Pr<3>
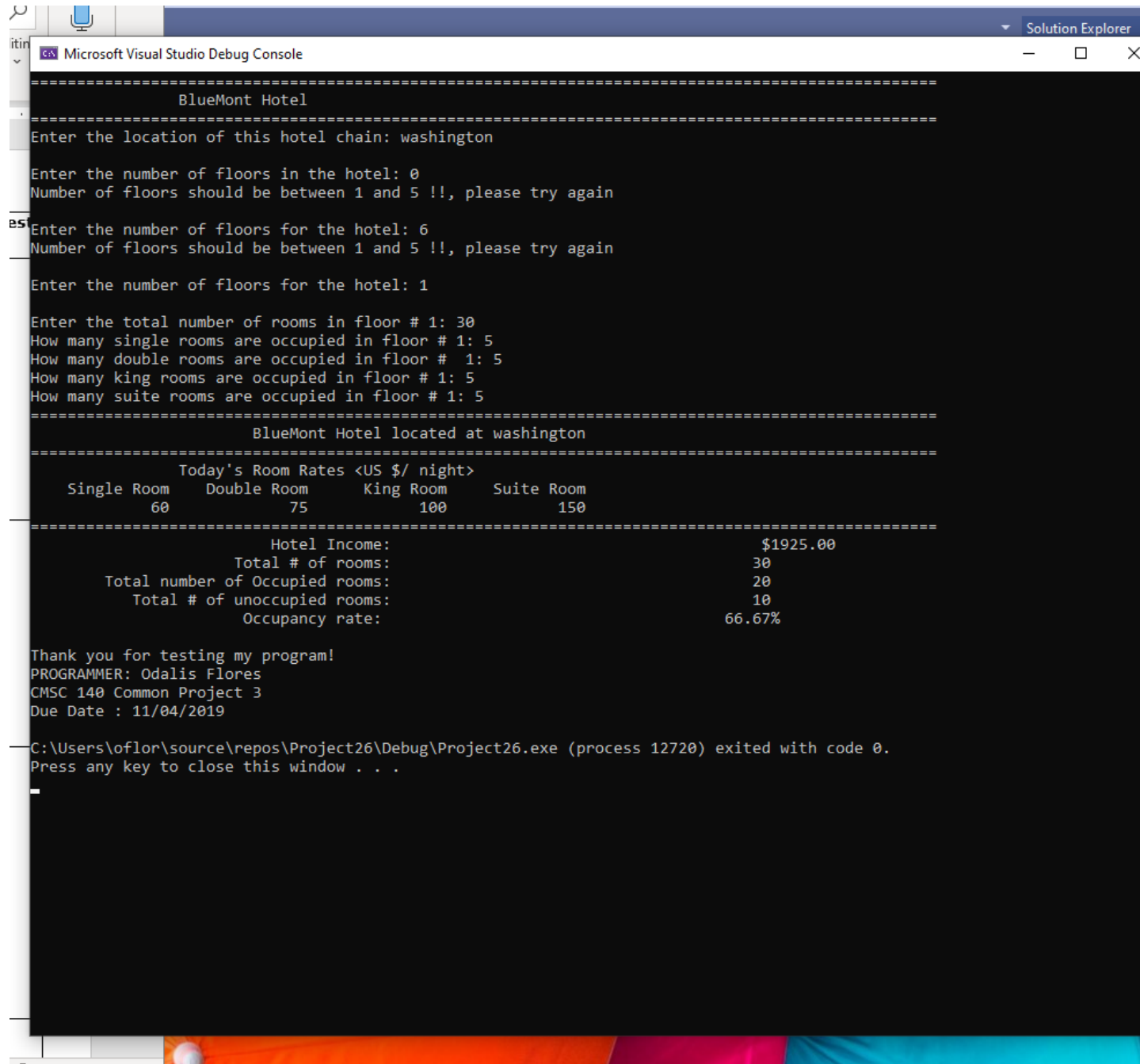
ODALIS FLORES21417
DUE DATE 11/04/2019

