

1

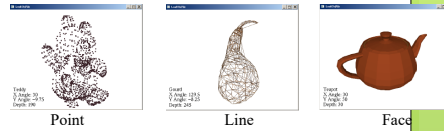
Assignment

(due on 5/3 midnight)

1. Read Obj file and render (20%)
 - Obj input file is selectable
 - gourd, Lamp, octahedron, teapot
 - Popup menu to select among the given 4 files
 - Provide Command line input for other files
 - Be able to input filename of the obj file
2. Adjust the object to fit into the screen (40%)¹
 - Find the bounding box first
 - Draw the bounding box
 - Set your view frustum according to the box
 - 20% (if works for all 4 given obj files)
 - 10% (if works for other testing obj files)

2

Assignment



3. Render Mode: Point 、 Line 、 Face (10%)
 - Use Popup menu to select
4. Color mode: Fixed color, random color (10%)
5. Support Rotation/Translation (10%)
 - Use Keyboard control
 - Able to reset the object to the origin
6. Use popup menu to select different modes (10%)

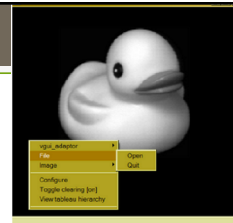
DON NOT USE OTHER LIBRARIES FOR THIS PROJECT!

(Only OpenGL/GLUT & C++ standard allowed)

- SUBMIT YOUR SOURCE CODES and documentation PDF file
- Includes how to use your program, screen shots of your program for each required function

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Popup Menu



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

Menu Entry	Submenu
Object	gourd, Lamp, octahedron, teapot
Render Mode	Point, Line, Face
Color Mode	Single Color, Random Colors
Bounding Box	On, Off

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Obj file format

```

v -1 -1 -1
v 1 -1 -1
v -1 1 -1
v 1 1 -1
v -1 -1 1
v 1 -1 1
v -1 1 1
v 1 1 1
f 1 3 4
f 1 4 2
f 5 6 8
f 5 8 7
f 1 2 6
f 1 6 5
f 3 7 8
f 3 8 4
f 1 5 7
f 1 7 3
f 2 4 8
f 2 8 6

```

Note: ignore lines start with
Other characters

5

Triangle

```

// Draw a triangle:
glBegin(GL_TRIANGLES);
glVertex3f(-1.0f, -0.5f, -4.0f);
glVertex3f( 1.0f, -0.5f, -4.0f);
glVertex3f( 0.0f, 0.5f, -4.0f);
glEnd();

```

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glPolygonMode (GLenum *face*, GLenum *mode*)

控制多邊形的繪製的方式。

參數 *face* 設定繪製多邊形的正面或反面，其值可為：

GL_FRONT_AND_BACK	正反面都畫（此為預設值）
GL_FRONT	只畫正面
GL_BACK	只畫反面

參數 *mode* 設定繪製的模式，其值可為：

GL_FILL	填滿多邊形內部（此為預設的模式）
GL_LINE	只畫多邊形的框線
GL_POINT	只畫多邊形的端點



