

## Lab Assignment 07

### 2022 – 2023 Spring, SENG102

**Q1.** File *Student.java* contains a definition for a student class with methods to increase the credit, decrease the credit, get the credit and account number, and return a String representation.

Save this class to your directory and modify it as follows:

1. Overload the constructor as follows:

- public Student (double initCredit, String name, long ID) - initializes the credit, name, and ID as specified
- public Student (double initCredit, String name) - initializes the credit and name as specified; randomly generates the ID.
- public Student (String name) - initializes the name as specified; sets the initial credit to 0 and randomly generates the ID.

2. Overload the *decrease* method with one that also takes a bonus and deducts that bonus from the credit.

Complete in the below test program "*TestStudent.java*" so that it will

- a. Prompt for and read the student's name and create a student
- b. Prompt for and read the initial credit for this student and creates a new student
- c. Prompt for and read the ID for the student and create a new student with this ID.
- d. Increase the credit by 100 and print the new credit.
- e. Decrease the credit by 25 with 2 as bonus and prints the new credit.

```
import java.util.Scanner;
public class TestStudent
{
    public static void main(String[] args)
    {
        String name;
        double credit;
        long ID;
        Student st;
        Scanner scan = new Scanner(System.in);

        System.out.println("Enter student's first name");

        // a.Read the student's name and create st

        System.out.println("Student " + name + ":");
        System.out.println(st);

        System.out.println("\nEnter initial credit");

        //b.Read the initial credit for the Student and create a new Student

        System.out.println("Student " + name + ":");
        System.out.println(st);
```

```

        //c.Prompt for and read the ID for the Student and create a new Student with ID
        number

        System.out.println("\nEnter Student number");

        System.out.println("Student " + name + ":");
        System.out.println(st);

        System.out.print("\nIncreasing credit by 100, credit is now ");

        //d.Increase the credit by 100 and prints the new credit

        System.out.print("\nDecreasing 25 with 2 as bonus, credit is now ");
        //e. Decrease 25 with 2 as bonus and print the new credit

    }
}

```

#### Sample Output:

```

Enter student's first name
Mert
Student Mert:
Name: Mert
Student #: -6313018121335360785
Credit: 0.0

```

```

Enter initial credit
100
Student Mert:
Name: Mert
Student #: 915559647328676447
Credit: 100.0

```

```

Enter Student number
212
Student Mert:
Name: Mert
Student #: 212
Credit: 100.0

```

Increasing credit by 100, credit is now 200.0

Decreasing 25 with 2 as bonus, credit is now 173.0

**Q2.** Use your “*Student.java*” class that you implemented in Q1.

1. Add a static method *Student consolidate(Student st1, Student st2)* to your Student class that creates a new student whose credit is the sum of the credits in acct1 and acct2 and ID is the sum of the IDs.

Two important rules of consolidation:

- Only students with the same name can be consolidated. The new students get the same name but a new ID.
- Two students with the same ID cannot be consolidated.

Check these conditions before creating the new student. If either condition fails, do not create the new student; print a useful message and return null.

2. Write a test program “*TestStudents2.java*” that prompts for and reads in three names and creates an account with an initial credit of 100 for each. The IDs should be 1000, 1100 and 1500 respectively. Print the three students and try to consolidate the second and third into a new student. If consolidation is made, print the consolidated student.

### Sample Output:

```
Enter name for the first student: Ahmet
First Student
Name: Ahmet
Student #: 1000
Credit: 100.0
```

```
Enter name for the second student: Mehmet
Second Student
Name: Mehmet
Student #: 1100
Credit: 100.0
```

```
Enter name for the third student: Ahmet
Third Student
Name: Ahmet
Student #: 1500
Credit: 100.0
Trying to consolidate second and third students.
Sorry, students with different names cannot be consolidated.
```

---

```
Enter name for the first student: Aynur
First Student
Name: Aynur
Student #: 1000
Credit: 100.0
```

Enter name for the second student: **Buket**

Second Student

Name: Buket

Student #: 1100

Credit: 100.0

Enter name for the third student: **Buket**

Third Student

Name: Buket

Student #: 1500

Credit: 100.0

Trying to consolidate second and third students.

Result student is

Name: Buket

Student #: 2600

Credit: 200.0

**\*\*\* Upload Student.java and TestStudents2.java files on webOnline.**