**Lighting and Materials**

1. Add a lighting source to your source

    a) Defines colors and position for a light source.
        i. A GLfloat array for ambient intensity of light.
        ii. A GLfloat array for diffuse intensity of light.
        iii. A GLfloat array for position of light.

    **b) `glLightfv(GL_LIGHT0, GLenum, param)`**
    This functionwill specify all properties of a light source.
    - `GL_LIGHT0` specifies which light we are working with.
    - `GLenum` specifies which properties to set, for this exercise, set to `GL_AMBIENT`, `GL_DIFFUSE` and `GL_POSITION` respectively.
    - `param` refers to the respective value we defined.

    **c) `glEnable(GL_LIGHT0)`**
    This function will turn on the specified light source.

    d) **`glEnable(GL_LIGHTING)`**
    This function will enable lighting for your scene.

    e) **`glDisable(...)`**
    Call the function with respect to the `GLenum` with disable the feature.

2. Define the materials properties of the objects in the scene.

    a) Defines colors for materials.
        i. A GLfloat array for ambient color of material.
        ii. A GLfloat array for diffuse color of material.

    **b) `glMaterialfv(face, GLenum, value);`**
    This function will set the properties of a material.
    - `Face` specifies which faces of the object the material should be applied.
    - `GLenum` specifies which properties to set,for this exercise, set to `GL_AMBIENT` and`GL_DIFFUSE`.
    - `param` refers to the respective value we defined.

# Practical Exercise 6

Q1. Create an OPENGL console with a sphere/pyramid with a red diffuse light. Interactive list provide as below:

| Key | Response | Marks |
|---|---|---|
| **W** | Move light position up | 0.5 |
| **S** | Move light position down | 0.5 |
| **A** | Move light position left | 0.5 |
| **D** | Move light position right | 0.5 |
| **E** | Move light position near | 0.5 |
| **Q** | Move light position far | 0.5 |
| **Up** | Rotate clock-wise at all-axis | 0.5 |
| **Down** | Rotate anti clock-wise at all-axis | 0.5 |
| **Space** | Switch off or on the light | 1 |
| **O** | Switch to Sphere | 1 |
| **P** | Switch to Pyramid | 1 |
| | **TOTAL** | **7** |