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1: // $Id: squares.cpp,v 1.17 2019-02-22 17:38:45-08 - - $
2:
3: // Draw a square.
4:
5: #include <iostream>
6: #include <string>
7: using namespace std;
8:
9: #include <GL/freeglut.h>
10: #include <libgen.h>
11:
12: struct {
13:     string name;
14:     int width {256};
15:     int height {256};
16: } window;
17:
18: const GLubyte RED[] = {0xFF, 0x00, 0x00};
19: const GLubyte GREEN[] = {0x00, 0xFF, 0x00};
20: const GLubyte BLUE[] = {0x00, 0x00, 0xFF};
21: const GLubyte* colors[] = {RED, GREEN, BLUE};
22: constexpr size_t colors_size = sizeof colors / sizeof *colors;
23:
24: void draw_square (GLfloat xpos, GLfloat ypos,
25:                  GLfloat width, const GLubyte* color) {
26:     glBegin (GL_POLYGON);
27:     glColor3ubv (color);
28:     glVertex2f (xpos, ypos);
29:     glVertex2f (xpos + width, ypos);
30:     glVertex2f (xpos + width, ypos + width);
31:     glVertex2f (xpos, ypos + width);
32:     glEnd();
33: }
34:
35: void display() {
36:     glClearColor (0.5, 0.5, 0.5, 1.0);
37:     glClear (GL_COLOR_BUFFER_BIT);
38:     for (size_t index = 0; index < colors_size; ++index) {
39:         GLfloat offset = (index + 1) * 0.10;
40:         GLfloat width = 1 - 2 * offset;
41:         draw_square (window.width * offset, window.height * offset,
42:                     window.width * width, colors[index]);
43:     }
44:     glutSwapBuffers();
45: }
46:
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47:
48: void reshape (int width, int height) {
49:     window.width = width;
50:     window.height = height;
51:     glMatrixMode (GL_PROJECTION);
52:     glLoadIdentity();
53:     gluOrtho2D (0, window.width, 0, window.height);
54:     glMatrixMode (GL_MODELVIEW);
55:     glViewport (0, 0, window.width, window.height);
56:     glutPostRedisplay();
57: }
58:
59: int main (int argc, char** argv) {
60:     glutInit (&argc, argv);
61:     glutInitDisplayMode (GLUT_RGBA | GLUT_DOUBLE);
62:     glutInitWindowSize (window.width, window.height);
63:     glutInitWindowPosition (128, 128);
64:     glutCreateWindow (basename (argv[0]));
65:     glutDisplayFunc (display);
66:     glutReshapeFunc (reshape);
67:     glutMainLoop();
68:     return 0;
69: }
70:
71: //TEST// mkpspdf squares.ps squares.cpp*
72:
```

