HOWTO: Setup an Linux development environment for OpenGL and GLUT

Procedure I followed on my CentOS 6.4 system (it will be similar for others)

The biggest headache when trying to program graphics on linux is getting the right drivers installed. These days there are really just three graphics hardware vendors you have to worry about and that is (in no particular order) nVidia, ATI/AMD and Intel. You will have to figure out or know for yourself which one is inside your computer.

The first thing you should do is bring up a terminal window and type the following command
glxinfo | less

If you get nothing - or the command is missing on your system you are either not running X windows which means you need to get into your windowing system (runlevel 5) or make sure the glx-utils package is installed for your distribution.

Once you get this command working you need to look at the output and check for the lines that tell you the OpenGL vendor string, version string and shading language version string. The versions should all be at least 2.1. If the vendor string shows nVidia or ATI or AMD then you probably already have the proprietary drivers installed.

Here is a nice link I found on how to install these drivers for both Ubuntu and Fedora / RedHat / CentOS systems.
http://www.makeuseof.com/tag/install-proprietary-graphics-drivers-ubuntu-fedora-linux/

One quick way to tell if OpenGL is working on your system (with or without the proprietary drivers) is to type the following into a terminal window
glxgears

If a little window shows up with some animated gears you are in good shape.

Press escape to quit

At this point we need to install GLUT. (this is for yum/rpm based systems - debian (ubuntu) is similar - I believe freeglut-devel and glew-devel are both part of the default package distribution system)

On my system this is done using yum (or rpm), type the following into the Terminal
*NOTE: you will have to be root to perform the following command. Either su - to root or use sudo if that is setup on your system.
yum install freeglut-devel
Answer ‘y’ to any questions

To install the GLEW library we will need to enable the EPEL repository on Fedora/Redhat/Centos which is accomplished using the following command
yum localinstall http://download.fedoraproject.org/pub/epel/6/i386/epel-release-6-8.noarch.rpm

Now we can install GLEW
yum install glew-devel

Now, open an editor and enter the code below

```
======ENTER CODE BELOW THIS LINE
#include <GL/glut.h>

void display()
{
  glClear(GL_COLOR_BUFFER_BIT);
  glFlush();
}

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.

```
gcc -o glut glut.c -lglut
```

and run your code
```
./glut
```

You should see a blank window appear on the screen.

Now let's add GLUT

Enter the following two lines ABOVE the #include <GL/glut.h> line
#include <iostream>
#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 you can compile and run your code.

gcc -o glut glut.c -lglut -lGLEW

**Notice we added the second library (case is important)

and run your code
./glut

You should see a blank window appear on the screen again plus some output in the terminal telling you the version of GLEW installed.

You should be ready to do on to Assignment #1

-Scott