OpenGL Input

Input in OpenGL

- Keyboard
  - *glutKeyboardFunc(...)*
    - "normal" key events
    - *normal* = letters, numbers, anything that has an ASCII code
  - *glutSpecialFunc(...);*
    - special key events processing
    - *i.e.* paint the triangle using red if F1 is pressed, green if F2 is pressed, and blue if F3 is pressed. (left , right ...)
    - ...
  - More information: http://www.lighthouse3d.com/opengl/glut/index.php?5
- Mouse
  - glutMouseFunc()
  - ...

Basic Steps for Mouse Detection

- Detecting Mouse Clicks
- Detecting Motion*
- Detecting when the Mouse Enters or leaves the window

Detecting Mouse Clicks

void glutMouseFunc(void (*func)(int button, int state, int x, int y));

- `func` - The name of the function that will handle mouse click events
  - Button
    - GLUT_LEFT_BUTTON
    - GLUT_MIDDLE_BUTTON
    - GLUT_RIGHT_BUTTON
  - State (of the button)
    - GLUT_DOWN
    - GLUT_UP
  - (x,y) -coordinates of the mouse relatively to the upper left corner of the client area of the window.

Detecting Motion

- void glutMotionFunc(void (*func) (int x,int y));
- void glutPassiveMotionFunc(void (*func) (int x, int y));
  - ◦ func - the function that will be responsible for the respective type of motion
  - ◦ (*x,y*) -coordinates of the mouse relatively to the upper left corner of the window's client area.

Detecting when the mouse enters or leaves the window

- *void glutEntryFunc(void (*func) (int state));*

- func - the function that will handle these events

- State
  - GLUT_LEFT
  - GLUT_ENTERED

- NOTE: This doesn't work exactly as it says in Microsoft Windows

Putting it all together

```
static float x=0.0f,y=0.0f,z=5.0f;
static float lx=0.0f,ly=0.0f,lz=-1.0f;
float angleX = 0.0;
float angle1=0;
float width=400,height=400;

void processMousePassiveMotion(int x, int y) {
        // setting the angle to be relative to the mouse
        // position inside the window
        if (x < 0)
                angleX = 0.0;
        else if (x > width)
                angleX = 180.0;
        else
                angleX = 180.0 * ((float) x)/height;
}
```

```c
int
main(int argc, char **argv)
{
    glutInit(&argc, argv);
    glutInitDisplayMode(GLUT_DOUBLE | GLUT_RGB |
    GLUT_DEPTH);
    glutCreateWindow("red 3D lighted cube");

    glutPassiveMotionFunc(processMousePassiveMotion
    );
    glutDisplayFunc(display);
    init();
    glutIdleFunc(display);
    glutMainLoop();
    return 0;              /* ANSI C requires main to return
    int. */
}
```