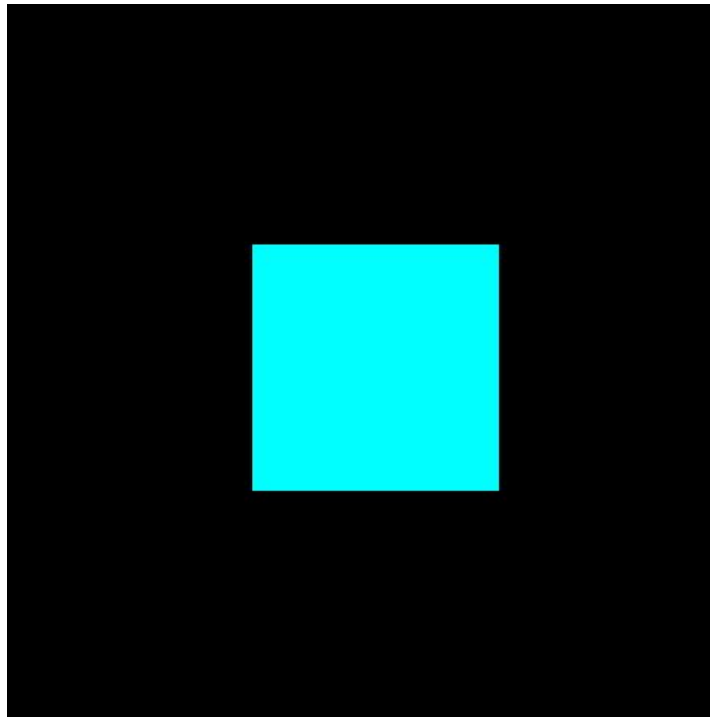


Tutorial 04

IS2107 Graphics and Visualization

1. Based on the knowledge you gained so far create a cyan coloured cube. You have freedom to use any Geometric Primitive Type. You may define coordinates of the vertices based on your preference.

Your output may look like the figure given below.



2. Create a pyramid in which all the 03 triangle faces are drawn with a blend of three colors Red, green and blue. You do not need to create the bottom square face of the pyramid. Your output may look like the figure given below.



You have freedom to define coordinates of the vertices based on your preference.

Hint:

Specifying a Shading Model

A line or a filled polygon primitive can be drawn with a single color (**flat shading**) or with many different colors (**smooth shading**, also called Gouraud shading). You specify the desired shading technique with `glShadeModel()`.

`glShadeModel (mode);`

Sets the shading model. The mode parameter can be either `GL_SMOOTH` (the default) or `GL_FLAT`.

With flat shading, the color of one particular vertex of an independent primitive is duplicated across all the primitive's vertices to render that primitive. With smooth shading, the color at each vertex is treated individually. For a line primitive, the colors along the line segment are interpolated between the vertex colors. For a polygon primitive, the colors for the interior of the polygon are interpolated between the vertex colors.

Eg: Creating a smooth shaded triangle (Using C with glut)

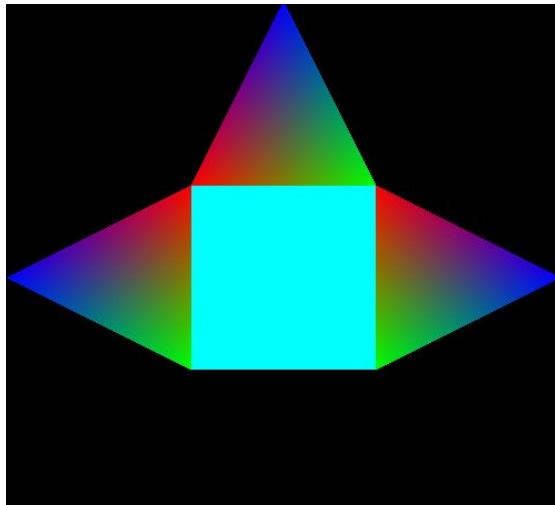
```
/* This is not a complete code. Only a subpart is shown */
void init(void)
{
    glClearColor (0.0, 0.0, 0.0, 0.0);
    glShadeModel (GL_SMOOTH); // Enabling smooth shading
}
void triangle(void)
```

```

{
    glBegin (GL_TRIANGLES);
    glColor3f (1.0, 0.0, 0.0); // Vertex 1 Red
    glVertex2f (1.0, 1.0);
    glColor3f (0.0, 1.0, 0.0); // Vertex 2 Green
    glVertex2f (1.0, 0.0);
    glColor3f (0.0, 0.0, 1.0); // Vertex 3 Blue
    glVertex2f (0.0, 0.0);
    glEnd();
}

```

3. Use the two models created in above activities to create a combined model which looks like the below figure.



PS: Height of a single pyramid should equal the height of the cube. Use your knowledge on coordinate systems in OpenGL to define coordinates of the vertices.

***Submit a zip file containing executable python or C code and the screenshots.
Rename the submission to Tutorial03_<index_no>***