycle diagram to support your argument -- clearly highlight the states that trigger the observed time change.
- (b) Briefly describe the difference between Resume, Pause and Stop states.

### ***Task 2***

Compile and Run the Life Cycle App. in an emulator (code is provided along with assignment handout). Trigger the onRestart event and take a screen shot of the application (Hint: One of the interaction buttons on phone will do this). Briefly explain how you triggered the restart event -- include the screenshot as evidence.

### ***Task 3***

Run the Life Cycle App. in an emulator. Trigger all events in the life cycle. The app. will generate messages to the Log displaying messages for all events (see source code to identify the tag used for log message). Copy these messages and show them in the report. Also grab a screen shot of the application showing the states.

Write a short explanation (under 1 page including images and Log messages) describing why some life cycle states are shown only in the Log, but not on screen.

### ***Task 4***

Describe the concept of String externalisation and how it assists localisation (in under 1 page, including images). Illustrate using examples from the Android platform. You must create an app. that will say "Welcome to my app" in English and one other language (e.g. French, Hindi, Chinese). You must take screen shots of the same app. with language

changes (explore Settings -> Language & Keyboard to do this). You must also include code that shows how the string value is referenced from within the layout file.

**Note:** You may attempt this exercise with any non-English languages of your choice. Check the languages that are supported in the Emulator, the icons will be handy to revert the emulator back to English setting.

### **Task 5**

Create an app. that will convert distance measurement information provided as either miles, feet, or inches into either centimetres or metres

The app. must,

- Have three labelled input fields that accept only numeric values (miles, feet, inches - note that these values may be expressed as floating point numbers).
- Have a button that will convert the input into a metric quantity.
- Display the conversion in centimetres (by default).
- Have a method that allows the user to see the value in metres (via a check-box).
- The user must be shown the unit of conversion (e.g. 160.0 cm or 2.3 metres).
- **Use different layout for portrait and landscape modes.**

### **Hint:**

To make the app. use a different layout xml file, create a new directory 'layout-land' and place the XML resource in this directory. To get started, copy main.xml from the default portrait (in 'layout' directory) into 'layout-land' and adjust the layout as needed.

*Note: that 1 inch = 2.54 cm , 1 foot = 12 inches, 1 mile = 5280 feet*

## **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 02)
- 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.

## **Useful References**

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

Localization - <http://developer.android.com/guide/topics/resources/localization.html>

Building a Simple Android Application -

<http://apcmag.com/building-a-simple-android-app.htm>

Working with Layouts and Orientation -

<http://apcmag.com/working-with-layouts-and-orientation-changes.htm>

Support Different Screen Sizes -

[http://developer.android.com/guide/practices/screens\\_support.html](http://developer.android.com/guide/practices/screens_support.html)

### ***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 twice. If you fail this assignment twice, you may fail this unit.

### ***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.

## **Cross Reference**

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

### **Task 1**

- Explanation of why time updates (hint: it is to do with life cycle)
- Diagrams are provided (Landscape, Portrait, and Life cycle)
- Differences between Resume, Pause, Stop states explained

### **Task 2**

- Restart event triggered and explained

**Task 3**

- Screen shots of the app & log messages (including a grab from Log cat view)
- Some log messages never show up on screen — this is described

**Task 4**

- Two Screen shots one in English and one in another language
- Mechanism of string externalisation / localisation is explained

**Task 5**

- Portrait and landscape modes shown using different XML files & layouts
- App works as expected & can be demonstrated in lab