

Interaction

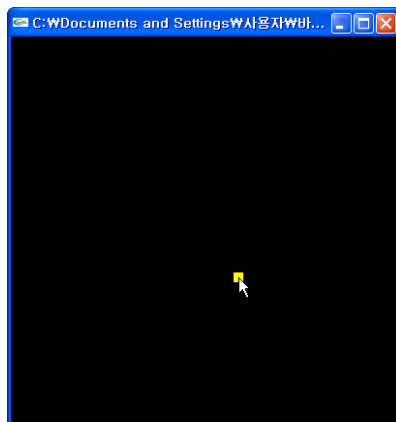
321190
2012년 봄학기
3/27/2012
박경신

Overview

- GLUT Devices & Event-driven programming
 - 마우스, 키보드, 메뉴, 조이스틱, 테블렛, ..
- 디스플레이 리스트 (Display lists)
 - 유지모드 그래픽스 (Retained mode graphics) 방식
- 지적 (Picking)
 - 화면상의 한 객체를 사용자가 식별 할 수 있도록 하는 입력연산

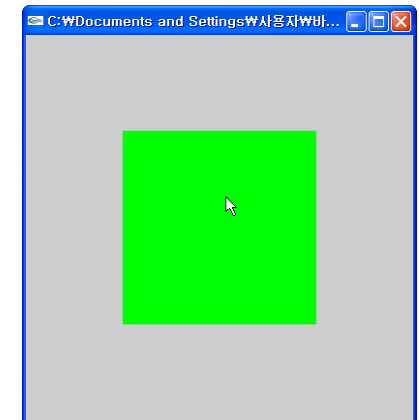
Mouse

- Draw a moving square by a mouse point



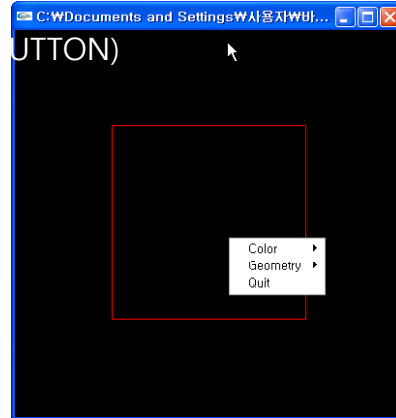
Keyboard

- Draw a solid colored square
 - Black, red, green, blue, magenta, cyan, yellow, white
- KeyboardFunc
 - Red by r-key
 - Green by g-key
 - Blue by b-key
- KeyboardUpFunc
 - Reset color

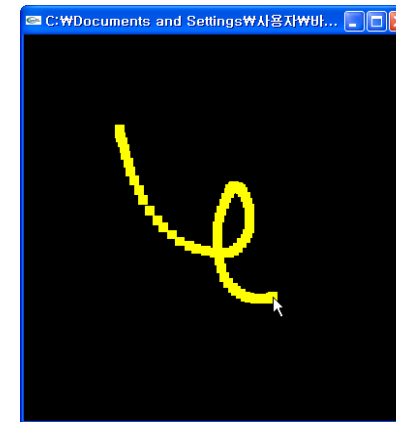


Menu

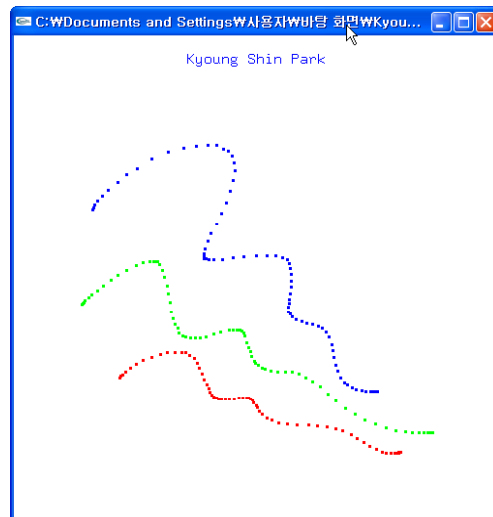
- Menu (LEFT_MOUSE_BUTTON)
 - Color – red, green, blue
 - Geometry – Points, Lines, Line loop, Quads
 - Quit
- Menu (RIGHT_MOUSE_BUTTON)
 - Exit



