CS7.302: Computer Graphics **Due:** 12^{th} **March 2021**

Assignment #0

Instructor: Avinash Sharma *Released:* 4^{rd} March 2021

This assignment is aimed at getting you started with the OpenGL pipeline by rendering solids onto your screen.

How many faces is too many faces? In geometry, a dodecahedron is any polyhedron with twelve flat faces. The most familiar dodecahedron is the regular dodecahedron with regular pentagons as faces. For this assignment you have been given a choice of 20 dodecahedrons as shown below.

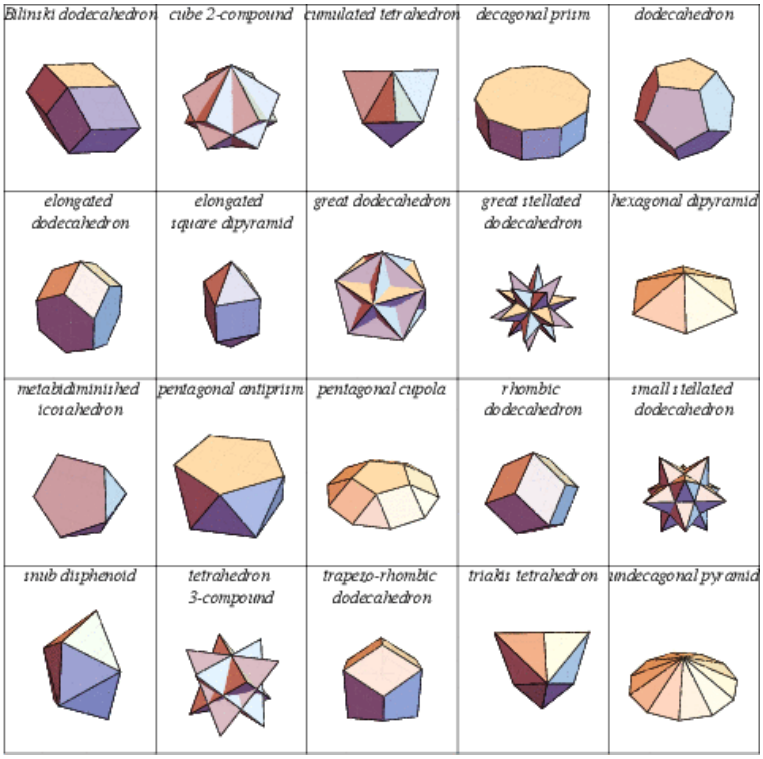

Figure 1: Dodecahedrons

Problem: Modelling

For this task you will be required to do the following for **any three** of the above dodecahedrons:

1. Create the dodecahedron after calculating the coordinates of its vertices using geometry.
2. Assign different colours to each external vertex of a face of the dodecahedron. This is so that the faces of the solid can be seen distinctly.

Problem: Animating

For each of the three solids created, in this task, you are required to:

1. Assign six different keys to move the camera along the three different axes. The camera should **not** change orientation so as to always face the object when this happens.

2. Assign six different keys to move the object along the three different axes.
3. Assign three different keys to move to three different pre-decided positions/orientations of the camera. Note that over here, after each 'teleportation' we wish to face the object.
4. Assign a key to make the object spin about any one axis.
5. Assign a key to make the the camera spin about the object.

1 Instructions

1. Make sure your code is modular so that the code for the animation can be easily extended to animate the second/third solid after it is written for the first solid.
2. Please write well-commented code in C++, and make sure to submit your own work.
3. Submit a roll numbered zip before **11.59 PM on March** 12^{th}**, 2020**.

For **bonus** points use textures on one of the solids instead of colouring the vertices. And for **more points**, weave a story/ caption around the solids you make using placement/ colours/ textures!

All the best!