

Write the following application. You will be using the GUI lectures to complete this assignment. The implementation of the GUI is left for you, but it should be intuitive to use. You may need to use several layouts in order to make the interface usable.

### **Calculator:**

Write a calculator program. You can use the windows built-in calculator as an example. The user will be enter numbers, both integer and real numbers. The calculator is to have the following functions: add, subtract, multiply, divide, power of, negate. This is not a stack based calculator! Example of what the User enters and it displays.

9 (shows 9) + (no change in display) 70 (shows 70) = (shows 79)

2 (shows 2) + (shows 2) 2 (shows 2) / (shows 4) 2 (shows 2) = (shows 2)

2 (shows 2) power of (still shows 2) 3 (shows 3) = (shows 8)

As a note, while above, it says operators don't change the display, if you want to display the operator (say off to side or something) you can.

### **GRADUATE only section:**

It will also have the standard function of storing and retrieving a value from memory (normally shown as M [memory store] and MR [memory recall] on most calculators). When M is pushed, it shows the current value shown in memory. When the MR is pushed, then that number is used as if it was just typed.

Example: 8 M, so 8 is now stored in "memory".

9 + M (shows 8) = 17

Clear: Clears everything: operators, memory, and sets it back to zero.

Del: Clear the number that was just typed in, but not the operator.

Example: 9 + 9 Del 80 = 89. 42 Del 8 + 9 = 17

### **TURN IN and GRADING:**

Soft copy:

1. Use this link to create your repo <https://classroom.github.com/a/EGyo6cE9>
2. Upload the project to your repo
3. Create/Edit the readme.md file, add the following:
  - o Course number 4730 or 5730
  - o Name
  - o how to run the program,
  - o which phone/emulator to run on including special information like android version (ie v4.4) and screen size.
    - Or if you are using the borrowed, phone, Pixel 2.
4. Lastly ensure everything has uploaded to the github website and not just the local repo. Code will be graded on correctness, comments, and coding style.