In Lab Exercise- Java Programming (3rd Semester)

Exercise-3 (10-point) **Time: 30 minute**

Create student result processing system with a Result interface. All year's student's data can be entered and displayed by inherited sub classes. Abstract class should contain student roll, name and registration number. All classes will be inside some meaningful package. Create separate class inside the given package name.

package charusat.result
Create interface Result
Methods:
float calculateGpa();
void getSubject();
void showResult();
void setMarks(float mark1,float mark2);

package charusat.students
Create Student Class
Variable: name, roll, reg // variable must be declare private

Constructor:
Student(name, roll, reg)// initialize class variables

Methods:

1. getName()// return name of student
2. getRoll()// return roll number of student
3. getReg()// return registration number of student
4. float markToGrade(float marks){
   // markToGrade takes mark as parameter and return the grade as float value.
   If mark>=80 && mark<=100 then grade 4.00
   If mark>=75 && mark<=79 then grade 3.75
   If mark>=70 && mark<=74 then grade 3.50
   If mark>=65 && mark<=69 then grade 3.25
   If mark>=60 && mark<=64 then grade 3.00
   If mark>=55 && mark<=59 then grade 2.75
   If mark>=50 && mark<=54 then grade 2.50
   If mark>=45 && mark<=49 then grade 2.25
   If mark>=40 && mark<=44 then grade 2.00
   Otherwise 0.00
   return gradePoint
   }

package charusat.it
FirstSemester extends Student implements Result
Variable: subject1, subject2, mark1, mark2, grade1, grade2, credit1, credit2 // declare private
Constructor:
FirstSemester (name, roll, reg)// initialize parent class variables
Implement all the methods of Result interface:
void setMarks(float mark1,float mark2){
set marks1 & marks2
call method markToGrade(marks1)
call method markToGrade(marks2)}

float calculateGpa() // return the GPA formula(grade1* credit1+ grade2*credit2) / (credit1+credit2)

void getSubject(){
initialize subject1=”Java Programming” & subject2=”C Programming”
initialize credit for above subject credit1 = 2.0, credit2 = 3.0}

void showResult(){
print name, roll number, registration number, subject1, grade1, subject2, grade2 & GPA}

package charusat.it
SecondSemester extends Student implements Result
Variable: subject1, subject2, mark1, mark2, grade1, grade2, credit1, credit2 // declare private

Constructor:
SecondSemester (name, roll, reg)// initialize parent class variables

Implement all the methods of Result interface:
void setMarks(float mark1,float mark2){
set marks1 & marks2
call method markToGrade(marks1)
call method markToGrade(marks2)}

float calculateGpa() // return the GPA formula(grade1* credit1+ grade2*credit2) / (credit1+credit2)

void getSubject(){
initialize subject1=”Data Structure” & subject2=”Discrete Mathematics”
initialize credit for above subject credit1 = 3.0, credit2 = 2.0}

void showResult(){
print name, roll number, registration number, subject1, grade1, subject2, grade2 & GPA}

package charusat.it
Create a public class StudentResult – Main class
//Create main() method
public static void main(String[] args) {
System.out.println("Enter First Semester Student's Info:");
Create an object of FirstSemester class object and initialize student fields
// initialize FirstSemester(“Jay”, 16001, 31)
// call setMarks(70,80);
// call getSubject();
// callshowResult();
System.out.println("Enter Second Semester Student's Info:");
Create an object of SecondSemester class object and initialize student fields
// initialize SecondSemester(“Bhavya”, 17001, 45)
// call setMarks(60,70);
// call getSubject();
// callshowResult();
// similarly do it for two more students for FirstSemester & SecondSemester class }