

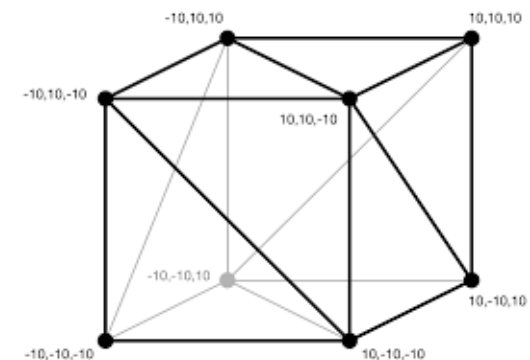
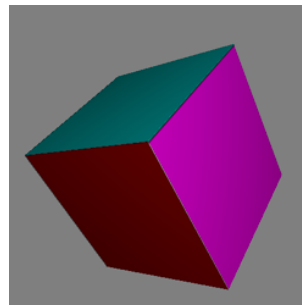


Lab02

Drawing Shapes

Drawing a cube

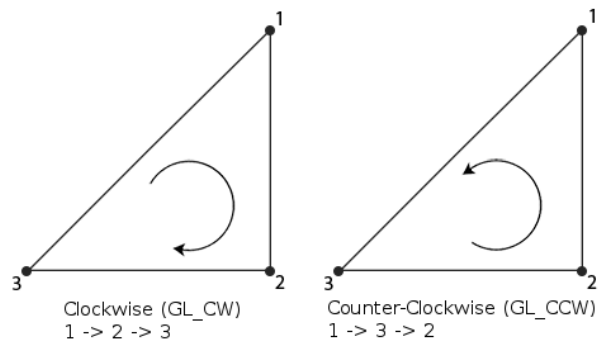
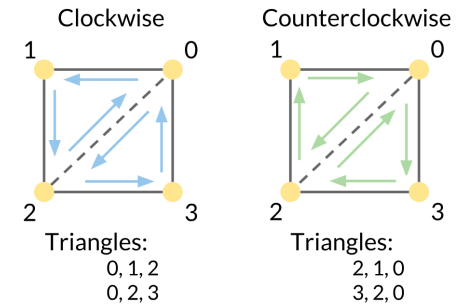
1. Draw a cube using multiple triangles
 - E.g. A cube has 6 faces
 - Each face is form by 2 triangles
 - Assign a single color for each face as shown in the picture
 - i.e. only two triangles has the same color



you can scale the coordinations shown above

Counter-clockwise

- Pay attention to the order of the vertexes
 - Should be drawn in counter-clockwise order



```
glBegin(GL_TRIANGLE);  
glVertex3f(0.5f, 0.5f, 0.0f);  
glVertex3f(0.5f, 0.0f, 0.0f);  
glVertex3f(0.0f, 0.0f, 0.0f);  
glEnd();
```

Display Function

```
void RenderScene(void)
{
    glClearColor(1.0, 1.0, 1.0, 1.0);
    glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT);
    glMatrixMode(GL_MODELVIEW); // load the modelview matrix
    glLoadIdentity();
    gluLookAt(0,0,10.0f ,0,0,0, 0,1,0);
```

```
    //draw
    //use:
    //glColor3f( r, g, b);
    //glBegin(GL_LINE);
    //glVertex3f( -x, 0, 0);
    //glVertex3f( x, 0, 0);
    //glEnd();

    //perform transformation for the cube
    //use:
    //glRotatef(theta, x, y, z);
```

← Modify your code here

← Rotate your object with this function

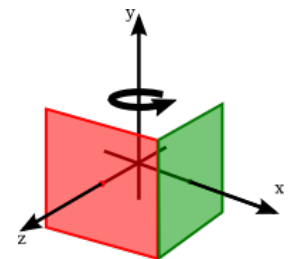
```
}
```

Rotate the Cube so that we can see at least 3 faces

```
void glRotatef( GLfloat angle, // Specifies the angle of rotation, in degrees.  
                GLfloat x,  
                GLfloat y,  
                GLfloat z);
```

For example:

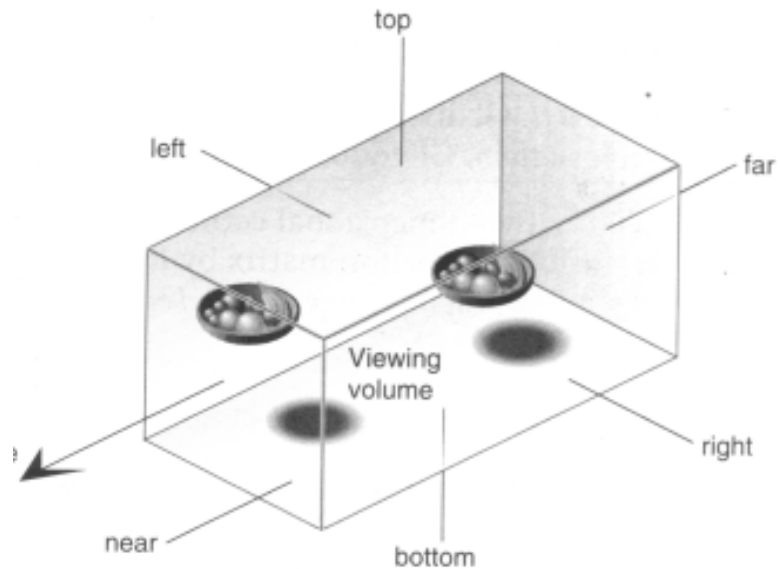
```
glRotatef(30.0f,1.0,0.0,0.0); // Rotate 30 on x  
glRotatef(60.0f,0.0,1.0,0.0); // Rotate 60 on y  
glRotatef(90.0f,0.0,0.0,1.0); // Rotate 90 on z
```



Rotate on Y

glOrtho

- `glOrtho(-10,10,-10,10,-10,20);`



gluLookAt

- `gluLookAt(0,0,-10.0f, 0,0,0, 0,1,0);`

