Advanced Graphics & Animation

Experiments List (based on OpenGL):

1. (a) Write a program to display the text in a square with changing the color of text on different background.

   (b) Modify the above program to rotate the colored text in a polygon using double-buffering and using window reshaping on it.

2. Write a program to display the different colored stippled lines and colored stippled Polygons (use both convex & concave polygons).

3. Write a program to display an object (represented by collection of triangles) using the greedy tri-stripping (triangle Strip winding & triangle Fan winding) and use:
   a) GL_TRIANGLE_STRIP
   b) GL_TRIANGLE-FAN

4. Write a program to display a 2D object with options to support zooming, panning, and moving operations (by redefining viewport).

5. (b) Write a program to display & view a 3D chair model from different angles and use the shading and lighting (single/ multiple) functions on it. Use different projection transformations for 3D visualization.

   (b) Replace the above object with an object created using 3D Bezier and Spline Surfaces, and repeat above exercise.

6. (a) Write a program to display a rotating sphere/cube and use different textures controlled by mouse or keyboard buttons with lighting function.

   (b) Use OpenGL "mipmapping" function to create a simple Levels of Detail visualization application.

7. Write a program to display an earth globe and a moon rotation viewed by mouse or keyboard in different positions with a moving light source.

8. Use OpenGL blending (e.g. billboarding used in displaying a tree), antialiasing, and fog (e.g. for atmospheric effect) to create a more realistic application.