Test Case #	Input	Actual Input	Expected Output	Actual Output	Did the test pass?
1	loc: Washington #of floors: 0	Location: Washington Number of floors :0 Number of floors: 6 Number of floors:1 Number of rooms:30 SR: 5 DR: 5 KR: 5 SuR: 5	Number of floors should be between 1 and 5. Please try again!! Number of floors should be between 1 and 5. Please try again!! Hotel income = 1925 Total rooms=30 number of occupied rooms=20 number of unoccupied =10 occupancy rate = 66.67%	Error message number of floors should be between 1-5 Error message number of floors should be between 1-5 Hotel Income: 1925.00 Total # of rooms: 30 Total number of Occupied rooms: 20 Total # of unoccupied rooms: 10 Occupancy rate: 66.67%	Y
2	Loc: Los Angeles # of floors 2 Number of rooms in floor 1: 33	Loc: Los Angeles # of floors 2 Number of rooms in floor 1: 33 Number of rooms:30 SR: 5 DR: 5 KR: 5 SuR: 5 Number of rooms in floor 2: 10 Number of rooms:30 SR: 1 DR: 1 KR: 1 SuR: 1	Error message, floors should be between 1- 30 try again Hotel income: 2310 Total # of rooms: 40 Total number of Occupied rooms: 24 Total # of unoccupied rooms: 16 Occupancy rate:60.00%	Number of rooms should be between 1 and 30 !!, please try again Hotel Income: 2310.00 Total # of rooms: 40 Total number of Occupied rooms: 24 Total # of unoccupied rooms: 16 Occupancy rate:60.00%	Y
3	Loc: Rockville # of floors:2 Number of rooms in 1: 30 SR: 10 DR: 10 KR: 10 SuR: 10	Loc: Rockville # of floors:2 Number of rooms in 1: 30 SR: 10 DR: 10 KR: 10 SuR: 10 number of rooms in floor # 1: 30 SR: 5 DR: 5 KR: 5 SuR: 5 number of rooms in floor # 2: 20 SR: 2 DR: 2 KR: 2 SuR: 2	Error message number of occupied rooms exceeds number of rooms on the floor try again Hotel Income: $1540.00 Total # of rooms: 40 Total number of Occupied rooms: 16 Total # of unoccupied rooms: 24 Occupancy rate: 40.00% You need to improve the occupancy rate. Floor # 2 with 20 rooms has the least number of rooms.	Error message number of occupied rooms exceeds number of rooms on the floor try again Hotel Income: $1540.00 Total # of rooms: 40 Total number of Occupied rooms: 16 Total # of unoccupied rooms: 24 Occupancy rate: 40.00% You need to improve the occupancy rate. Floor # 2 with 20 rooms has the least number of rooms.	Y
4	Loc: Chicago # of floors in the hotel: 5 rooms in floor # 1: 30 SR: 5 DR: 5 KR: 5 SuR: 5 rooms in floor # 2: 20 SR: 10 DR: 10 KR: 10 SuR: 2	Loc: Chicago # of floors in the hotel: 5 rooms in floor # 1: 30 SR: 5 DR: 5 KR: 5 SuR: 5 rooms in floor # 2: 20 SR: 10 DR: 10 KR: 10 SuR: 2	Error message number of occupied rooms exceeds number of rooms on the floor try again Hotel Income: $5235.00 Total # of rooms:95 Total number of Occupied rooms: 54 Total # of unoccupied rooms: 41 Occupancy rate: 56.84% You need to improve the occupancy rate. Floor # 5 with 10 rooms has the least number of rooms.	Error message number of occupied rooms exceeds number of rooms on the floor try again Hotel Income: $5235.00 Total # of rooms:95 Total number of Occupied rooms: 54 Total # of unoccupied rooms: 41 Occupancy rate: 56.84% You need to improve the occupancy rate. Floor # 5 with 10 rooms has the least number of rooms.	y

