

Mobile Application Development – Fall 2012

Assignment 1 – Getting Started With Views

Due Wednesday September 5th at 11:59 PM

The Android framework provides developers with all the tools they need to make a mobile application. Many successful apps are built entirely using the views and libraries provided by Google. Understanding these frameworks will give you the foundation you need to make more complex and customized applications. Your first assignment is to make a simple app using these tools.

Objectives

You must make a simple application composed of a single Activity (or a single screen of information). You will choose from one of the following options:

Four Function Calculator

- Must handle Add, Subtract, Multiply, and Divide operations (accurately).
- Must be able to chain operations (meaning the user can use the result of an operation as the left hand operand of the next operation).
- Must maintain state through an orientation change.
- Must support large numbers (hint: use the BigDecimal class)
- Bonus: add sin, cos, tan, log, or any other more advanced functions, calculator memory, or make it handle expressions (order of operations).

Vector Calculator

- Allows user to sum any number of three dimensional vectors together, find the longest vector, and solves for the dot product of the first two vectors.
- Must display entered vectors in a list. User can add vectors to the list, and can clear the list.
- Bonus: graph the vectors, maintain list through orientation change, maintain list between instances of the application (close and restart).

Metric-Imperial Converter

- Converts Imperial (American standard) units to Metric units for volume, speed, distance, temperature, and mass (weight).
- Allows user to change units and convert both directions.
- Must maintain state through an orientation change.
- Must support large numbers (hint: use the BigDecimal class)
- Bonus: convert imperial to imperial (miles to yards, etc.), have a different interface for landscape vs. portrait orientation, or if you are really ambitious, handle voice input (like “how many cups are in 2 liters?” Very advanced).

If you have another idea for a project you'd like to make, come talk to me (Murdock) and I may or may not approve it.

Result

After doing this assignment you should know how to do the following things:

1. Create a new Android project.
2. Run your project on the emulator, and on your own device (if you have one).
3. Build a layout using Java.
4. Handle UI events.
5. Export your app as an Android application package (apk).

Rules

- You may NOT use an XML Layout. We will cover this topic at some future date, but before then we want you to understand how to build layouts without the help of Google magic. Building everything in code proves you understand how it works.
- Absolutely no code from the Internet. Don't just follow a tutorial online and turn it in. If you do, you will not learn what we intend you to learn and you will fall behind very quickly.

Submission

You will submit 2 things: an unsigned Android application package (apk), and a zip file containing your project's source via handin.

Grading

You will be graded on the following criteria:

- Were we able install/run your application?
- Were there any major bugs? Did it crash?
- Does it do what its supposed to do?
- Is it interesting? Did you do more than the bare minimum?

If your app meets these criteria, you will get a B+. To get an A then look at the bonus points. Bonus points are not extra credit. They do not apply to future assignments, and they cannot raise your grade above 100%. Bonus points are meant to be stretch goals that will require you to learn new material on your own time. This will be true of all of the assignments and your final project.

Also note that you can make any improvements on your app as you see fit, even if they are not listed as "bonus points". I will try to reward students for any extra features they add on their own, but it must first meet the base requirements. I don't care if your interface is pretty if it doesn't work.