

# Consigli Take Home Coding Test

## Task1: Data Representation

You are given a floor plan of a building which consists of multiple rooms and a corridor (for simplicity's sake a corridor is also a longish room).

Implement an abstract data representation for the room in python to represent a simplified building. Do not consider the coordinates of the room, shapes of the room, etc.

1. Building – Contains multiple floors (for this example assume that it is just one floor in a building)
2. Floor – A floor consists of a list of rooms.
3. Room – A room consists of the following elements
  - a. The name of the room
  - b. Door(s) that connects a room to an adjacent room. The doors are numbered and unique in each room.
  - c. List of adjacent rooms (immutable)
  - d. Number of windows in a room
  - e. Number of lights in a room

Your tasks are as follows

1. Create a data representation model for a building.
2. Implement a algorithm to find paths from to go from room X to room Y via existing doors.
3. Add a few methods to modify the data representation of a building such as adding doors between rooms, adding lights/windows, renaming rooms etc. For example, it should have methods like “Add a door between room 3 and room 7”. If the rooms are adjacent, then the door data in both rooms should be updated. Otherwise returns the error that the rooms are not adjacent. Add, deduct or set the number of windows and lights in a room.
4. Follow good coding practices in your test.

An example floor plan is given below.