Screenshots

Case 1:

Microsoft Visual Studio Debug Console

```
========================================================================
              BlueMont Hotel
========================================================================
Enter the location of this hotel chain: washington

Enter the number of floors in the hotel: 0
Number of floors should be between 1 and 5 !!, please try again

Enter the number of floors for the hotel: 6
Number of floors should be between 1 and 5 !!, please try again

Enter the number of floors for the hotel: 1

Enter the total number of rooms in floor # 1: 30
How many single rooms are occupied in floor # 1: 5
How many double rooms are occupied in floor #  1: 5
How many king rooms are occupied in floor # 1: 5
How many suite rooms are occupied in floor # 1: 5
========================================================================
            BlueMont Hotel located at washington
========================================================================
              Today's Room Rates <US $/ night>
     Single Room     Double Room      King Room     Suite Room
          60              75             100            150
========================================================================
                  Hotel Income:                       $1925.00
                  Total # of rooms:                    30
        Total number of Occupied rooms:                20
           Total # of unoccupied rooms:                10
                  Occupancy rate:                    66.67%

Thank you for testing my program!
PROGRAMMER: Odalis Flores
CMSC 140 Common Project 3
Due Date : 11/04/2019

C:\Users\oflor\source\repos\Project26\Debug\Project26.exe (process 12720) exited with code 0.
Press any key to close this window . . .
```

Case 2:


```
==================================================================
              BlueMont Hotel
==================================================================
Enter the location of this hotel chain: los angeles

Enter the number of floors in the hotel: 2

Enter the total number of rooms in floor # 1: 33
Number of rooms should be between 1 and 30 !!, please try again

Enter the total number of rooms in floor # 1: 30
How many single rooms are occupied in floor # 1: 5
How many double rooms are occupied in floor #  1: 5
How many king rooms are occupied in floor # 1: 5
How many suite rooms are occupied in floor # 1: 5

Enter the total number of rooms in floor # 2: 20
How many single rooms are occupied in floor # 2: 2
How many double rooms are occupied in floor #  2: 2
How many king rooms are occupied in floor # 2: 2
How many suite rooms are occupied in floor # 2: 2
==================================================================
          BlueMont Hotel located at los angeles
==================================================================
            Today's Room Rates <US $/ night>
    Single Room    Double Room    King Room    Suite Room
        60             75           100          150
==================================================================
                Hotel Income:                    2695.00
                Total # of rooms:                     50
        Total number of Occupied rooms:               28
            Total # of unoccupied rooms:               22
                Occupancy rate:                   56.00%


You need to improve the occupancy rate. Floor # 2 with 20 rooms has the least number of rooms.

Thank you for testing my program!
PROGRAMMER: Odalis Flores
CMSC 140 Common Project 3
Due Date : 11/04/2019

C:\Users\oflor\source\repos\Project26\Debug\Project26.exe (process 4992) exited with code 0.
Press any key to close this window . . .
```

