

Aaron Schwartz

trying not to forget my own code

Resume

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Setting up GLUT for OpenGL programming in OSX

For my Introduction to Computer Graphics class we will be using OpenGL for learning/projects/experimenting in the realm of Computer Graphics.

While [detailed instructions](#) are given for setting up our environment in Windows and a quick reference for getting started on the Linux lab computers, the Makefile and test program given don't compile out of the box in OSX.

The original files look like this:

[Triangle.cpp](#)

[Makefile](#)

OSX comes with a version of OpenGL and GLUT already installed so it's just a matter of including them.

Now for the changes:

1. The example file (triangle.cpp) needs to be changed from including <GL/glut.h> to <GLUT/glut.h>.
2. The Makefile needs to include the following libs: -framework GLUT -framework OpenGL -framework Cocoa. You can then get rid of the old glut references. (I have to credit [this site](#) for the idea)

Once you make these changes, running make should produce a working example of a triangle being drawn to the screen.

Here is how the final files should look:

```
// #include <GL/glut.h>
// Try uncommenting this include line to compile on Max OSX
#include <GLUT/glut.h>

/*! GLUT display callback function */
void display(void);
/*! GLUT window reshape callback function */
void reshape(int, int);

int main(int argc, char** argv)
{
    glutInit(&argc, argv);

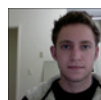
    /* set the window size to 512 x 512 */
    glutInitWindowSize(512, 512);

    /* set the display mode to Red, Green, Blue and Alpha
       allocate a depth buffer
       enable double buffering
    */
    glutInitDisplayMode(GLUT_RGBA | GLUT_DEPTH | GLUT_DOUBLE);

    /* create the window (and call it Lab 1) */
    glutCreateWindow("Lab 1");

    /* set the glut display callback function
       this is the function GLUT will call every time
       the window needs to be drawn
    */
    glutDisplayFunc(display);

    /* set the glut reshape callback function
       this is the function GLUT will call whenever
       the window is resized, including when it is
```



Aaron Schwartz

Hi. I'm currently a student at UCSD. I think coding is fun. I especially enjoy Dynamic Web Design. Feel free to contact me at [atschwar at gmail dot com] for any reason. Job offers are appreciated :). Have a great day!

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```

        first created
    */
    glutReshapeFunc(reshape);

    /* set the default background color to black */
    glClearColor(0,0,0,1);

    /* enter the main event loop so that GLUT can process
       all of the window event messages
    */
    glutMainLoop();

    return 0;
}

/*! glut display callback function. Every time the window needs
    to be redisplayed, glut will call this function. This includes when the window
    is first created, when the window is resized, or when another window covering part of this window
    is moved so this window is uncovered.
*/
void display()
{
    /* clear the color buffer (resets everything to black)
    glClear(GL_COLOR_BUFFER_BIT);

    /* set the current drawing color to red */
    glColor3f(1, 0, 0);

    /* start drawing triangles, each triangle takes 3 vertices
    glBegin(GL_TRIANGLES);

    /* give the 3 triangle vertex coordinates 1 at a time */
    glVertex2f(10, 10);
    glVertex2f(250, 400);
    glVertex2f(400, 10);

    /* tell OpenGL we're done drawing triangles */
    glEnd();

    /* swap the back and front buffers so we can see what we've drawn
    glutSwapBuffers();
}

/*! glut reshape callback function. GLUT calls this function whenever
    the window is resized, including the first time it is created.
    You can use variables to keep track of the current window dimensions.
*/
void reshape(int width, int height)
{
    /* tell OpenGL we want to display in a rectangle that is
       the same size as the window
    */
    glViewport(0,0,width,height);

    /* switch to the projection matrix */
    glMatrixMode(GL_PROJECTION);

    /* clear the projection matrix */
    glLoadIdentity();

    /* set the camera view, orthographic projection in 2D */
    gluOrtho2D(0,width,0,height);

    /* switch back to the model view matrix */
    glMatrixMode(GL_MODELVIEW);
}

```

[This Gist](#) brought to you by [GitHub](#).

[trianglemod.cpp](#) [view raw](#)

And

```

# This is a Makefile for compiling Fall 2010 CSE 167 projects.
# It includes all .cpp files in the current directory.
# To use on a different (non-lab) Linux setup, change the INC_DIRS
# directories to point to the locations of the header files
NAME = triangle

```

```
ECHO    = @echo
CC      = @g++
LIBS    = -framework GLUT -framework OpenGL -framework Cocoa -c
LD_FLAGS = $(LIBS)
C_FLAGS =
SOURCES = $(wildcard *.cpp)
OBJS    = $(patsubst %.cpp, %.o, $(SOURCES))

.SUFFIXES: .cpp .h .o

.cpp.o:
    $(ECHO) "Compiling $<"
    $(CC) $(C_FLAGS) -c -o $@ $<

$(NAME): $(OBJS)
    $(ECHO) "Linking $@..."
    $(CC) -o $@ *.o $(LIBS)
    $(ECHO) "Built $@"

clean:
    $(RM) core *.o $(NAME)
    $(ECHO) "All clean!"

new:
    make clean
    make
```

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[Makefile](#) [view raw](#)

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