Topic and Group Selection

Group members: Steve Krueger, David Heyman, & Anish Dhesikan
Group name: Mathematical Entropy in Tangible Action (Team META)
CCIS GitHub location: https://github.ccs.neu.edu/heymand/Calculator-Project.git
Project description: Small GUI calculator.

Describe the major features of your project:

- All 4 basic arithmetic functions (+, -, *, /)
- Limited memory storage for previous outputs (MEM, MEM+, etc.)
- Further functions (exponents, trig) for scientific mode
- Parenthesis and parsing for order of operations in scientific mode

Describe the advanced feature(s) of your project, and the library/SDK/API you plan to use:

- 2D graphics using OpenGL and either SDL or GLUT.
- Possibly mobile deployment to Android - we're not sure.

Describe what user input your program will take and how it will affect the state of the program:

There will be two major states for users to swap between: standard and scientific.

In standard mode, the user will be able to use the four major operations, as well as store a single variable, but will be limited to single operations; the output will immediately become the first argument regardless of order of operations.

eg: on inputting 5,+,9,/,7; the calculator would interpret it as ((5 + 9) / 7).

In Scientific mode, in addition to the other added functions, users will be able to write full formulas to evaluate (including parentheses) and the calculator will parse them as would normally be expected with order of operations.

There is a large possibility of us implementing more features (for both modes) than those listed here.

Briefly describe plans for dynamic memory management and class inheritance structure:

Memory will be dynamically allocated for the MEM functions, and to store user input until '=' is pressed, to allow for calculations using correct order-of-operations in scientific mode.

We might have class inheritance in buttons (all buttons have the requirement to have a draw function and to output something to the stored user input when clicked), and will definitely have it with the two calculator modes (standard and scientific), both taking input, storing input, and interpreting the result to create an output to the screen. Precise details depend a bit on what exactly the graphics library already handles.