Case 3:

```
================================================================================
                BlueMont Hotel
================================================================================
Enter the location of this hotel chain: rockville

Enter the number of floors in the hotel: 2

Enter the total number of rooms in floor # 1: 30
How many single rooms are occupied in floor # 1: 10
How many double rooms are occupied in floor #  1: 10
How many king rooms are occupied in floor # 1: 10
How many suite rooms are occupied in floor # 1: 10
ERROR, the total number of occupied rooms exceeds the number of rooms on the floor
Please try again!

Enter the total number of rooms in floor # 1: 30
How many single rooms are occupied in floor # 1: 5
How many double rooms are occupied in floor # 1: 5
How many king rooms are occupied in floor # 1: 5
How many suite rooms are occupied in floor # 1: 5

Enter the total number of rooms in floor # 2: 20
How many single rooms are occupied in floor # 2: 2
How many double rooms are occupied in floor #  2: 2
How many king rooms are occupied in floor # 2: 2
How many suite rooms are occupied in floor # 2: 2
================================================================================
                BlueMont Hotel located at rockville
================================================================================
                Today's Room Rates <US $/ night>
    Single Room     Double Room     King Room     Suite Room
        60              75             100           150
================================================================================
                Hotel Income:                        $2695.00
                Total # of rooms:                        50
        Total number of Occupied rooms:                  28
            Total # of unoccupied rooms:                 22
                    Occupancy rate:                    56.00%


You need to improve the occupancy rate. Floor # 2 with 20 rooms has the least number of rooms.

Thank you for testing my program!
PROGRAMMER: Odalis Flores
CMSC 140 Common Project 3
Due Date : 11/04/2019

C:\Users\oflor\source\repos\Project26\Debug\Project26.exe (process 18272) exited with code 0.
Press any key to close this window . . .
```

Case 5:

```
===================================================================================
              BlueMont Hotel
===================================================================================
Enter the location of this hotel chain: Chicago

Enter the number of floors in the hotel: 5

Enter the total number of rooms in floor # 1: 30
How many single rooms are occupied in floor # 1: 5
How many double rooms are occupied in floor #  1: 5
How many king rooms are occupied in floor # 1: 5
How many suite rooms are occupied in floor # 1: 5

Enter the total number of rooms in floor # 2: 20
How many single rooms are occupied in floor # 2: 10
How many double rooms are occupied in floor #  2: 10
How many king rooms are occupied in floor # 2: 10
How many suite rooms are occupied in floor # 2: 2
ERROR, the total number of occupied rooms exceeds the number of rooms on the floor
Please try again!

Enter the total number of rooms in floor # 2: 20
How many single rooms are occupied in floor # 2: 2
How many double rooms are occupied in floor # 2: 2
How many king rooms are occupied in floor # 2: 2
How many suite rooms are occupied in floor # 2: 2

Enter the total number of rooms in floor # 3: 15
How many single rooms are occupied in floor # 3: 2
How many double rooms are occupied in floor #  3: 2
How many king rooms are occupied in floor # 3: 2
How many suite rooms are occupied in floor # 3: 2

Enter the total number of rooms in floor # 4: 20
How many single rooms are occupied in floor # 4: 1
How many double rooms are occupied in floor #  4: 1
How many king rooms are occupied in floor # 4: 11
How many suite rooms are occupied in floor # 4: 1

Enter the total number of rooms in floor # 5: 10
How many single rooms are occupied in floor # 5: 1
How many double rooms are occupied in floor #  5: 1
How many king rooms are occupied in floor # 5: 1
How many suite rooms are occupied in floor # 5: 1
===================================================================================
                BlueMont Hotel located at Chicago
===================================================================================
              Today's Room Rates <US $/ night>
      Single Room    Double Room     King Room     Suite Room
          60             75             100            150
===================================================================================
                  Hotel Income:                          $5235.00
              Total # of rooms:                             95
       Total number of Occupied rooms:                      54
          Total # of unoccupied rooms:                      41
              Occupancy rate:                            56.84%


You need to improve the occupancy rate. Floor # 5 with 10 rooms has the least number of rooms.

Thank you for testing my program!
PROGRAMMER: Odalis Flores
CMSC 140 Common Project 3
```

