# Assignment 5: Animation and Scene Graph

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## 1 Introduction

The main aim of this assignment is to animate 3D objects using scene graphs. The aim is also to render 3D objects which are read from a ply file, apply different textures with different texture mapping techniques and to provide different types of lights and also change camera position dynamically.

## 2 Aspects of this Assignment

### 2.1 3D Models

3D models are obtained from online sources in obj format. It is then converted to ply format, and texture and texture map provided by the source is used to render the object.

### 2.2 Scene graph

Scene graph is a data structure used to represent the scene with relations between objects. Scene graph is implemented from scratch. Additional classes have been added. A Scene class has been added which contains the scene graph and other details of the scene like lights, camera etc. Scenegraph class is used to store the scene graph.

## 3 Conclusion

1. Scene graph is a very effective and useful tool to represent and manipulate the scene dynamically.

## 4 References

1. http://www.glprogramming.com/red/chapter05.html
2. http://opengl.czweb.org/ch09/293-296.html
3. https://www.opengl.org/archives/resources/faq/technical/texture.htm