

CS118 Programming Assignment

Grade Book, Part 1

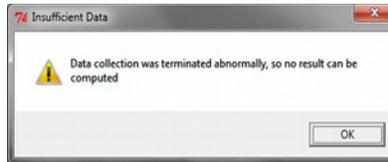
Write a Python program which uses the standard dialogs from the `Tkinter`, `tkMessageBox`, `tkSimpleDialog` modules to collect a name of the student whose grades are being provided; a set of exercise scores; a set of program scores; and a set of exam scores.

Compute a final grade based upon the final grade breakdown in the syllabus. For the normal (non-extra credit) assignments, don't assume a certain number of grades for any category, and do not ask the user for a number of grades. Collect the grades until the user cancels the input, storing the grades in separate lists. To handle extra credit assignments, you will - for each category except exams - ask the user for the number of extra credit assignments in that category and then the scores for those extra credit assignments, saving each category's extra credit scores in a separate list.

Validate all inputs – do not accept a blank name, and scores may be non-integers but they must be 0 or greater. The user must re-enter the values until the values are acceptable.

HINT:
Python has a constant called `None` which is returned when the user cancels an input box.
It is NOT the string 'None' – it is simply the “object” `None`

If the user cancels any set collection before providing at least one value (or in the case of extra credit, the number of values specified by the user) do not collect any more data or compute the final grade – instead, bring up a dialog box saying the final grade cannot be computed due to insufficient data.



To do this, maintain a “flag variable”. A flag variable is a variable which is used to indicate if an event occurs. Initially, the “flag” is down – for example, the value of the variable might be 0, or `False`. When an event occurs (such as canceling data collection without any values being submitted for the category), the variable's value is changed – the “flag is raised”. As the program runs, it checks this variable to determine if the event has occurred.

If the data collection proceeds normally, prepare a nice report showing the individual grades and the computed final grade in a dialog box. To do this, use the “format string syntax” to create strings from the variables and concatenate these strings together using the `+` operator. Once you have the final string built, send it to the dialog box for display.

Details on class grading:

- Extra Credit assignments count toward the total of the set, but are not part of the possible points
- Scores for exercises & quizzes are averaged
- Program scores are averaged
- Exam scores are averaged
- Each segment is weighted according to the syllabus when computing the final grade