Pseudocode Pr <3>

1. Declare constant integers for
    a. Single room rate = 60
    b. Double room rate =75
    c. King room rate = 100
    d. Suite room rate=150
    e. Max rooms=30
    f. Min rooms=1
    g. Max floors =5
    h. Min floors=1
    i. Assignment number = 3
2. Declare const string for
    a. Programmer name = Odalis Flores
    b. Due date = 11/04/2019
3. Declare string for hotel location
4. Declare integers for number of floors, number of rooms, number of single rooms, number of double rooms, number of king rooms, number of suite rooms, total number of occupied rooms, total number of single rooms, total number of double rooms, total number of king rooms, total number of suite rooms, total number of hotel rooms, absolute number of occupied rooms, absolute sum of rooms. Lowest number of rooms, and lowest floor number
5. Declare double variable for hotel income and occupancy rate
6. Display Bluemont hotel header
7. Prompt user to enter location of hotel
8. Get location of hotel and store in variable hotel location
9. Prompt user to enter number of floors in hotel
10. Get number of hotel floors from user and store in number of floors
11. Generate loop, if number entered by user is less than 1 or greater then 5
    a. Display error message
    b. Prompt user to enter number of floors in hotel
    c. Get number of hotel floors from user and store in number of floors
    d. Repeat if loop continues to be true
12. Start for loop, for floor num that = 1, floor num is less than or equal to number of floors, increment floor num
    a. Prompt user to enter the total number of rooms in floor # floor num
    b. Get number of rooms from user
    c. Start nested wile loop, so that if number of rooms is less than min rooms or greater than max rooms
        i.   Display error message
        ii. Prompt user to enter the total number of rooms in floor # floor num
        iii. Get number of rooms from user
        iv. Repeat if loop is true
    d. Prompt user to enter single rooms occupied in floor num
    e. Get single rooms occupied in floor num
    f. Prompt user to enter double rooms occupied in floor num
    g. Get double rooms occupied in floor num
    h. Prompt user to enter king rooms occupied in floor num

       i.   Get king rooms occupied in floor num
       j.   Prompt user to enter suite rooms occupied in floor num
       k.   Get suite rooms occupied in floor num
       l.   Calculate the total number of rooms occupied in this floor and store in variable total number of rooms occupied
           i.   = Single room + double room + king room + suite room
       m. While the total number of occupied rooms is greater than the number of rooms
            i.   Display error message
           ii.   Prompt user to enter single rooms occupied in floor num
          iii.   Get single rooms occupied in floor num
          iv.   Prompt user to enter double rooms occupied in floor num
           v.   Get double rooms occupied in floor num
          vi.   Prompt user to enter king rooms occupied in floor num
         vii.   Get king rooms occupied in floor num
        viii.   Prompt user to enter suite rooms occupied in floor num
          ix.   Get suite rooms occupied in floor num
           x.   Calculate the total number of rooms occupied in this floor and store in variable total number of rooms occupied
          xi.   Repeat if while loop is true
       n.   Add the sums of each room type and the number of rooms
            i.   Total number of Single Rooms is the sum of number Of Single Rooms
           ii.   Total Number of Double Rooms is the sum of number Of Double Rooms
          iii.   Total Number of King Rooms is the sum number Of King Rooms
          iv.   Total Number of Suite Rooms is the sum number Of Suite Rooms
           v.   Total Number of Hotel Rooms is the sum number Of Rooms
       o.   Start if statement to find the floor with the lowest number of occupied rooms, and the number of rooms in the floor
            i.   If the floor num is greater than or equal to 1
                1.   The lowest floor room is assigned the total number of occupied rooms
                2.   The lowest floor room is assigned the floor num
                3.   Lowest number of rooms is assigned the number of rooms
           ii.   Else
                1.   If total number of occupied rooms is less than lowest floor rooms
                   a.   Lowest floor room is assigned the floor num for the floor
                   b.   Lowest number of rooms is assigned number of rooms for that floor
       p.   Get out of for loop
13. Display the menu with hotel header including the hotel location and pattern before and after
14. Display the room type with he rates for the room type with specific field width
15. Calculate/display the hotel income
       a.   Cast integers to doubles to avoid type conversation
       b.   = total single rooms * single rate + total double rooms * double rate + total king rooms * king rate + total suite rooms * suite rate
       c.   Display hotel income with two decimal places and set the width to align with other messages displayed
16. Display the total amount of rooms in the hotel (= sum of number of rooms) and set the width to align with other messages displayed
17. Calculate/display the absolute total amount of occupied rooms in the hotel
       a.   = total single rooms + total double rooms + total king rooms + total suite rooms

     b.   Display the absolute total amount of occupied rooms in the hotel set the width to align with other messages displayed
18. Calculate and display the number of unoccupied rooms
     a.   Subtract the total amount of rooms in the hotel and absolute total amount of occupied rooms in the hotel set the width to align with other messages displayed
19. Calculate and display the occupancy rate
     a.   Cast the variables to doubles
     b.   = absolute total amount of occupied rooms in the hotel / total number of hotel rooms store in occupancy rate
     c.   Display occupancy rate with two decimal places and set the width to align with other messages displayed
20. If the occupancy rate is less than 60%
     a.   Display message to improve occupancy rate with the floor with least amount of occupied rooms and the amount of room on that floor.
21. Display thank you message for using program with programmer name and common project number and due date

start

Declare constant variables
Single room rate = 60, Double room rate =75, King room rate = 100, Suite room rate=150, Max rooms=30, Min rooms=1, Max floors =5, Min floors=1Programmer name = Odalis Flores
Due date = 11/04/2019

Declare string for hotel location
Declare integers for number of floors, number of rooms, number of single rooms, number of double rooms, number of king rooms, number of suite rooms, total number of occupied rooms, total number of single rooms, total number of double rooms, total number of king rooms, total number of suite rooms, total number of hotel rooms, absolute number of occupied rooms, absolute sum of rooms. Lowest number of rooms, and lowest floor number
Declare double variable for hotel income and occupancy rate

Display
Bluemont hotel

Prompt user where is location of this hotel chain is located

Get hotelLocation from user

Prompt user for number of floors in hotel

Get number of floors

While number of floors is < min floors or number of floors > max floors **false** → Display number of floors needs to be between 1-5

Get numOfFloors

Prompt user for number of rooms per floor

Get numOfRoomsPerFloor

1 <= numOfRooms && numOfRooms<= 30 → Display number of rooms needs to be 1-30

Get numOfRoomsPerFloor

a

a

For (nfloor = numberOfFloors; nfloor <=5; nfloor++)

Prompt user how many single rooms are occupied in the nfloor number:

Get occupied single rooms in nfloor

Prompt user how many double rooms are occupied in the nfloor number:

Get occupied double rooms in nfloor

Prompt user how many king rooms are occupied in the nfloor number:

Get occupied kings rooms in nfloor

Prompt user how many suite rooms are occupied in the nfloor number:

Get occupied suite rooms in nfloor

Total number of Single Rooms is the sum of number Of Single Rooms
Total Number of Double Rooms is the sum of number Of Double Rooms
Total Number of King Rooms is the sum number Of King Rooms
Total Number of Suite Rooms is the sum number Of Suite Rooms
Total Number of Hotel Rooms is the sum number Of Rooms

A

A

Display bluemont hotel located in (city), todays room rates <US$/night>
Single room: $60/night
Double room: $75/night
King room: $100/night
Suite room: $150/night

Calculate hotel income = total single rooms * single rate + total double rooms * double rate + total king rooms * king rate + total suite rooms * suite rate

Display hotel income

Display total amount of rooms in the hotel

number of occupied rooms= total single rooms + total double rooms + total king rooms + total suite rooms

Display number of occupied rooms

Number of unoccupied rooms = the total amount of rooms in the hotel - absolute total amount of occupied rooms in the hotel

b

---

b

Display number of unoccupied rooms

occupancy rate = absolute total amount of occupied rooms in the hotel / total number of hotel rooms

Display occupancy rate

If occupancy rate <= 60.0 — false

Display need to improve occupancy rate, the floor with least amount of rooms occupied and the number of rooms in that floor

Display thank you message, with programmer name, project number and due date

end