CSCI 4100U - Assignment 1 - Simple Calculator *(Made For Android)***(Target ANDROID 4.3)*****

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Report

Functionality

The purpose of this calculator was the put an emphasis on the GUI element using buttons as inputs rather than typing in numbers manually. The calculator itself is a basic 4-function calculator with some extra features. The program consists of two 'EditText' elements at the top that displays the output of the operation and secondly the current numbers that are being entered in as the next input to be calculated. Ten buttons simulate numbers 0-10 along with: addition, subtraction, multiplication and division. The user is also able to use decimals since this program uses 'double' data type.

As a bonus feature, the user is also able to clear the output to wipe the string and also able to 'back space' the current input if the user decides to remove a number they have inputted before completing an operation. The user is able to compute multiple operations with the same initial set of data as much as they wish until they 'clear' the resulting string. For every new calculation, the 'clear' button must be pressed.

The calculator also has a built in function to avoid the situation where the user would divide any number by '0'. If the user tries to divide by zero, the class that does calculations will return a string that fits a condition to trigger an error message that the user will read, then click a button to unsuspend the program and continue.

Design / Implementation ***(Code is also commented with similar information)***

The layout is a very basic single screen layout that uses a series of vertical and horizontal layouts to organize the buttons and text lines. It is designed in a way that makes it very easy to add more content without throwing off the design of the whole project (compatible). All strings are predefined and not hard-coded.

The 'Calculations.java' file is designed only to complete external calculations from the main class which leaves for breathing room and uncluttered code. Using boolean values for each mathematical operation, the class will only complete the operation it was sent to do then return a value. The 'Operation()' function is in charge of passing input and returning the resulting output through this class.

The 'DivideByZero.java' class is a separate class only used if user tries to divide by zero. Using an 'if' statement in the 'Operation()' function, a string is used to trigger this error.

The 'MainActivity' class controls user input by initializing buttons with 'OnClickListener's assigned to each button which carries its own function and is organized in a way that extra buttons and operations and easily be implemented in the calculator without risking the integrity of the programs performance. This is because separate classes and functions help isolate as many features as possible.