Grade Calculator

https://csci-1301.github.io/about#authors

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1 Presentation

This project will help you in designing and implementing a "grade calculator" for (a variation) of this class.

We will assume that your grade for this class will be computed as follows:

Evaluation	Number	Points	Percents
Quizzes	4	20	10%
Projects	2	20	10%
In-class Tests	2	100	40%
Final Exam	1	200	40%

Our goal is to write a program that asks the user for their grades obtained *so far* (it is possible that some quizzes, projects, tests are still to be taken, or that the final did not happened yet) and compute their average *so far*.

Your program can either ask the user for the number of quizzes, projects, test and exam taken so far, and then ask for the values, or use a sentinel value (as shown in the example below) to know when to "stop". Note that if the quiz number n, for $n < 5$, was not taken yet, then you should not ask the grade for quiz n+1, and similarly for projects and in-class tests. It is fine to assume that the user will only enter "correct" numerical values and not to perform any user-input validation, but your program should be flexible enough so that changing the number of quizzes, for instance, would require to change only a variable or a couple of values.

An example of execution could be:

```
For all the questions below, enter
    - your grade, or
    - "0" if you missed the evaluation, or
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    - "-1" if that evaluation did not happened yet.

What was your grade for quiz 1 (out of 20)?
16↵
What was your grade for quiz 2 (out of 20)?
14↵
What was your grade for quiz 3 (out of 20)?
-1↵
Your average for the quiz is 75.00 %.
What was your grade for project 1 (out of 20)?
22↵
What was your grade for project 2 (out of 20)?
-1↵
Your average for the project is 110.00 %.
What was your grade for in-class test 1 (out of 100)?
66↵
What was your grade for in-class test 2 (out of 100)?
-1↵
Your average for the tests is 66.00 %.
What was your grade for the final (out of 200)?
-1↵
Your average so far is 74.83 %.

Press any key to continue . . .
```

2 How to Get Started?

This problem involves a bit of Mathematics that can be tricky to get correctly, and involve cleverly getting the information from the user.

2.0.1 Hint 1 - Do The Math!

The first thing you need to do for this problem is to understand the equation needed to compute the grade. Start by trying to reproduce the example given in the project description on paper. Can you get the same result? Can you find a way that seems simple and flexible to compute the current grade so far in all generality?

2.0.2 Hint 2 - Gathering The Data

Once you have the equation figured out, you need to understand how you can obtain the data from the user. You have two possible ways of doing it:

- Will you ask first for the number of quizzes taken, and then ask for the values, or
- Will you ask for the values, and take "-1", for instance, as a signal that this quiz did not happened yet.

Try to implement one or the other, without worrying about the computation at this point (just add, for instance, the value entered).

3 A Possible Solution

You can find a possible solution to this problem in this archive[1]. Note that our solution *does not* use arrays, but that using arrays would make this program overall simpler. However, the solution is flexible enough (and, hopefully, commented enough) so that you can easily fine-tune it to your particular needs.

[1] Grade_Calculator.zip