# Project 4

The objective of project 4 was to learn to create objects using hierarchical model using stack. This project also focuses on lighting.

## Story

In project 4, I designed two rooms. These rooms have two light sources at the ceiling (each room has its own light source). The room consists of a ceiling, a floor and four walls. One of the walls has door. Each of the door leads to another room. Each of the rooms is furnished with a table and few chairs. There is a player (Tank/Turret) in the room that keeps on patrolling between the rooms. When the player (now camera) enters a room the light on the previous room turns off and the light on the entering room turns on.

## Construction

The room is constructed using Walls. Each wall is constructed using a cuboid object, which has a very small height. The floor of the room is considered as the reference of the room and walls and ceiling are constructed using the stack object. The wall with door is a special type of wall that is constructed using three cuboids. The cuboids are stacked one over another, leaving the space for the middle of the room, which consists of the door.

The player is changed from turret to the camera. The room has light sources at the ceiling, which are created by stacking two cuboids one over another to give a feeling of a dome light. The light object is attached at the position where these cubes exist.

The furniture (chairs and table) are created using several cuboids. Each furniture object has its own class that maintains its own stack frame. These objects are then added to the room at the floor.

This project externalizes various data. The window properties are stored in an external file called window.config. It contains basic window properties such as width, height and title. This file is read using the Configuration class. The attributes are set in WinMain function. Similarly the graphics data for each object is stored in a file called graphics.dat. It contains information such as width, depth, height and color values for each object created in the room.

BackForthWithLight class gives the turret object it patrolling. When the player (camera) object enters into a room, the two lights in each of the room are switched on and off simultaneously. This behavior is defined in LightBehavior class.

## Source Code

The project is uploaded to https://nepalp@bitbucket.org/nepalp/game-programming-lab.git under Project4 directory.

## Output Screenshots





