

# Intro. to Computer Programming

## Final

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# Table of contents

## OpenGL

- Basic Usages

- General Strategy

- Remarks

## OpenGL

Basic Usages

General Strategy

Remarks

# Create a Window

## ► main(int argc, char\* argv[])

```
1  glutInit(&argc, argv);
2  glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
3  glutInitWindowSize(1024, 768);
4  glutInitWindowPosition(100, 100);
5  glutCreateWindow("Title");
6  glClearColor(0.0f, 0.0f, 0.0f, 0.0f);
7  glClear(GL_COLOR_BUFFER_BIT);
8
9  glutDisplayFunc(draw_func);
10 glutTimerFunc(n, timer_func, 0); // recursive call
    to timer function;
11 glutMainLoop();
```

## ► timer\_func

```
1  glutTimerFunc(n, timer_func, 0);
2  glutPostRedisplay();
```

# Define the Draw Function

## ► draw\_func

```
1 // do something to figures to be drawn;
2 glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT);
3 // draw the figures;
4 // for double buffer mode;
5 glutSwapBuffers();
6 // for single buffer mode;
7 glFlush();
```

## ► draw\_figure (rectangle)

```
1 glColor3f(r, g, b);
2 glBegin(GL_QUADS);
3 // set vertices;
4 glVertex2f(x, y);
5 // ...;
6 glEnd();
```

## OpenGL

Basic Usages

General Strategy

Remarks

# General Strategy

## Class with OpenGL.

1. Define basic structures for points, vectors, etc.
2. Create figures, rgb...
3. Draw the figure using OpenGL functions.
4. Move the figure.
5. Redraw the figure using main loop.

# Required Basics

1. Define figures, objects and their member functions related to OpenGL.
2. Move objects up and down and do rotations.
3. Call OpenGL functions to draw objects.



# OpenGL

Basic Usages

General Strategy

Remarks

# Remarks

- ▶ You are supposed to find the final exam fairly easy if you have devoted reasonable amount of time to your homework and project.

*Good luck for your finals!*