```java
/**
* Mark Fastner
* 10/14/2020
* This class creates an object grade which consists of a char representing the letter grade
* that is received in school.
*/
public class Grade {
   private char letter_grade;
   //base constructor that defaults the letter grade to an F
   public Grade(){
       letter_grade = 'F';
   }
   //constructor that takes in a letter grade
   public Grade(char aLetter_Grade){
       letter_grade = aLetter_Grade;
   }
   //returns the letter grade
   public char getLetter_grade() {
       return letter_grade;
   }
   //sets teh letter grade
   public void setLetter_grade(char newGrade){
       letter_grade = newGrade;
   }
   //this method returns the point value of each possible letter grade
   public double getPoint(){
       if(letter_grade == 'A'){
           return 4.0;
       }
       if(letter_grade == 'B'){
           return 3.0;
       }
       if(letter_grade == 'C'){
           return 2.0;
       }
       if(letter_grade == 'D'){
           return 1.0;
       }
       if(letter_grade == 'F'){
           return 0;
       }
       return 0;
   }
}
```

```java
/**
* Mark Fastner
```

```
* 10/14/2020
* This class cretes an object course which consists of a course name a grade that the student received in the course
*/
public class Course {
   Grade g;
   String course_name;
   //default constructor that creates a blank course name and default grade
   public Course(){
       g = new Grade();
       course_name = "BLANK";
   }
   //construcot that sets the course name and grade
   public Course(String aCourse_Name, Grade grade){
       course_name = aCourse_Name;
       g = grade;
   }
   //returns coursename
   public String getCourse_name(){
       return course_name;
   }
   //returns the grade in the course
   public Grade getGrade(){
       return g;
   }
   //sets the grade in the course in case it needs to be changed
   public void setGrade(Grade newGrade){
       g = newGrade;
   }

}
```

```
/**
* Mark Fastner
* 10/14/2020
* creates an objects Student that contains a name
*/
public class Student {
   private String name;
   //sets defaukt name to blank
   public Student(){
       name = "Blank";
   }
   //construcot that sets name
   public Student(String Name){
       name = Name;
   }
   //returns the name
```

```
    public String getName(){
        return name;
    }
    //allows for name to change
    public void setName(String newName){
        name = newName;
    }

}
```

```
/**
* Mark Fastner
* 10/14/2020
* This class creates an object Report card thatconsists of a students name, and a list of courses
*/

import java.util.ArrayList;

public class ReportCard {
    ArrayList<Course> courses;
    private String Student_Name;
    //default constructor that creates a blank report card
    public ReportCard(){
        courses = new ArrayList<Course>();
        Student_Name = "NO NAME";
    }
    //constructor that sets a student name and the courses the are taking
    public ReportCard(String AStudent_Name, ArrayList<Course> Courses){
        courses = Courses;
        Student_Name = AStudent_Name;
    }
    //calculates the students gpa based of the grade of all the courses
    //adds up the grade point of every class and devides by number of class
    //returns the gpa
    public double calculateGpa(){
        double gpa = 0;
        for(Course temp: courses){
            gpa += temp.getGrade().getPoint();
        }
        return gpa/courses.size();
    }
    //neatly formats the report card stating the course name the letter grade and the point value of each grade
    public String CourseNameandGrade(){
        String data = "";
        for(Course temp: courses){
            data+= temp.getCourse_name() + " " + temp.getGrade().getPoint() + " " +  temp.getGrade().getLetter_grade()
+ "\n";
```

```
        }
        return data;
    }
    //to string prints the report card including everything in the previous method as well as the student name
    //and the gpa
    public String toString(){
        return Student_Name + "\n" + CourseNameandGrade() + "GPA: " + calculateGpa();

    }
}
```

```
/**
* Mark Fastner
* 10/14/2020
* 'This class is a tester that tests our other classes b creating instances of those objects previously created
*/

import java.util.ArrayList;

public class Tester {
    public static void main(String[] args) {
        //creates a student named mark
        Student Mark = new Student("Mark");

        //creates all teh possible grades
        Grade A = new Grade('A');
        Grade B = new Grade('B');
        Grade C = new Grade('C');
        Grade D = new Grade('D');
        Grade F = new Grade('F');

        //makes up courses that mark is taking
        Course Math = new Course("MATH", A);
        Course English = new Course("ENGLISH", B);
        Course History = new Course("HISTORY", C);
        Course Physics = new Course("PHSICS", D);
        Course Computer_Science = new Course("COMPUTER SCIENCE", F);

        //adds courses to an arraylist
        ArrayList<Course> courses = new ArrayList<Course>();
        courses.add(Math);
        courses.add(English);
        courses.add(History);
        courses.add(Physics);
        courses.add(Computer_Science);

        //creates a report card taking in the student name and the araylist of all the
```

```
        //courses the student is taking
        //prints out the report card
        ReportCard rc = new ReportCard(Mark.getName(), courses);
        System.out.println(rc);

    }
}
```