BSc (Hons) in Information Technology
Year 2

Assignment

IT2030 – Object Oriented Programming   Semester 1, 2022

In the assignment, you are required to work on two programming problems using the Java programming language applying the Object-Oriented Concepts that you have learnt. You can use any IDE or online tool like repl or any text pad to build your solution.

The assignment will be visible on 15th August,2022 10.00 am and the Assignment submission link is visible only for 04 days. (i.e 19th August,2022 10.00am it will be disabled).You need to attempt both Question 1 and Question 2 for this assignment.

Instructions on submitting the assignment:

1. Copy only the source files (file with .java extension) into a separate folder and rename it with your student id.
2. Make the folder as zip file (when archiving, give the student id as the archive folder name)
3. Upload to the course web for the relevant center link visible during the time frame.

** Students are strictly advised to following the submission guidelines. Any student answer which is not following the correct instructions when submitting, will not be assessed.

Please note that "Gradescope" will be used to check the plagiarism and the plagiarism benchmark will be 40%. (If the similarity report shows the code similarity percentage as 40% or above it will consider as copied.)

Question 1

You are going to design a program, which calculates room charges for a certain hotel. The room types available are Delux-Double, Standard-Family and Standard-Single. The room charge depends on the facilities required.

Design a **RoomChargeCalculator** class with the following methods.

Method **getChargeDeluxDouble** that accepts the true/false for the following parameters.

balcony, parking, tv, kitchen, wifi

Use the following details to calculate the fee.

Fixed fee = 5000

Additional chargers if the following were requested,

Balcony – 500

Parking – 200

Tv -200

Kitchen – 1000

Wifi - 100

Method **getChargeStandardFamily** that accepts the true/false for the following parameters.
parking, kitchen, garden
Use the following details to calculate the fee.
Fixed fee = 3000
Additional chargers if the following were requested,
Parking – 200
Kitchen – 500
garden - 200

Method **getChargeStandardSingle** that accepts the true/false for the following parameters.
parking, ac, wifi
Use the following details to calculate the fee.
Fixed fee = 2000
Additional chargers if the following were requested,
Parking – 200
Ac – 500
wifi – 100

write a program, which displays the following menu and responds to the user's selection:
Room Charge Calculator
1. Delux-Double
2. Standard-Family
3. Standard-Single
4. Quit
Enter your choice (1-4):

Display an error message if the user enters a number outside the range of 1 through 4 when selecting an item from the menu.

Question 2

Implement a class named RandNum. The class should have a 5x5 2D array of 25 integers. The constructor should use the random() function to generate a random number in the range of 1 to 100 for each element in the array.
Implement a method to calculate the minimum, maximum and average of the 25 values.
Implement a method to display the values of the array, minimum, maximum and average of the 25 values.
Implement a class called MyMain with the main method and demonstrate the RandNum class.