

**ECE 1778 – Creative Applications for Mobile Devices**  
**January 2013**  
**Programming Assignment P2, for Programmers**

**Containers, Fragments, Select, Lists and Files**

The goal of this assignment is to learn more of the basics of Android capabilities, beginning with basic layouts of what a user sees, and then selects, how to present lists and how to store files.

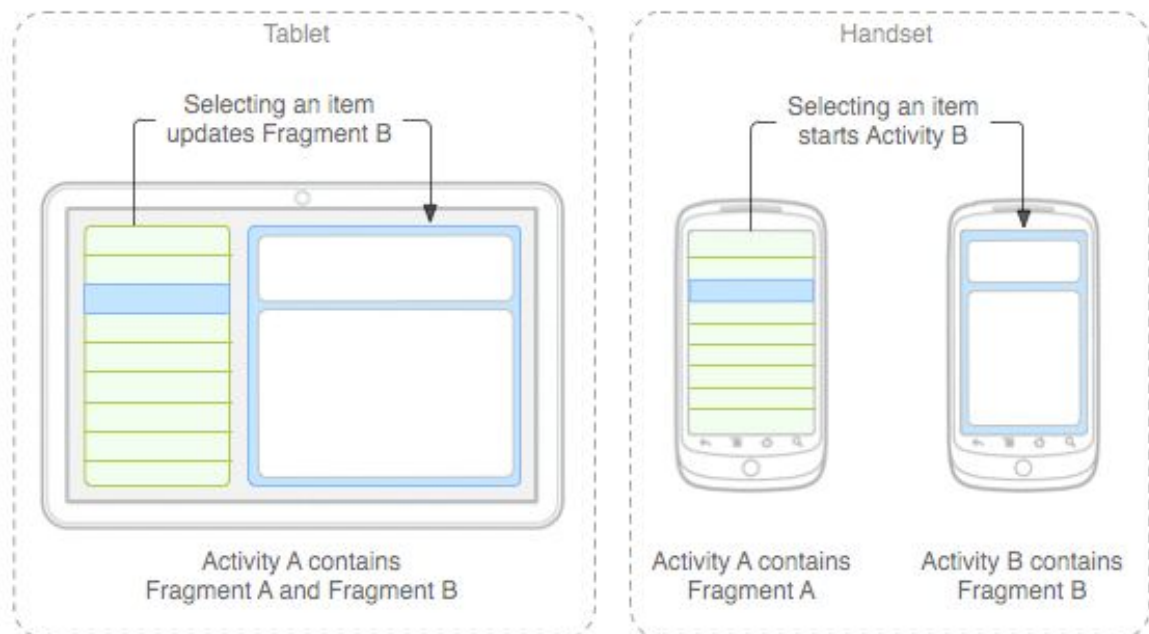
## **1 Reading/Practice**

Read and do the tutorials from pages 131-200, 309-332, 401-423, **The Busy Coder's Guide to Android Development**, Version 5.4, doing the small coding exercises given there.

If you are developing on the iPhone, then the suggested book, **Beginning iPhone 6 Development Exploring the iOS SDK** by Mark, Nutting, LaMarche and Olsson, covers similar territory in Chapter 4: “More User Interface Fun”, Chapter 8: “Introduction to Table Views” and Chapter 13: “Basic Data Persistence.”

## **2 A Note About Fragments**

In modern Android programming *activities* are containers, which hold logically independent units of your UI, which in turn are called *fragments*. In the simplest case an activity will hold and display a single full screen fragment, as shown on the handset in the image below.



One of the (many) benefits to having coded these UI elements as fragments is to ease the transition from phone to tablet app. Notice the tablet in the image. The app checks how much screen real estate there is and when there is enough it decides to layout fragment A besides fragment B, rather than swap between fragments A and B as it does on the phone.

Android design guidelines now *heavily* encourage the use of **dynamic fragments** contained in **FragmentActivities**, which inherit from the class

### **android.support.v4.app.FragmentActivity**

All of the new and exciting UI paradigms, designs, and frameworks all require knowledge of fragments. As a result we will introduce and enforce the use of fragments in various parts of the assignments of this course including in this assignment.

When completing these assignments **iPhone developers can ignore** the concept of using fragments, as there is no direct analogy to this design methodology in iOS.

## **3 Assignment**

*NOTE: before starting this assignment, please go back and read 'Braiden Brousseau's Guide To Quality Apps' that was part of Assignment P1. Your assignment should obey those guidelines, as part of the grade will be assigned for fulfilling those requirements.*

Write an app that allows the user to create a list of people along with their age and favorite foods, and allows the storage and loading of those lists in multiple files on the device. This app should contain a **total of one FragmentActivity** from the native support v4 library; all transitions between screens in this assignment should be accomplished by swapping in and out fragments **dynamically**, not launching new activities.

The app should work as follows:

- The starting screen should have five buttons: EnterNames, View, Store, Load and Exit
- Pressing EnterNames should take the user to a new screen where they can enter a series of records describing people: their name, age, and favourite food. The selection of the favourite food should be from a drop down list of different kinds of food, not free-form text. The user should be able to enter as many names as desired from this screen, and return to the starting screen through a 'Done' button.
- The Store button should cause the list to be written out to a file on the device using a file name provided by the user.
- The Load button should allow the user to read in a previously stored file by showing a list of all the previously stored files. (This takes some extra work).

- The View button displays, in a scrollable list, the set of people entered, along with their age and favorite food.
- The Exit button terminates the application, but makes sure any list that has been created or modified, will be stored first.

**Due date:** Tuesday January 28th, at 6pm, Marked out of 10, 0.5 marks off every hour late.

What to submit. **Submit your work on the Blackboard Course Portal. Be sure to submit it to the 'P2' Assignment, under Assignments.**

1. Android developers: a zip file containing your final Android application file (.apk); use your student number as the filename. Also submit the complete eclipse project directory in a separate zip file.
2. iPhone developers: you must submit the complete project directory, including source, in a zip file. Use your student number as the filename. Please do your development on the 5.0.2 version of the SDK, and make sure that you haven't included any files by reference. In fact, please test your submitted zip file before sending it in.