

This homework will give you practice reading in data, if/else blocks or switch statements, and for loops.

Write a Java program to create a Grade Point Average (GPA) calculator. The program will take input from the user for marks obtained in different subjects and calculate the overall grade based on predetermined grading criteria.

First, prompt the user to enter the total number of classes being taken for the semester.

Then, use a loop to read in the course name, number of credits per course, and letter grade received.

Students can calculate their Grade Point Average (GPA) if they know the following information:

- Credits attempted - These are the total number of credits for the courses you've taken this semester.
- Final grades earned - These are the letter grades you earned in each of your classes.
- Point values for those grades - Each grade is assigned a point value.

Use the chart below to determine the point values for your grades:

| Letter Grade | Point Value for Grade |
|--|-----------------------|
| A | 4.00 |
| B | 3.00 |
| C | 2.00 |
| D <i>(only applicable for Undergraduate Programs)</i> | 1.00 |
| F | 0.00 |

Based on the letter grade submitted, calculate the grade points obtained from the course. **Grade points can be calculated by multiplying the number of credits the course is worth by the point value for the grade obtained**

e.g. If a grade of 'A' is received then `gradePoints = credits * 4.00;`

The basic formula for calculating GPA is to divide the total points earned in a program by the total number of credits attempted. The resulting figure is the GPA for that program.

$$\frac{\text{Total Points Earned}}{\text{Total Credits Attempted}} = \text{Grade Point Average}$$

*REMEMBER: To keep track of total points earned and total credits attempted for ALL courses (hint: how do we keep track of a running total?)

Print the resulting GPA to the screen with a precision of **TWO** decimal places.

Here's an example student's transcript with credit hours, grade earned, and grade points:

| Example Student Transcript | | | |
|--|--------------|-------|------------------------------|
| Course | Credit Hours | Grade | Grade Points |
| Biology | 5 | A | 20 |
| Biology Lab | 1 | B | 3 |
| English | 5 | C | 10 |
| Mathematics | 5 | F | 0 |
| 16 Total Credit Hours Attempted | | | 33 Total Grade Points |

In this example, our student has attempted 16 credits in total and earned 33 total grade points.

Referring back to the basic formula above, using the student's total grade points earned (33) divided by the 16 credits attempted means the student has a GPA of 2.06.

Write all output using a PrintWriter to a .txt file titled "**semesterTranscript.txt**"

Sample input:

Enter total number of classes for semester: 4

Enter course name: Biology

Enter number of credits 'Biology' is worth: 5

Enter grade received in 'Biology': A

Enter course name: Biology Lab

Enter number of credits 'Biology Lab' is worth: 1

Enter grade received in 'Biology Lab': B

Enter course name: English

Enter number of credits 'English' is worth: 5

Enter grade received in 'English': C

Enter course name: Mathematics

Enter number of credits 'Mathematics' is worth: 5

Enter grade received in 'Mathematics': F

Sample output (written to file semesterTranscript.txt):

Current Semester Transcript:

Course: Biology

Credits Attempted: 5

Grade Received: A

Course: Biology Lab

Credits Attempted: 1

Grade Received: B

Course: English

Credits Attempted: 5

Grade Received: C

Course: Mathematics

Credits Attempted: 5

Grade Received: F

GPA: 2.06