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 ...)  
    - ...

- **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
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;
}
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. */
}