PORTCITY INTERNATIONAL UNIVERSITY

COURSE CODE

CSE - 211

COURSE TITLE

OBJECT ORIENTED PROGRAMMING

DEPARTMENT

COMPUTER SCIENCE AND ENGINEERING

ASSIGNMENT NO

01

ASSIGNMENT NAME

MID TERM ASSIGNMENT

SUBMITTED TO	SUBMITTED BY
PROFESSOR / LECTURER : Ms. Mumtahina Ahmed **PORTCITY INTERNATIONAL UNIVERSITY**	**NAME :** MD. Shahariar Alif **ID :** CSE 02707425 **BATCH :** 27 – D – A2 **PROGRAM :** BSc in CSE

DATE OF SUBMISSION : 12 / 10 / 22

Problem : **Write a java program that takes as input the marks of 6 subjects of your Summer 2022 trimester. You have to display your name, course title, marks and grades of individual subjects. Finally, calculate your CGPA and display it along with your letter grade.**

Program Statement : This is a java program to calculate CGPA and finding the letter grade of our Summer 2022 Trimester. For this program, we have to take the marks of individual subjects as inputs and pass them all though a method to get their grades and letter grades. We will create a file named **"Result_process.java"**, that will house the **"Result_process"** class which will have all the methods to calculate the marks and then process it. We will create another file named **"Result_main.java"**, which will have the driver class. Through this, we will take inputs and show results. For the CGPA letter grade we will use if-else statement;

The methods under the **"Result_process"** class is given below :

1. **setName() :** stores the student's name.
2. **getName() :** return the student's name.
3. **setID() :** stores the ID of the student.
4. **getID() :** returns the ID of the student.
5. **set_3_creditMarks() :** stores the marks of the subjects that are of 3 credit scores.
6. **set_half_creditMarks() :** stores the marks of the subjects that are of 1.5 credit scores.
7. **get_letterGrade() :** checks the marks and sets the grades and letter grades. Only returns the letter grades.
8. **getGrade() :** returns the grades of the marks that was set in the **get_letterGrade()** method.

The **Result_process** class also has five instance variables to store all the values. They are, **name, id, marks_3_credits, marks_half_credits, grades, letterGrade**. Both the files must be in the same package to work properly.

Code : Result_process.java / Result_process class

```
public class Result_process {

	/* instance variables */
	private String name;
	private String id;
	private double marks_3_credits;
	private double marks_half_credits;
	private double grades;
	private String letterGrade;
```

```
	/*set and get name*/
	public void setName(String name) {
		this.name = name;
	}
	public String getName() {
		return name;
	}

	/* set and get id */
	public void setID(String id) {
		this.id = id;
	}
	public String getID() {
		return id;
	}

	/* marks 3 credits */
	public void set_3_creditMarks(double marks3) {
		this.marks_3_credits = marks3;
	}

	/* marks half credits */
	public void set_half_creditMarks(double marksHalf) {
		this.marks_half_credits = marksHalf;
	}

	/* letter grades and grades */
	public String get_letterGrade() {
		if(marks_3_credits >= 80 || marks_half_credits >= 80) {
			this.grades = 4.00;
			this.letterGrade = "A+";
			return letterGrade;
		}
		else if(marks_3_credits >= 75 || marks_half_credits >= 75) {
			this.grades = 3.75;
			this.letterGrade = "A";
			return letterGrade;
		}
		else if(marks_3_credits >= 70 || marks_half_credits >= 70) {
			this.grades = 3.50;
			this.letterGrade = "A-";
			return letterGrade;
		}
		else if(marks_3_credits >= 65  || marks_half_credits >= 65) {
			this.grades = 3.25;
			this.letterGrade = "B+";
			return letterGrade;
		}
		else if(marks_3_credits >= 60 || marks_half_credits >= 60) {
			this.grades = 3.0;
			this.letterGrade = "B";
			return letterGrade;
		}
```

```
            else if(marks_3_credits >= 55 || marks_half_credits >= 55) {
                  this.grades = 2.75;
                  this.letterGrade = "B-";
                  return letterGrade;
            }
            else if(marks_3_credits >= 50 || marks_half_credits >= 50) {
                  this.grades = 2.50;
                  this.letterGrade = "C+";
                  return letterGrade;
            }
            else if(marks_3_credits >= 45 || marks_half_credits >= 45) {
                  this.grades = 2.25;
                  this.letterGrade = "C";
                  return letterGrade;
            }
            else if(marks_3_credits >= 40 || marks_half_credits >= 40) {
                  this.grades = 2.00;
                  this.letterGrade = "D";
                  return letterGrade;
            }
            else {
                  this.grades = 0.00;
                  this.letterGrade = "F";
                  return letterGrade;
            }
      }

      /* return grade */
      public double getGrade() {
            return grades;
      }
}
```

