

Lab 3 — Interaction and Primitive Object Management

CS 320

Feb. 11, 2013

1. Download the Lab 3 ZIP archive and the commonFiles ZIP archive from the class home page and unpack them.
2. Start Eclipse and create a new C++ project. Import all the files from both unpacked ZIP archives into your project.
Don't forget to add the OpenGL, GLEW, and GLUT libraries to your project.
3. Compile and run the program. You'll notice that you can paint a certain number of red triangles, but they're not appearing where they ought to appear.
4. Start by fixing the `convert()` function, which is meant to convert a mouse click in window coordinates back to world coordinates. Once you've fixed this function, the triangles will be drawn where you specify them.
5. Generalize the paint program by:
 - (a) Replacing the triangle draw capability with the capability of drawing polygons with up to `MAXVERTICES` vertices. The way to do this is to revise the `mouse()` callback so that a left mouse click adds a vertex to the current set of points and colors and a right mouse click adds a vertex and closes the polygon, adding it to the `objects` array. `GL_TRIANGLE_FAN` will be useful here.
 - (b) Creating and attaching a menu to the middle mouse button. The menu choices should be "Color" (red, green, blue, and black, with these choices appearing as a sub-menu), "Clear Canvas" (which clears the canvas by removing all the current objects, which wastes memory but is okay for now), and "Exit."