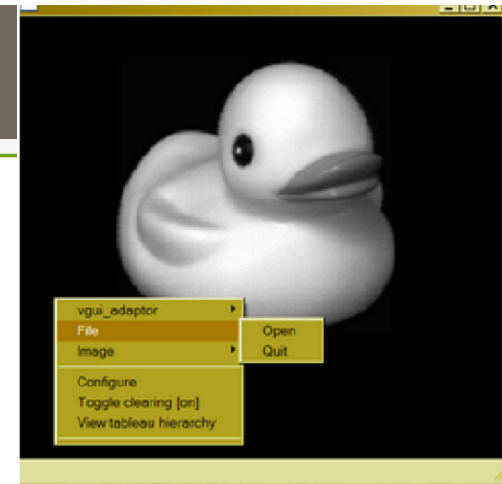# Lab06 Menu

Popup Menu

Read the code on the following pages and implement your project as the description below:

- Adding Popup Menu to your previous project
  - Right click on the window to show the menu
- Menu iterm & its submenu Item:

Menu Entry	Submenu
Object	Cube, Teddy bear, Lamp
Render Mode	Point, Line, Face
Color Mode	Single Color, Random Colors
Bounding Box	On, Off
Axis	On, Off

- Print what item is selected on the console
  - E.g. if the user click on the menu entry "color mode" and then select its submenu entry "Random colors". It will print "Random color" to the console.

How to do it?

- GLUT supports pop-up menus
  - A menu can have submenus
- Three steps
  - Define entries for the menu
  - Define action for each menu item
    - Action carried out if entry selected
  - Attach menu to a mouse button

Popup menu


```
#define MENU_LIGHTING 0
#define MENU_POLYMODE 1
#define MENU_TEXTURING 2
#define MENU_EXIT 3


int buildPopupMenu (void)
{
  int menu;
  menu = glutCreateMenu (selectFromMenu);
  glutAddMenuEntry ("Toggle lighting  l", MENU_LIGHTING);
  glutAddMenuEntry ("Toggle polygon fill  p", MENU_POLYMODE);
  glutAddMenuEntry ("Toggle texturing  t", MENU_TEXTURING);
  glutAddMenuEntry ("Exit demo  Esc", MENU_EXIT);
  return menu;

}
```

```cpp
int main(int argc, char** argv)
{
    //create a new GLUT Window (Initialization):
    glutInit (&argc, argv);
    glutInitWindowSize (g_Width, g_Height);
    glutInitDisplayMode ( GLUT_RGB | GLUT_DOUBLE | GLUT_DEPTH);
    glutInitWindowPosition(100,100);
    glutCreateWindow ("Flying Teapot");

    // Initialize OpenGL graphics state
    initGraphics();

    // Register callbacks function:
    glutDisplayFunc (display);
    glutReshapeFunc (reshape);
    glutKeyboardFunc (Keyboard);
    glutMouseFunc (MouseButton);
    glutMotionFunc (MouseMotion);
    glutIdleFunc (AnimateScene);

    // Create our popup menu
    buildPopupMenu ();
    glutAttachMenu (GLUT_RIGHT_BUTTON);

    // Turn the flow of control over to GLUT
    glutMainLoop ();
    return 0;
}
```

```c
void selectFromMenu (int option)
{
    switch (option) {
        case MENU_LIGHTING:
                //......
                break;
        case MENU_POLYMODE:
                //....
                break;
        case MENU_TEXTURING:
                //....
                break;
        case MENU_MENU_EXIT:
                //....
                break;

        default:
                break;
    }
}
```

More resources

- Document:
  - http://openglut.sourceforge.net/group__menus.html

- Submenu Example:
  http://www.it.uu.se/edu/course/homepage/grafik1/ht07/examples/menuDemo.cpp