Year 2

Online Assignment - Repeat

IT2030 – Object Oriented Programming   Semester 1, 2021

Assignment submission link is visible only for 24 hours. Make sure to submit within the given period.

This is an individual assignment.

Assignment is given 100 marks.

This assignment covers basic Java concepts, OOP concepts, array manipulation, string manipulation and exceptions handling.

Your code needs to be executed with no compilation errors.

You can test your code for the sample outputs we have provided at the end of the assignment.

Submission guidelines

Assignment is **opened from 5.00 pm on 08th October 2021, till 5.000 pm on 09th October 2021** and the submission link is available in the SLIIT Courseweb page.

Please upload the Notepad file by following the below instructions.

1. You can use any IDE or online tool like repl or any text pad to build your solution.
2. Once you complete your solution, you must copy each class one by one, one after the other (order doesn't matter) to a single notepad file.
3. This single file may or may not contain some compilation errors due to copy and pasting all in to one file, which is acceptable.
4. After getting all the relevant classes and their implementations in to one file, rename that file as <your student registration number>.java
5. Add student name, Student registration number and the batch as the comments on top of the file.
6. refer the course web page and upload the file in to the correct link.

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.

"GradeScope" tool will be used to detect plagiarism and Plagiarism will be penalized.

Good coding practices (eg, code indentation, comments, line spacing, naming conventions, etc.) must be adhered.

"Care" is a medical institution that provides long-term treatments to psychologically disturbed citizens. In addition to that, it provides e- channeling facility to clients to make appointments and search the counsellors and their arrival hospitals. The management wants to develop a software system using Java technologies to make their current manual practice more efficient and easier to handle. Care employs professional staff (a Counsellors) and a receptionist who takes care of administrative tasks. Clients of Care are local citizens. Some of them are referred to the institution for residential care from various other counseling centers. After several initial discussions, "Care" has been hired by "High -Tech" company to automate their processes and be more effective when serving its staff and clients. After some brainstorming session between the two companies, they have agreed upon the below set of functionalities to be delivered. Description of functionalities There are two main User categories in the system, namely "Counsellors" and "Receptionist". All Users are registered in the system using their name and NIC when they enter the system for the first time. Counsellors can be registered by providing their name, NIC, email, Specialist area (like Neurologist, ENT, Orthopedic, Dermatology, Radiology etc.) and the arrival hospital list. The hospital list has the hospital name and the channeling fee for one appointment. Receptionists handle the operations. Other than the name and the NIC, they are required to provide their employee number when registering initially. User class has a "printDetails" method to display user information. Yet, the details to print should vary based on the type of the user (e.g., the receptionist will be printing her name, NIC, and employee number whereas a counsellor will be showing name, NIC, email, Specialist area and the arrival hospital list. A Counsellor can have a list of up to 5 hospitals. Hospital names are stored in an array where they are taken as keyboard inputs. Counsellor class needs to implement a method using arrays to store hospital details and display those. The receptionist will be manually adding the hospital(s) to the system when the counsellor verbally communicates the details. It was decided to generate an interface called "Calculations" to be responsible all sorts of calculations that the company must handle. Initially it has only "calculateRevenue" method which takes a counsellor object as an argument The receptionist calculate the revenue for each counsellor. Already created counsellor objects have their hospital list. "Care" company has a policy to consider the average rate of each counsellor for revenue calculation. Hence, the revenue is the multiplication of number of appointments and a fixed amount of 2500.00 Number of appointments is entered by the operator as a keyboard input.

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Tasks

 1. Implement the above scenario using appropriate classes, methods and object-oriented programming concepts like inheritance, overloading, abstract classes, interfaces, etc. Your code needs to be error-proof and clear.

(40 marks)

 2. Implement a constructor in the User class to initialize the data members: name and NIC

(5 marks)

 3. Overload this User constructor to take a User object as a parameter and initialize values

(10 marks)

4. Implement constructors for the Counsellors and Receptionist classes to initialize data members (Hint: use "super()" constructor call to use parent constructor)

(10 marks)

5. Receptionist class should implement a method to calculate the counsellor Income through the "payment" interface.

(25 marks)

6. Create a public class called "MyMain" with the main method and generate the following outputs using appropriate objects, constructors, and method invocation.

(10 marks)