Assignment - 11 (C1)

Problem Definition :

Write C++ program to draw 3D cube & perform following transformations using OpenGl
a) Scaling
b) Translation
c) Rotation about one axis.

Objective :
- To understand concept & features of OpenGl
- To understand basic graphic functions in OpenGl
- To understand and implement 3D transformations using OpenGl library functions.

Outcome :

Student will be able to
- understand concepts and implement features of OpenGl
- To implement 3D transformations using OpenGl functions.

Theory :
OpenGl -

Open Graphics Library is a specification defining a cross-platform API for writing applications that renders 3D computer graphics.

The interference consists of over 250 different function which can be used to draw complex three - scenes from simple primitives.

It is very popular in video games industry. OpenGL is widely used in CAD, virtual reality, scientific & under game development.

In order to start with a black canvas gl Clear (GL-COLOR-BUFFER-BIT).

Input Analysis-
    I be the input to system S
    S takes x & Y coordinates of vertices V

Functio
Strenghths of OpenGL:
- Highly portable - porting between webGL & openGL is usually really easy.
- Adaptive to new technology - when a new GPU generation is introduced in the Market, its extensions are immediatly available for OpenGL.

Weakness:
- Poor documentation - The specifications are great but the documentation is poor which leads to difficulties for new comers.
- Varying implementation - The implementation of OpenGL varies with every graphics company such as Nvidia, AMD, intel.

Conclusion :

We hence learned to understand & create animation using OpenGL, and implemented certain concepts & features to create 3D cube.