This program has 3 levels of difficulty. The first 2 are required for Full Credit! Complete the first level Before you attempt the second level. Submit your best program and associated test cases and output. Or if you get stuck, submit the simple case working and whatever you have for the other cases.

Test Cases for at least the intermediate level of this assignment: (REQUIRED) {5 Points}

For each program give a minimized, yet complete set of test cases to full test your implementation. THIS IS NOT THE OUTPUT OF YOUR PROGRAM!! This should be in a separate .txt, .rtf or .docx file.

Here is a calculator that you can use to pre-compute College GPA: https://gpacalculator.net/college-gpa-calculator/

Links to an external site.

Simple Level: (REQUIRED) {13 Points}

Your assignment is to create program to take in grades and the course units associated with each grade and display your GPA to 3 decimal points. Grade can be entered as upper or lower case, but they are treated the same. For example, 'b' is the same as 'B'. Inputs should be checked for validity. Extra Spaces before or after or extra characters after the grade input should be ignored. No single course can be less than 0.5 units nor more than 45 units. If no valid grades are entered, then no GPA should be computed.

NOTE: MUST use a switch() statement for full credit.

Intermediate Level: (REQUIRED) {7 Points}

All of the above, including optional + or - for each grade. Assume that the sign is the very next character after the letter. Minor errors, such as an A+ of F- should be corrected and the user notified. D- should be allowed. Again, extra spaces before the letter grade should be ignored.   Anything after the sign should be ignored.

Advanced Level: {Up to 5 Points Extra credit}

All of the above, but with intense user experience. Create program to take a list of grades, their modifiers (+ / -) and the course units associated with each grade and compute your GPA. This implementation needs to deal with error conditions. Must implement the following regular expression for its input:

[:blank:]* [ABCDFabcdf] [:blank:]* [+-]? [:blank:]* , [:blank:]*
(^[1-9]{1}|^[1-3]{1}[0-9]{1}|^4[0-5]{1}) .*\n

And for the really crazy ones, use the regex library to complete the extra credit!

Basically, the user will enter each course on one line followed by [Return], in the following form: <grade>,<units> [Return] There can be any amount of blank space (Spaces or Tabs) between the elements. Only valid grades (upper or lower case) are accepted. + / - are Optional. The comma ',' to separate the grade from the units is required. Then the number units. Any extra junk after that is ignored to the end of the line. Input that is incorrectly formatted should be rejected and for that course reentered. Explain to the user what they did wrong. This will require character by character parsing of the input stream!

There should be niceties in the output. For example, if only one letter grade is entered, you should display something like:

`Your GPA for the 1 valid course entered is: 3.300.`

But for 2 valid grade is show be something like this:

`Your GPA for the 2 valid courses entered is: 3.750.`

Sample output (Not complete..you need to show all features of your code):

`Howard Miller                CIS 004A TTH        Che 131`

`Simple GPA Calculator Program`

`To calculate your GPA, enter each letter grade in either upper`

`or lower case followed by the [Return] key. If you have no more`

`grades, enter z followed by the [Return] key.`

`Next enter the number of units for the course follow by the`

```
[Return] key.


Enter letter grade for course number 1 (z to exit): A

Enter units for course number 1: 4


Enter letter grade for course number 2 (z to exit): B

Enter units for course number 2: 3


Enter letter grade for course number 3 (z to exit): z


Your GPA for the 2 valid courses entered is: 3.571.


Program ended with exit code: 0
```

Intermediate Version (Required):

```
Howard Miller                    CIS 004A TTH    Che 131


Intermediate GPA Calculator Program


To calculate your GPA, enter each letter grade in either upper

or lower case with an optional + or - followed by the [Return]
key.

(If you have no more grades, enter z followed by the [Return]
key.)

Next enter the number of units for the course follow by the

[Return] key.
```

Enter letter grade for course number 1 (z to exit): A+

An A+ only counts as an A!

Enter the units for course number 1: 4

Enter letter grade for course number 2 (z to exit): B-

Enter the units for course number 2: 3

Enter letter grade for course number 3 (z to exit): z

Your GPA for the 2 valid courses entered is: 3.443.

Program ended with exit code: 0

Advanced (Extra Credit version):

Howard Miller   CIS 004A TTH   Che 131

Advanced Weighted GPA Calculator Program

This program will calculate your GPA. For each course, enter
each letter grade in

upper or lower case with an optional + or - then a ',' [comma]
followed by the

number of units for that course, then [Return] key.

After all grades have been entered, input a blank line (hit the [Return] key.)

Enter letter a Grade, Unit Count for course number 1: A+, 4

An A+ will only counts as an A!

Enter letter a Grade, Unit Count for course number 2: B-, 3

Enter letter a Grade, Unit Count for course number 3:

Your GPA for the 2 valid courses entered is: 3.443.

Program ended with exit code: 0