

```
1: // $Id: menus.cpp,v 1.8 2019-02-22 17:38:42-08 - - $
2:
3: #include <cmath>
4: #include <map>
5: #include <iostream>
6: #include <string>
7: using namespace std;
8:
9: #include <GL/freeglut.h>
10: #include <libgen.h>
11:
12: int window_width  = 256;
13: int window_height = 192;
14: string program_name;
15:
16: enum shape_type {RECTANGLE, SQUARE, DIAMOND, ELLIPSE, CIRCLE};
17: map<shape_type,string> shape_map{
18:     {RECTANGLE, "Rectangle"},
19:     {SQUARE, "Square"},
20:     {DIAMOND, "Diamond"},
21:     {ELLIPSE, "Ellipse"},
22:     {CIRCLE, "Circle"},
23: };
24:
25: void main_menu (int value) {
26:     cout << "main_menu(" << value << ")" << endl;
27: }
28:
29: void shape_menu (int value) {
30:     shape_type shape = static_cast<shape_type> (value);
31:     cout << __PRETTY_FUNCTION__ << ": "
32:          << value << ") [" << shape_map[shape] << "]" << endl;
33: }
34:
35: void quit_menu (int value) {
36:     if (value) exit (0);
37: }
38:
```

```
39:
40: void createmenu() {
41:     int shape_menu_id = glutCreateMenu (shape_menu);
42:     cout << __PRETTY_FUNCTION__ << ": shape_menu_id="
43:         << shape_menu_id << endl;
44:     glutAddMenuEntry ("Rectangle", RECTANGLE);
45:     glutAddMenuEntry ("Square", SQUARE);
46:     glutAddMenuEntry ("Diamond", DIAMOND);
47:     glutAddMenuEntry ("Ellipse", ELLIPSE);
48:     glutAddMenuEntry ("Circle", CIRCLE);
49:     int quit_menu_id = glutCreateMenu (quit_menu);
50:     glutAddMenuEntry ("Confirm", true);
51:     glutAddMenuEntry ("Cancel", false);
52:     int main_menu_id = glutCreateMenu (main_menu);
53:     cout << __PRETTY_FUNCTION__ << ": main_menu_id="
54:         << main_menu_id << endl;
55:     glutAddSubMenu ("Draw", shape_menu_id);
56:     glutAddSubMenu ("Quit", quit_menu_id);
57:     glutAttachMenu (GLUT_LEFT_BUTTON);
58: }
59:
60: void display() {
61:     glClear (GL_COLOR_BUFFER_BIT);
62:     glutSwapBuffers();
63: }
64:
65: void reshape (int width, int height) {
66:     cout << width << "x" << height << endl;
67:     glMatrixMode (GL_PROJECTION);
68:     glLoadIdentity();
69:     gluOrtho2D (0, window_width, 0, window_height);
70:     glClearColor (0.2, 0.2, 0.2, 1.0);
71:     glMatrixMode (GL_MODELVIEW);
72: }
73:
74: int main (int argc, char** argv) {
75:     program_name = basename (argv[0]);
76:     glutInit (&argc, argv);
77:     glutInitDisplayMode (GLUT_RGBA | GLUT_DOUBLE);
78:     glutInitWindowSize (window_width, window_height);
79:     glutCreateWindow (program_name.c_str());
80:     glutDisplayFunc (display);
81:     glutReshapeFunc (reshape);
82:     createmenu();
83:     glutMainLoop();
84:     return 0;
85: }
86:
87: //TEST// mkpspdf menus.ps menus.cpp*
88:
```

```
=never -std=gnu++17 -Wold-style-cast menus.cpp -o menus -lm -lglut -lGLU -lGL -lX11 -ldrm -lm
```