OpenGL Introduction

CS 320

Feb. 4, 2005

OpenGL's GLUT files have been added to the system directories on all the lab machines. If you have Visual C++ installed on your personal system, check the class home page for instructions on installing GLUT and/or for obtaining a free C/C++ compiler.

1. Login and create a `Projects` directory. Copy the files `pentagon.c` and `quadric.c` from the class home page into your `Projects` directory.

2. Start Visual C++ and open a new, empty Win32 Console Application Project. The location should be your `Projects` folder and the project name should be `Pentagon`. Note that `Pentagon` will be a folder within `Projects`.

3. Move `pentagon.c` from the `Projects` directory to the `Pentagon` directory.

4. Open the Project menu and add `pentagon.c` to the project.

5. Open the Project menu and choose Settings. Go the the Link tab. Under Object/Library modules add `Opengl32.lib`, `glu32.lib`, and `glut32.lib` . This is something you'll have to do for each new project. You generally won't need all three libraries, but it's easiest to get in the habit of adding all three each time.

6. Open `pentagon.c` and observe the header file declarations:

   `#include<GL/glut.h>`

   This should be included in all your projects.

7. Compile `pentagon.c` and fix any warnings and/or errors. (Hint: There is no random() function, but there is a rand() function defined in stdlib.h.)

8. Build the program, fixing any unresolved references.

9. Run the program. Nice pentagon, right? What happens when you minimize and restore the window? Can you hypothesize why that happens?

10. Repeat for `quadric.c` . Look at the functions `init()` and `display()`. Can you see any correlation between the code and the images? The man pages for all the OpenGL, GLU, and GLUT functions are installed on phoenix for your perusal. Lowercase all function names and remove any argument suffixes. For example, if you're interested in `gluCylinder()` you'd do a search on `glucylinder` and if you're interested in `glColor3f()` you'd do a search on `glcolor`.

11. Remove the three library files (`.lib`) files that you added within the link tab. Try to build the program and note the error messages you receive. That what will happen any time you forget to include the library files in the compiler's link phase.