Paint

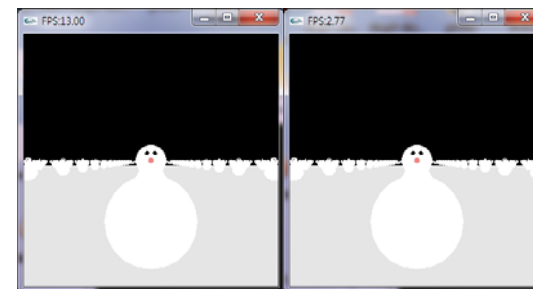


Scribble



Display Lists

- Draw snowmen with vs. without DL
 - 3600개 눈사람을 그렸을 경우 렌더링 속도에 큰 차이를 보임



```

GLuint createDL()
{
    GLuint snowManDL, loopDL;
    snowManDL = glGenLists(1);
    loopDL = glGenLists(1);

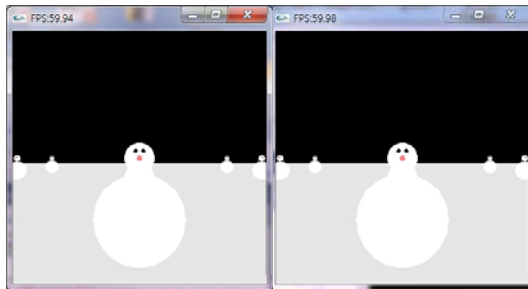
    glBegin(snowManDL, GL_COMPILE);
    drawSnowMan();
    glEnd();

    glBegin(loopDL, GL_COMPILE);
    for(int i = -30; i < 30; i++) {
        for(int j = -30; j < 30; j++) {
            glPushMatrix();
            glTranslatef(i*10.0, 0, j * 10.0);
            glCallList(snowManDL);
            glPopMatrix();
        }
    }
    glEnd();

    return(loopDL);
}
    
```

Display Lists

- Draw snowmen with vs. without DL
 - 36개 눈사람을 그렸을 경우 렌더링 속도에 차이를 보이지 않음



FPS: 59.94

FPS: 59.98

```
GLuint createDL()
{
    GLuint snowManDL, loopDL;
    snowManDL = glGenLists(1);
    loopDL = glGenLists(1);

    glBegin(GL_POINTS);
    glVertex3f(0, 0, 0);
    glEnd();

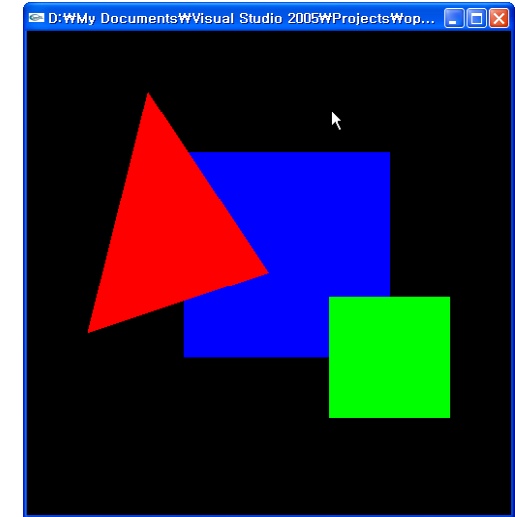
    glNewList(snowManDL, GL_COMPILE);
    drawSnowMan();
    glEndList();

    glNewList(loopDL, GL_COMPILE);
    for(int i = -3; i < 3; i++) {
        glBegin(GL_POINTS);
        for(int j = -3; j < 3; j++) {
            glVertex3f(i*10.0, j*10.0, 0);
        }
        glEndList();
    }
    glEndList();

    return(loopDL);
}
```

Picking

- Picking an object
 - Selection mode
 - Bounding box
 - Back buffer



OpenGL Tutorials

- OpenGL display lists tutorial
 - <http://www.lighthouse3d.com/opengl/displaylists/>
 - <http://nehe.gamedev.net/data/lessons/lesson.asp?lesson=12>
- OPENGL picking tutorial
 - <http://www.lighthouse3d.com/opengl/picking/>
 - <http://nehe.gamedev.net/data/lessons/lesson.asp?lesson=32>