Factory Pattern

The class NodeFactory implement the Cube and Sphere classes to make a TreeNode in the Scene. This is important as when we add more shapes, we can simply enforce a general pattern for shape creation. It currently contains only Cube and Sphere but can be extended using the Extensible Factory Pattern.

Observer - Subject Pattern

The Observer class notify the clients of all changes made to Mapper -> Subject class. This is done so that the client knows when changes are made and it can refresh or perform any action.

Singleton Pattern

The class Mapper uses a singleton pattern. It is used as we want only one instance of scene graph with a default root node.