Code : Result_main.java / driver class

```
import java.util.Scanner;

public class Result_main {

      public static void main(String[] args) {

            Scanner input = new Scanner(System.in);

            Result_process result = new Result_process();

            int i = 0;
            double[] marks_3_credits = new double[100];
            double[] marks_half_credits = new double[100];
            double total_3_credits = 0.0, total_half_credits = 0.0, cgpa;
            String letter_grade;
            String[] sub_3_credits = {"Electrical
Engineering","Strcutured Programming Language",
```

```
                        "Bangladesh Studies","Differential Calculus and
Coordinate Geometry"};
            String[] sub_half_credits = {"Structured Programming Language
Sessional",
                        "Electrical engineering Sessional"};

            /* enter name */
            System.out.print("Your name : ");
            String name = input.nextLine();
            result.setName(name);

            /* enter id */
            System.out.print("Your ID : ");
            String id = input.nextLine();
            result.setID(id);

            System.out.printf("%nEnter the marks of the subjects %nfrom
the trimester Summer 2022%n");
            System.out.println("------------------------------");

            //    marks input
            for(i = 0; i < 4; i++) {
                  System.out.print(""+(i+1)+". "+sub_3_credits[i]+" : ");
                  marks_3_credits[i] = input.nextDouble();
            }
            for(i = 0; i < 2; i++) {
                  System.out.print(""+(i+5)+". "+sub_half_credits[i]+" :
");
                  marks_half_credits[i] = input.nextDouble();
            }

            /* result show */
            System.out.print("\n\nRESULT\n");
            System.out.print("=============\n\n");

            System.out.printf("Name : %s \t\t ID : %s %n%n",
result.getName(), result.getID());


            System.out.print("Subjects \t\t\t marks | letter Grade |
Grade\n");
            System.out.print("-----------------------------------------
-----------------\n\n");

            /* 3 credit results */
            for(i = 0; i < 4; i++) {
                  result.set_3_creditMarks(marks_3_credits[i]);
                  System.out.print(""+(i+1)+". "+sub_3_credits[i]+" :\t
"+marks_3_credits[i]+" | "+result.get_letterGrade()+" |
"+result.getGrade()+"\n\n");

                  total_3_credits = total_3_credits + result.getGrade();
            }

            /* 1.5 credit results */
            for(i = 0; i < 2; i++) {
                  result.set_3_creditMarks(marks_half_credits[i]);
                  System.out.print(""+(i+5)+". "+sub_half_credits[i]+"
:\t "+marks_half_credits[i]+" | "+result.get_letterGrade()+" |
"+result.getGrade()+"\n\n");
```

```
                    total_half_credits = total_half_credits +
result.getGrade();
              }

              /* calculate CGPA */
              cgpa = (total_3_credits * 3 + total_half_credits * 1.5) / 15;

              /* CGPA letter grade */
              if(cgpa == 4.00) {
                    letter_grade = "A+";
              }
              else if(cgpa < 4.00 && cgpa >= 3.75) {
                    letter_grade = "A";
              }
              else if(cgpa < 3.75 && cgpa >= 3.50) {
                    letter_grade = "A-";
              }
              else if(cgpa < 3.50 && cgpa >= 3.25) {
                    letter_grade = "B+";
              }
              else if(cgpa < 3.25 && cgpa >= 3.00) {
                    letter_grade = "B";
              }
              else if(cgpa < 3.00 && cgpa >= 2.75) {
                    letter_grade = "B-";
              }
              else if(cgpa < 2.75 && cgpa >= 2.50) {
                    letter_grade = "C+";
              }
              else if(cgpa < 2.50 && cgpa >= 2.25) {
                    letter_grade = "C";
              }
              else {
                    letter_grade = "D";
              }

              /* show CGPA and letter grade */
              System.out.printf("%nYour CGPA : %.2f %n", cgpa);
              System.out.printf("Your Letter Grade : %s", letter_grade);

      }

}
```

Output :

MARKS INPUT

```
Your name : MD. Shahariar Alif
Your ID : CSE 02707425

Enter the marks of the subjects
from the trimester Summer 2022
------------------------------
1. Electrical Engineering : 80
2. Strcutured Programming Language : 84
3. Bangladesh Studies : 81
4. Differential Calculus and Coordinate Geometry : 80
5. Structured Programming Language Sessional : 85
6. Electrical engineering Sessional : 82
```

RESULT

```
RESULT
=============

Name : MD. Shahariar Alif                ID : CSE 02707425

Subjects                          marks | letter Grade | Grade
-------------------------------------------------------------

1. Electrical Engineering :      80.0 | A+ | 4.0

2. Strcutured Programming Language :     84.0 | A+ | 4.0

3. Bangladesh Studies :  81.0 | A+ | 4.0

4. Differential Calculus and Coordinate Geometry :       80.0 | A+ | 4.0

5. Structured Programming Language Sessional :   85.0 | A+ | 4.0

6. Electrical engineering Sessional :    82.0 | A+ | 4.0


Your CGPA : 4.00
Your Letter Grade : A+
```