

CS150 Assignment 4

Hotel Occupancy Summarizer

Date assigned: Monday, October 19, 2015

Program due: Wednesday, October 28, 2015, 9:15am (35 points)

You have just been hired by the Swynn Hotel in Las Vegas to help them determine their occupancy rate. The manager at Swynn would like you to print out a report that shows for each floor, the number of rooms on the floor, the number of occupied rooms, and the number of unoccupied rooms. The report must also list the total number of rooms, the total number of occupied rooms, and the total number of unoccupied rooms. Finally, the report must display the percentage of occupied rooms and the percentage of unoccupied rooms.

The data that has been provided for you is in a text file named “hotel.txt” and includes a series of lines of data. The first line contains the number of floors in the hotel. This is followed by a line for each floor in the hotel containing the number of rooms, then a series of zeros or ones indicating if each room is occupied (one) or unoccupied (zero).

For example, if a hotel has two floors, floor 1 has 5 rooms, 3 of which are occupied, and floor 2 has 3 rooms, none of which are occupied, then the file would look like:

```
2
5 0 0 1 1 1
3 0 0 0
```

The hotel manager also wants your program to account for the fact that there is no 13th floor at the Swynn. Most hotels do not have a 13th floor as the number 13 is considered unlucky. Triskaidekaphobia is the fear of the number 13! Instead of a 13th floor, the Swynn goes straight from the 12th floor to the 14th floor.

Notes:

1. Read the hotel data from a file called “hotel.txt”.
2. Minimally, a data file must consist of one line containing the number zero indicating that there are no floors in this hotel.
3. There is no input from the user in this program. All the data will be read from the input file.

For the following input file:

```
14
3 0 1 1
6 0 0 0 1 1 1
2 1 1
7 0 1 0 0 1 1 1
4 0 0 0 1
8 0 0 0 1 1 0 1 0
3 0 0 0
1 0
8 0 0 1 1 0 0 1 1
2 0 1
5 1 0 1 0 1
4 1 1 1 0
3 1 1 1
6 1 1 1 1 1 1
```

Your program must produce the following output exactly:

```
*****
* Hotel Occupancy *
*****
```

Floor	Rooms	Occupied	Unoccupied
1	3	2	1
2	6	3	3
3	2	2	0
4	7	4	3
5	4	1	3
6	8	3	5
7	3	0	3
8	1	0	1
9	8	4	4
10	2	1	1
11	5	3	2
12	4	3	1
14	3	3	0
15	6	6	0
Total	62	35	27

```
Percentage of occupied rooms: 56.45%
Percentage of unoccupied rooms: 43.55%
```

To complete this assignment you must submit the following:

1. An electronic copy of your program on Grace

- a. Add a new project named 04_Hotel to your previously created assignment solution called PUNetIDAssignments. It is *vital* that you name your project correctly!
- b. Type your program (fully documented/commented) into the project. You must follow the coding standards!
- c. Pay attention to the example output! Your program's output must look **exactly** like the example output! The spacing and newlines in your output must match exactly.
- d. Make sure that your program compiles and runs correctly. If you get any errors, double check that you typed everything correctly.
- e. Make sure that your program does not produce any warnings.
- f. Once you are sure that the program works correctly it is time to submit your program. You do this by logging on to Grace and placing your complete solution folder in the **CS150-02 Drop** folder. This solution folder must also contain your four previous projects.
- g. The program must be in the drop folder by 9:15am on the day that it is due. Anything submitted after that will be considered late.

2. A hard copy of your program

- a. The hard copy must be placed on the instructor's desk by 9:15am on the day that it is due.
- b. The hard copy must be printed in color, double-sided, and stapled if necessary. Staple the program output described above to your program.
- c. Your tab size must be set to 2 and you must not go past column 80 in your output.

Good luck! And remember, if you have any problems, come and see straight away. ☺