HOWTO: Setup an OSX development environment for OpenGL and GLUT

Procedure I followed on my OSX 10.8.3 system

XCode is free from Apple and can be downloaded from the App Store
    Look under the App Development category

If you are using the recent current version of XCode and you also want to be able to use the development tools from the command line (Terminal) then you will need the Command Line Tools for XCode which you can download from here:
https://developer.apple.com/downloads/index.action
Make sure to download the correct version for your system (e.g. Lion, Mountain Lion)
I downloaded the Mountain Lion version
Once downloaded go to your Downloads folder and double-click the dmg file
A window will pop up with the 'Command Line Tools' package showing
Double-click to install it - follow the instructions that are presented

Double-click XCode from the applications folder or Launchpad to start it (I am using v4.6.1)
On the welcome screen click on 'Create a New XCode Project'
Another dialog will pop up
In the left pane click on 'Application' just under the OSX entry
Click on 'Command Line Tool' in the right pane
Click Next
Enter GLUT-Test for the project name
Enter UCLA-CS174A into the company identifier (or whatever you want here)
You can change the Type to C++ if you like, I do not think it matters, but I did
Click Next
Here you need to select a location on your local disk for your project
    I chose to locate my project in the Documents folder
Click Create

Now you will see the main XCode window (lots going on here)
Click on the 'Build Phases' Tab at the top of the central pane
Click on the drop down arrow for the entry titled 'Link Binaries with Libraries'
Click on the '+'
A dialog will appear
    Type the following into the search box: OpenGL
    At this point you should see 'OpenGL.framework appear in the window below
    Click on the 'OpenGL.framework' and click Add
Click on the '+' again
A dialog will appear
    Type the following into the search box: GLUT
    At this point you should see 'GLUT.framework appear in the window below

Click on the ‘GLUT.framework’ and click Add

Click on the ‘main.cpp’ entry in the left pane to bring up the text editor
Now type (or copy) the following test code into the editor window in the center pane
======ENTER CODE BELOW THIS LINE

```
#include <GLUT/glut.h>

void display()
{
}

int main(int argcp, char **argv) {

 /* Set window size and location */
 glutInit(&argcp, argv);
 glutInitWindowSize(640, 480);
 glutInitWindowPosition(0, 0);

 /* Select type of Display mode: single buffer & RGBA color */
 glutInitDisplayMode(GLUT_RGBA | GLUT_SINGLE);

 /*Initialize GLUT state */

 glutCreateWindow("Hello World");
 glutDisplayFunc( display );
 glutMainLoop();

 return 0;
```

======ENTER CODE ABOVE THIS LINE

Now you can compile and run your code.
Click on the big Run arrow at the top left of the window
The code should compile and run
You should see a window open with a blank white background
Command-Q will quit the program

Things are working - if you do not go back and make sure you followed the instructions here carefully or post your questions to the class forum

Do not close XCode yet!

If you got this far you are go to start on Assignment #1 or see below about install GLEW

Installing GLEW on OSX
It is not clear this is necessarily needed for the class but if you do this is the easiest way to accomplish the install that I have found.

While downloading and building and installing GLEW is possible it is probably not something you want to do (and I do not want to explain)
So, we will use MacPorts (which is a package manager for OSX). Actually, we will use Homebrew which is a more friendly front end to MacPorts. This means we can download and install GLEW without much effort.

Download and install Homebrew from the Terminal (http://mxcl.github.io/homebrew)
Type the following into the Terminal (or cut and paste from the Homebrew website homepage)
ruby -e "$(curl -fsSL https://raw.github.com/mxcl/homebrew/go)"
Hit Enter to start the script
You will see 'Hit ENTER to continue or any other key to abort'
Hit Enter
It will ask for your password
Enter your password
The installation will proceed...
Once finished you will see that it tells you to run 'brew doctor'
type: 'brew doctor' into the Terminal

Now we are ready to install GLEW
Type the following into your Terminal
brew install glew
All done.

Now you have to get XCode to see the library you just installed
Back in XCode (hopefully you left it open from before)
At the top left of the editor window there are two triangle (arrows) facing left and right
Click on the left arrow
Click on the GLUT-Test under the 'PROJECT' entry in the left pane
Click on the 'Build Settings' Tab
Click on 'Base SDK' and change it to 'Current OSX'
Click on the GLUT-Test under the 'TARGETS' entry in the left pane
Click on the 'Build Phases' tab
Click on the 'Link Binaries with Libraries' dropdown
Click the '+'
Enter 'libglew' into the search box
Click on 'libGLEW.dylib' in the box below
Click Add

Click the little right arrow at the top left of the center pane to go back to the editor

Enter the following line ABOVE the #include <GLUT/glut.h> line
#include <GL/glew.h>

Then enter the following lines AFTER the glutDisplayFunc() line
===
```
 GLenum err = glewInit();
 if (GLEW_OK != err)
 {
 }
 std::cerr << "Status: Using GLEW “ << glewGetString(GLEW_VERSION) << std::endl;
```
===

Now click the Run arrow at the top left
Everything should compile and run again - you should see the white window
You should ALSO see some output in the XCode output window

You should be ready to do on to Assignment #1

-Scott