SLIIT
Discover Your Future

BSc (Hons) in Information Technology

Year 2

ONLINE Assignment

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 and it is the substitution for the conventional SLIIT mid-term examination.
This assignment covers basic Java concepts, OOP concepts, array manipulations, String manipulations, exceptions handling and collections.
Your code needs to be executed with no compilation errors.
Good coding practices (eg., code indentation, comments, line spacing, naming conventions, etc.) must be adhered.
You can test your code for the sample outputs we have provided at the end of the assignment.

Submission guidelines

Assignment is **opened from 12.00 noon on 7th May 2021 till 12.00 noon 08th May 2021** and the submission link is available in the SLIIT Courseweb page.
(Any student submission which is not following the instruction, will not be marked.)

Once complete the assignment, copy all the java classes in to one notepad. (Make sure to copy all the .java classes content one by one, one after the other to the notepad file.
Once finish copying, add your student id, Student name and the batch on top of the notepad as comments.
Rename the notepad with your student ID.
Upload the notepad file to the relevant link provide in the courseweb page.

Any student answer which is not following the correct instructions when submitting, will not be assessed. "GradeScope" will be used to detect plagiarism and Plagiarism will be penalized.

SLIIT
Discover Your Future

BSc (Hons) in Information Technology

Year 2

ONLINE Assignment

IT2030 – Object Oriented Programming Semester 1, 2021

A newly opened private university in Sri Lanka has contracted you as the Design and develop their Student Records System for Faculty of Computing. They have given you the following normal processes as their requirements for the proposed system.

To initially enroll at the university, the student provides their personal details (name, address, sex, and born year, specialization along with 5 marks. (e.g. IT,SE. DS,CS,CSN.IM) in which they wish to enroll. A student record is created, and a student ID number is auto generated to the student. (This number is a random number generated from the system).If the student ID doesn't contain at least four digits including the prefix as "IT", then the system should generate a custom exception called "IDInvalidException"exception and then it required a new student ID to be created. The necessary detail also needs to be displayed in the webpage for weekday and weekend students.
Since "IDgeneration"and "showDetils"might be useful for other faculties, they will be keeping it as a separate file, so that whenever necessary, it can be use for other faculties as well. Computing Students also will use these two methods for generating the ID and the display their details.

A student can be a week end student or weekday student. Weekend student has the special attribute called "job title" and the weekday student has a special attribute called "free day".

The system has to store the Degree Specialization details including the specialization (e.g IT,SE,DS,CSN,IM) and the GPA criteria as key value pairs.

When a student wants to enroll, the student id and the specialization will be stored as a key value pair. And this process does not require any order. "dispalyEnrolledStudents" will display the semester enrolled student details.

A staff member can insert student details and the specialization details to the system.
Then, those details will be displayed.
All the student-enrollments should take place through the Registrar's office at the university.

Refer the main program and the console output and adjust your code accordingly.

Main Program:

```
public static void main(String[] args) {
    Weekend student1=new Weekend();
    student1.addDeatils("Jane", "Malabe", 'F', 1990, "DS","QA");
    String studentid = student1.generateID();
    student1.addMark(56, 34, 12, 46, 78);
    student1.showDetails();
    System.out.println("Studnet ID "+studentid);
    System.out.println();

    Weekday student2=new Weekday();
    student2.addDeatils("Jim", "Kaluthara", 'M', 1991, "SE","Tuesday");
    String studentid2 = student1.generateID();
    student1.addMark(78, 89, 45, 87, 90);
    student2.showDetails();
    System.out.println("Studnet ID "+studentid2);

    Enroll sem1=new Enroll();
    sem1.enrollStudent(studentid, "IT");
    sem1.enrollStudent(studentid2, "SE");
    System.out.println("\n\nEnrooed student details");
    sem1.displayEnrolledStudents();

    Specialization spe =new Specialization();
    spe.addSpecialization("SE", 2.75);
    spe.addSpecialization("DS", 3.5);
```

Console Output:

```
Student name Jane
Student Address Malabe
Gender F
Student year 1990
Student Specialization DS
Student Job Title QA
Studnet ID IT69616

Student name Jim
Student Address Kaluthara
Gender M
Student year 1991
Student Specialization SE
Student Freeday Tuesday
Studnet ID IT50851


Enrooed student details
IT50851 : SE
IT69616 : IT
```

SLIIT
Discover Your Future

BSc (Hons) in Information Technology

Year 2

ONLINE Assignment

IT2030 – Object Oriented Programming Semester 1, 2021

Mark Distribution

Source Code	Description	Mark
	Correct Application of OOP	20 marks
	Usage of keywords	05 marks
	Apply polymorphism, usage of interfaces	15 marks
	Constructor implementation & overloading	10 marks
	Usage of Collections Framework	10 marks
	Exception Handling	10 marks
	Array manipulations	10 marks
	String Manipulations	05 marks
	Displaying details	10 marks
	Compile, Following Coding standards, Overall completeness	05 marks
Total		100 marks