**Design Document – Calculates Occupancy Rate for Residence Hall**

**Oberon Ilano**

**Program Requirements:**

This program will allow user to input the hotel’s total number floors, total rooms, occupied rooms, unoccupied rooms and the total rate of occupancy of the hotel.

**Program Inputs:**

* Number of floors in the hotel (double)
* Number of rooms in the hotel (double)
* Number of occupied rooms in the hotel (double)

**Program Outputs:**

* Total number of rooms (double).
* Total number of occupied rooms (double)
* Total number of unoccupied rooms in the hotel.
* Percentage of hotel occupancy rate (double, decimal number)

**Test Plan:**

Case #1 Floors:

floors: 0

If floors < 1

Show ERROR: Re-enter valid data then loop

Case # 2 floors:

floors: 1

End loop then calculate

Case # 3 For Loop num =1:

If num <= floors

End loop and calculate

Case #4 rooms:

rooms: 6

If rooms < 10

Show ERROR: Re-enter valid data.

Case #5 occupied:

occupied: -2

ERROR: Re-enter valid data.

Case #6:

floors: 2

rooms on floor 1: 10

occupied rooms on floor 1: 5.

rooms on floor 2: 10

occupied rooms on floor 2: 5

then show totalRooms, totalOccupied, totalUnoccupiedRooms,

& percentOccupied.

**Solution Overview:**

* Have user input numbers of floors, rooms, and occupied.
* While floor < 1
  + ERROR: Re-enter number greater than 0.
  + If (int) num <= floors
    - End the loop and calculate
* While rooms < 10
  + ERROR: Re-enter number greater than 10.
* While occupied > rooms || occupied < 0
  + ERROR: Re-enter valid data.
  + totalRooms += rooms
  + totalOccupied += occupied
  + num++ and continue loop if necessary
  + totalUnoccupiedRooms = totalRooms – totalOccupied
  + percentOccupied = (double) totalOccupied \* 100) / totalRooms
* Output
  + totalRooms
  + totalOccupied
  + totalUnccopiedRooms
  + percentOccupied

**Algorithm Flowchart:**

**A close up of a map

Description generated with very high confidence**

