

```
1: // $Id: square.cpp,v 1.10 2016-05-04 15:13:37-07 - - $
2:
3: // Draw a square.
4:
5: #include <string>
6: using namespace std;
7:
8: #include <GL/freeglut.h>
9:
10: struct {
11:     string name;
12:     int width {256};
13:     int height {256};
14: } window;
15:
16: const GLubyte RED[] = {0xFF, 0x00, 0x00};
17:
18: void draw_square (GLfloat xpos, GLfloat ypos,
19:                  GLfloat width, const GLubyte* color) {
20:     glBegin (GL_POLYGON);
21:     glColor3ubv (color);
22:     glVertex2f (xpos, ypos);
23:     glVertex2f (xpos + width, ypos);
24:     glVertex2f (xpos + width, ypos + width);
25:     glVertex2f (xpos, ypos + width);
26:     glEnd();
27: }
28:
29: void display() {
30:     glClearColor (0.0, 0.0, 1.0, 1.0);
31:     glClear (GL_COLOR_BUFFER_BIT);
32:     draw_square (window.width * 0.25, window.height * 0.25,
33:                 window.height * 0.5, RED);
34:     glutSwapBuffers();
35: }
36:
37: void reshape (int width, int height) {
38:     window.width = width;
39:     window.height = height;
40:     glMatrixMode (GL_PROJECTION);
41:     glLoadIdentity();
42:     gluOrtho2D (0, window.width, 0, window.height);
43:     glMatrixMode (GL_MODELVIEW);
44:     glViewport (0, 0, window.width, window.height);
45:     glutPostRedisplay();
46: }
47:
48: int main (int argc, char** argv) {
49:     glutInit (&argc, argv);
50:     glutInitDisplayMode (GLUT_RGBA | GLUT_DOUBLE);
51:     glutInitWindowSize (window.width, window.height);
52:     glutInitWindowPosition (128, 128);
53:     glutCreateWindow (argv[0]);
54:     glutDisplayFunc (display);
55:     glutReshapeFunc (reshape);
56:     glutMainLoop();
57:     return 0;
58: }
```

59: