King Abdulaziz University
Faculty of Computing and Information Technology
Computer Science Department

CPCS 202, Spring 2020

Assignment #3 – Jeddah Palace Hotel

Published date : 22nd March, 2020 (Sunday)
Submission date : 11:59pm on 31th March, 2020 (Tuesday)

Objective
The purpose of this assignment is to practice creating new methods, using existing methods, calling other methods from within a method and other basic features of Java in order to solve a real-world problem.

Note:

- This program is worth 12% of your final grade
- This is an individual assignment. Any form of cheating will result in receiving –4% (less than zero) in the program
- This assignment must be submitted online via blackboard
- You are allowed to make a late submission, but there is a penalty. If you submit within 24 hours of the due date (so on Wednesday by 11:00PM), you will receive a 25% deduction from your total grade. You will not be allowed to submit after this date/time
- If files are empty or you upload the wrong files, it will be solely your responsibility, and you will be awarded a grade zero

Deliverables
You are required to submit the following on blackboard on or before the deadline

1) Your Java file named as follows : *A3_X_Y.java* where X is your section code and Y is your university id.

Your output should look exactly like the output given in the sample run. Also, at the top (start) of your file, add comments which clearly indicate your name, student id, course number, section number, assignment number and your email id.

Marking Rubric
Will be posted on blackboard. Please refer to it online

Program 3 Description:

Jeddah Palace Hotel is a small hotel. It consists of three floors with each floor having two very large and luxurious rooms. You have been asked to write a simple program, that allows the hotel staff at the reception to do the following – check in guests, check out guests and print daily reports.

The Jeddah Palace Hotel is an environment-friendly hotel. So when there are no guests, the system is rebooted, which turns all the A/Cs in the hotel off. Only when a guest checks-in is the a/c turned on. And when the guest checks-out of the room, the a/c is again turned off.

Since it is easy to clean and maintain rooms on the lower floors, the management follows the policy of allocating rooms from the first floor onwards, i.e. if a room is available on the first floor, it is assigned to the new guest.

Program Details:

A Java file with a few methods, including the *main* method, is made available to you. You are not allowed to modify any of these methods or the global variables and constants. You need to use these existing methods (you need not understand how they work) and create the new methods to complete the system.

Methods that have been provided to you in the template file

Name : *turnAcOn(int f, int r, boolean status)*
Return type : none
Input parameters : floor number, room number and status (true for ON and false for OFF)
Description :
This method turns the a/c on floor *f* and room *r* to either ON or OFF depending on whether the *status* provided is *true* or *false*, respectively.

Name : *getRoomACStatus(int f, int r)*
Return type : boolean
Input parameters : floor number, room number
Description :
This method returns the status of the a/c on floor *f* and room *r* as true if the a/c is ON or false if a/c is OFF

Name : *setRoomTemperature(int f, int r, double t)*
Return type : none
Input parameters, floor, room and temperature
Description :
This method sets the temperature of room *r* on floor *f* to *t*.

Name : *getRoomTemperature(int f, int r)*
Return type : double
Input parameters : floor, room number and temperature
Description :

This method returns the current temperature of room *r* on floor *f*.

Name : s*etRoomOccupancy(int f, int r, int g)*
Return type : none
Input parameters : floor, room number, number of guests
Description :
This method sets the number of guests of room *r* on floor *f* to *g*.

Name : *getRoomOccupancy(int f, int r)*
Return type : integer
Input parameters : floor, room number
Description :
This method returns the current number of guests of room *r* on floor *f*.

Methods that need to be created

Name : *resetHotel*()
Return type : none
Input parameters : none
Description :
This method is called at the beginning when initially setting up the system. It should turn all a/cs of the hotel off (by calling the *turnAllACsOff()* method) and should set all the rooms occupancy as zero (by calling the *setAllRoomOccupancyToZero()* method). See the sample output for details.

Name : *turnAllACsOff()*
Return type : none
Input parameters : none
Description :
The method should use the provided *turnAcOn()* method to turn the a/cs on all floors and rooms to off.

Name : *setAllRoomOccupancyToZero()*
Return type : none
Input parameters : none
Description :
This method should use the provided *setRoomOccupancy()* method to set the occupancy of all rooms on all floors to zero (i.e. no guests in any of the rooms).

Name : *displayReport()*
Return type : none
Input parameters : none
Description :
This method displays the a/c status and the room occupancy for all rooms on all floors of the hotel. See the sample output for more details.

Name : *isRoomAvailable(int floor, int room)*
Return type : boolean
Input parameters : floor and room number

Description :
This method returns *true* if room is not occupied (no guests) or *false* if there are one or more guests in the room

Name : *getFreeRoomNumber()*
Return type : int
Input parameters : none
Description :
This method returns the room number of the first room available starting from the lowermost floor. The room number is returned in the format FRR, where F is the floor number and RR is the room number. For example the second room on the fifth floor should be 502. If a room is not available, it should return -1.

Name : *checkInGuest()*
Return type : none
Input parameters : none
Description :
This method displays a menu to allow the hotel receptionist to check-in a guest. It should search for an unoccupied room in the hotel using the *getFreeRoomNumber()* method. If a room is not available, it should display an appropriate message. If it is available it should ask the guest for his name, mobile number and the number of guests and prints a brief report for him with his name, mobile number and his assigned room number. It should also turn the room a/c ON and change the occupancy of the room to the number of guests (using your other existing methods). See the sample output for more details.

Name : *checkOutGuest()*
Return type : none
Input parameters : none
Description :
This method displays a menu to allow the hotel receptionist to check-out a guest. The user is asked to enter the room number in the format FRR (as described earlier).
It system should set the room a/c OFF and change the occupancy of the room to zero (using your other existing methods). See the sample output for more details.

Name : *mainMenu()*
Return type : none
Input parameters : none
Description :
This method displays the main menu of the Jeddah Palace Hotel. It allows the user to check-in and check-out guests and to print the daily report. See the sample output for more details.

Tips:

1. Make sure you study the sample output file carefully to make sure your program output is the same as the sample output
2. The BEST problem-solving strategy is for YOU to study the output and try to understand what is happening and how you can solve it in code.
3. Try to develop/build your code method by method instead of trying to write the whole code at one time.