

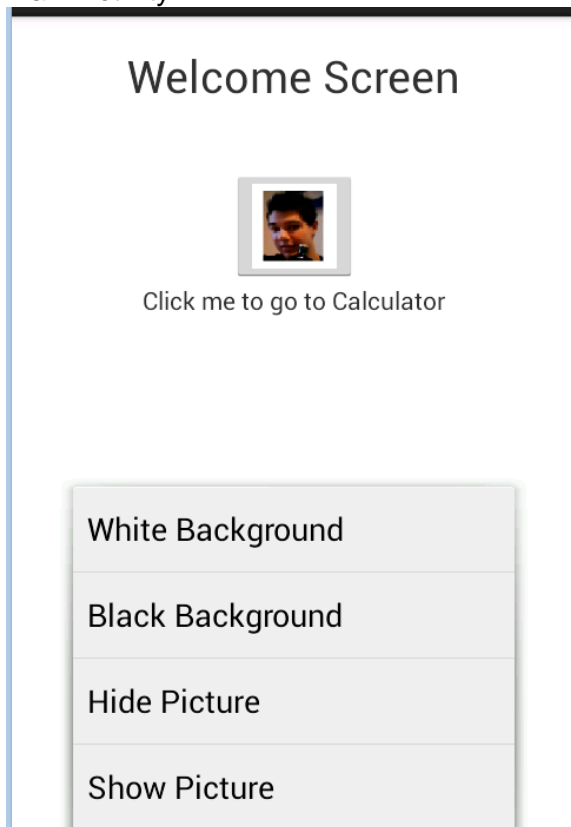
Lab 02: Basic Calculator

The aim of this week is to design a simple calculator app, comprising two activities (a welcome screen and a calculator screen). An example of what the app could look like is given here, but feel free to design it your way.

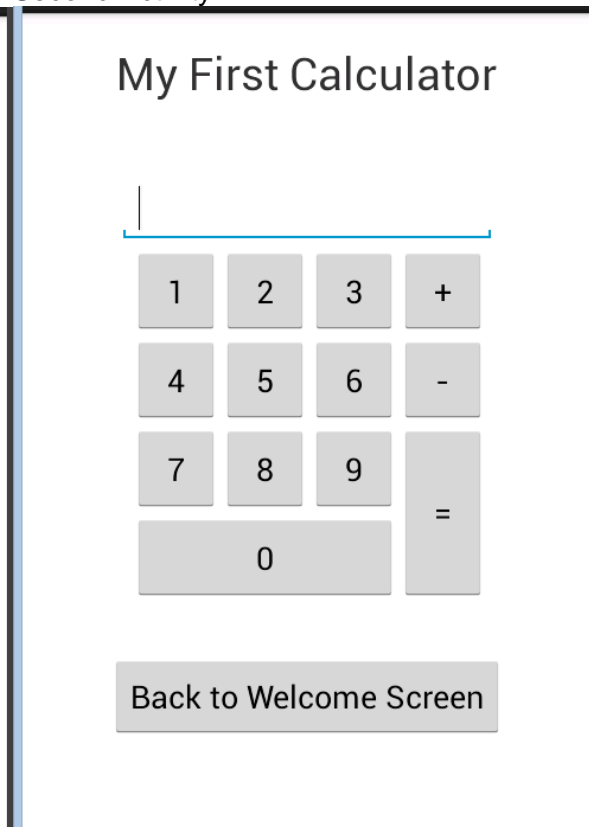
Note that you should include:

- An image resource
- A working options menu (to change background and image)
- At least two activities
- A basic implementation of a calculator

Main Activity



Second Activity



Note that the options menu is not constantly visible, but opens up when you press the "MENU" button on your Android device.

It is up to you in what order you want to design the app, but I advise you to follow a couple of guidelines:

1. You can follow the documentation in Android for Absolute Beginners, Chapter 7 (p163 onwards) to start you off with the first three steps:
 - Start with the design of the main activity. You should have some feeling for basic UI design by now, so the TextView elements should be easy to implement.
 - Add an <ImageButton .../> element, using a random graphic element. Make sure you use the right size and format when you save the .png element in your drawable-xxhdpi folder.
 - Design your options menu and get it to work. Make sure you don't forget to define the background colors in your strings.xml file. A detailed step to step guide is given in the chapter.
2. Follow the training on the Android Developers page, under "Building Your First App" - > "Starting Another Activity". Look also at the tutorials under "Managing the Activity Lifecycle", to get an understanding of how to make sure your application runs fast.
 - Add a second activity (second screen) to your application. Just implement the TextView widget and the BackButton on your second page and try to switch between activities in your app.
3. Finally implement the calculator. Start off with only four buttons (e.g. "1", "2", "+", "=") and work your way up. This final part might be tricky if you do not have basic experience with Java, but give it a try! You can always look for documentation on the internet to help you out, but make sure you understand the code and do not just copy/paste!

In case you finish the lab early, I encourage you to think of ways to make the current design more attractive and try to implement them.

For example:

- Add a proper background instead of the simple black/white backgrounds
- Add a simple application icon
- Add a slider that shows a clock on the main activity
- Instead of the four menu buttons, only use two to toggle background and image
- Increase the functionality of your calculator by adding multiplication and division/ a comma/ a clear button
- Add a slider to give you a history of past results on the calculator activity
- Anything you can think of

Note that those points are just suggestions, you can implement whatever improvement you can think of.

Happy Coding!