Lab Exercise 1

Objective: Build a calculator using Interface Builder, the Application Kit, and a skeleton calculator object.

Required files:

`Calculator.m`	Contains implementation for the Calculator class (incomplete)
`Calculator.h`	Contains interface for the Calculator class
`Calc.nib`	User interface data (incomplete)
`Calc_main.m`	Contains the main program to run the application (generated by Interface Builder)
`Makefile`	Creates the application via the "make" command (also generated by Interface Builder)
`IB.proj`	Project specification for your application (contains info to generate `Makefile`, etc)
`Solution/`	Directory containing one possible solution

Tasks:

1. Study provided files to understand how they work and the initial methods available to you.

2. Double-click on `Calc.nib` to open Interface Builder, and build a calculator user interface:
   a. Build the calculator interface. First create a window, then bring in buttons for the keypad and a TextField (not a ªField:º) for the display.
   b. Use the Inspector window's ªAttributesº mode to set each digit button's tag to be equal to the digit. Also inspect the window to set its title and get rid of its buttons.
   c. The `Calc.nib` file already contains an instance of the Calculator class (named `CalculatorInstance`, visible in the lower left corner of the screen). Connect each button to this instance, selecting the appropriate actions in the Inspector window. To form a connection, you need to first hold the control key down, then click on the source and drag a line to the target. Then select the appropriate action in the ªActionsº column of the Inspector window and click ªConnect.º
   d. Finally connect the outlets of `CalculatorInstance`. Form a connection from the object to your outlet, then select the appropriate outlet name in the ªOutletsº column of the Inspector window and click ªConnect.º Connect the outlets (named `aWindow` and `viewer`) to your main window and the text field, respectively.
   e. Remember to save your interface file. The project file (`IB.proj`), `Makefile`, and main program file (`Calc_main.m`) have been provided for you; all you need to do is select ªSaveº to save the `.nib` file.

3. Compile the application (type ``make debug'' in a Shell or Terminal, or, better yet, select ªMakeº from ªFileº menu of Interface Builder). Then run your program (type ªCalcº in a Shell or Terminal or double-click on the application icon in a Workspace window). Digits, add, enter, and clear should work. If not, back to step 2.

4. To make other buttons work, add missing code to `Calculator.m`, add necessary methods in the Inspector window, and associate the buttons with the methods.

5. [Optional] Fill in the `stackError:` method. Add any corequisite code to other methods.

6. [Optional] Customize calculator to your taste, and add additional functions. Suggestions: *1/x*, *log*, *ln*, *sin*, *cos*, *tan*, *sqrt*, *y^x*, *exp*. (If unfamiliar with the UNIX math library, check out the manual page for ªmath.º)