Group Project

Topic: Grade analysis tool
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CSCA20H3: Introduction to programming, Fall 2024
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Date: 13 December 2024

Notes: Please follow the instructions and choose only the options from the menu, and input values according to the instructions. Otherwise, the program will present you with a message followed by the menu prompt.

Instructions:

1. Install Python, Wing 101 and Matplotlib to run the code.
2. Open the file “Group Project_CSCA20_APKOPS.py” on Wing 101.
3. Run the code (the green arrow)
4. You will be presented with the welcome message, instructions and the menu prompt to choose from the “Python Shell” tab (console).
5. Follow the instructions by choosing an option between 1 to 5. (If you choose any other option, you will be presented with the error message "Invalid choice. Please select a valid option from 1 to 5." followed by the menu prompt.)
6. To begin with, choose Option “1”:
    a. You will be asked to enter a numerical value between 0 to 100 (If you enter a non-numerical value, you will be presented with the error message "Invalid input. Please enter a valid number." Additionally, if the value is outside the range, you will be presented with: “Grade must be between 0 and 100.")
    b. Enter at least 15 grades to get clear results.
    c. Once you have entered all the grades, type “done” to view the menu prompt.
7. Next, choose Option “2”:
    a. Once you choose this option, you will be presented with the statistics directly - including mean, median, and highest grade. (If you have not entered any data in Option 1, you will be presented with the message “No grades entered yet. Please enter grades first.” followed by the menu prompt.)
    b. These results will be saved in an output file named “grade_analysis.txt”
    c. The results will be followed by a comment which says “Great job! Keep up the excellent work!” (if the mean is more than or equal to 90); “Good work! You're doing well, but there's room for improvement.” (if the mean is more than or equal to 70); otherwise "It seems like you might need some help. Let's focus on improving your grades!" (if the mean is less than 70)
    d. You will automatically be redirected to the menu prompt.
8. Next, choose Option “3”:
    a. Once you choose this option, a Matplotlib window will open on your screen automatically, displaying a histogram that shows your grade distribution. (If you have not entered any data in Option 1, you will be presented with the message “No grades entered yet. Please enter grades first.” followed by the menu prompt.)
    b. Once you have viewed the results, close the Matplotlib window.
    c. You will automatically be redirected to the menu prompt.
9. Next, choose Option “4”:

   a. Once you choose this option, you will be presented with the performance categories. (If you have not entered any data in Option 1, you will be presented with the message “No grades entered yet. Please enter grades first.” followed by the menu prompt.)
   b. The performance categories include: “Excellent (>=90)” signifying the frequency of grades equal to or above 90; “Good (70-89)” signifying the frequency of grades from 70 to 89; “Needs Improvement (<70)” signifying the frequency of grades below 70.
   c. You will automatically be redirected to the menu prompt.
10. Finally, choose Option “5”:
   a. By choosing this option, you end the program.
   b. You will be displayed with the message: “Thank you so much for using our grade analysis tool, Please let us know if you have any feedback. Have a nice day!"