CSC 122: Graphical User Interface

Calculator

1   Introduction

In this lab, you will be required to take a pre-existing GUI framework for a calculator and add fuctionality to the calculator. At this point, you should have all the necessary knowledge to implement this calculator.

The calculator must work like a normal calculator, in that is displays the digits and operations that have been entered. A good example of this can be seen in the existing Android calculator.

One piece of advice that you may need, there must be a class that detects when buttons are pressed. Without this, your application will not do anything when buttons are pressed.

2   Objective

In this lab, you will learn how to utilize and implement a Graphical User Interface or GUI. Most all applications use a GUI because they are more intuitive and sometimes easier to use than a command line interface. You will be supplied with a non operational GUI application to which you must add the necessary functionality to each button. You are highly encouraged, and will possibly be graded, to enhace the visual aesthetics of this application to make it more user friendly and appealing. As is, it uses a basic design layout and does not rotate to landscape mode. Any modifications to the GUI must be done via the text version and not the drag and drop option. By the end of this lab, you will be able to implement your own GUI application without any assistance.

3   Activity

The functions for the calculator should include at a minimum:

These functions must be implemented manually: Numbers 0 through 9 Addition Equals Minus Multiplication Division Negative Decimal Backspace (delete the last added digit) Clear All

These functions can use an API call if needed: Square Root Inverse Percent

Bonus points may be applied if the calculator can take multiple operators and perform the proper order of operations on the equation after the "Equals" button is pressed.

Remeber, the proper order of operations is: 1. Parantheses 2. Exponents 3. Multiplication/Division 4. Addition/Subtraction

Exponents are not required in this application, but parantheses are encouraged if order of operations is implemented.

4   Conclusion

In essence, you will be learning how to modify and improve and existing GUI application. This is meant as an introduction to GUIs to get you familiar with how GUIs are generated in the Android OS. This will reinforce design and attention to detail while making an application that is intended to be easy to use for a general, non-technology inclined audience.

5   Deliverables

You are required to turn in your entire project source code as a zip file through the means specified by the teacher. The project must successfully compile into an Android application. If the application does not compile, your project will not be graded. If the application does not run on a phone, it will receive minimal marks. Any function that does not work will result in a loss of points. A force close (crash) will also result in a deduction of points. Any known bugs should be documented in a readme file included with the project. This may allow for a smaller deduction of points depending on how serious the bugs are.