(CH5) Program Assignment Instructions

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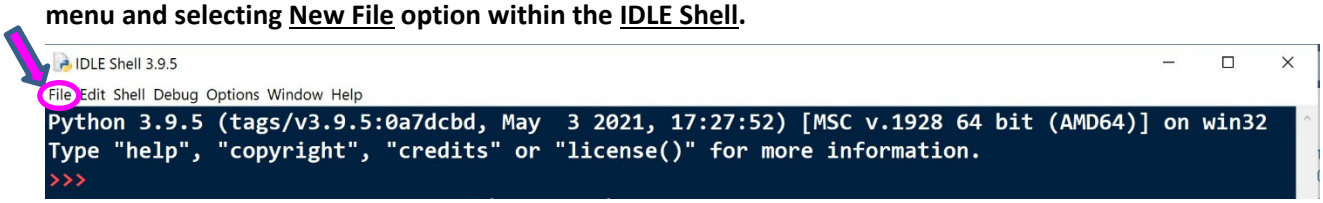
Read and follow the directions below carefully and perform the steps in the order listed. You will be solving one program as instructed and turning in your work electronically via an uploaded file within Eagle Online/Canvas and copy & paste the program to the Text Entry box as well. Make sure and check your work prior to uploading the assignment.

*Note: refer to **(SET) How to Download Install and Use Python IDLE** file (**Page 8**) and/or **Use Python IDLE Video** link within **Module 2** on how to **create**, **enter**, **save**, **run**, and **submit** a **script (source code/program) file**.*

Instructions

1. **Using Python IDLE, create a New Empty Script (Source Code/Program) File in your working drive by clicking the File menu and selecting New File option within the IDLE Shell.**



2. **Save the new Script (Source Code/Program) file with the name CH5LastFirst.py by choosing File menu's Save option. Make sure to know where you saved the file in your working directory for future submission.**

   *(NOTE: Where **LastFirst** should be replaced with your actual **Lastname** and **Firstname**. For Example, if your name is Mary Smith then your file name should be named: **CH5SmithMary.py.** Reminder: You don't need to add the **.py** extension, IDLE will automatically add the extension)*

3. ***You will develop a Test Grade Calculator Program as described below:***

   a. Write a program that **prompts the user to enter three integer test scores, validates each test score** *(to be in the range 0-100)***, drops the lowest** test score, **calculates the average** of the remaining two highest test scores *(after dropping the lowest test score)*, and then **determines** the corresponding **letter grade** *(based on the grading formula in the table below).* The program should then display **lowest test score dropped, average test score** *(formatted to 2 decimal places)*, and the **letter grade** ***(Refer to step b below for various sample runs and the corresponding output displayed)*** :

Avg. Test Score	Letter Grade
>= 90	A
80-89	B
70-79	C
60-69	D
< 60	F

   b. Other than the data input, your **IDLE Shell output should look EXACTLY** like in the below table/screenshots showing different sample runs for you to compare *(the items shown after the colon symbol are what you enter as input; those items can vary for each sample run):*

1.

```
Welcome to Test Grade Calculator Program!
-------------------------------------------------
Enter test score between 0 and 100: 88
Enter test score between 0 and 100: 99
Enter test score between 0 and 100: 100
-------------------------------------------------
Lowest test score dropped = 88
Average test score = 99.50
Letter Grade = A
-------------------------------------------------
```

2.

```
Welcome to Test Grade Calculator Program!
-------------------------------------------------
Enter test score between 0 and 100: 55
Enter test score between 0 and 100: 66
Enter test score between 0 and 100: 66
-------------------------------------------------
Lowest test score dropped = 55
Average test score = 66.00
Letter Grade = D
-------------------------------------------------
```

3.

```
Welcome to Test Grade Calculator Program!
-------------------------------------------------
Enter test score between 0 and 100: -1
ERROR! Enter test score between 0 and 100: 111
ERROR! Enter test score between 0 and 100: 1
Enter test score between 0 and 100: -2
ERROR! Enter test score between 0 and 100: 222
ERROR! Enter test score between 0 and 100: 2
Enter test score between 0 and 100: -3
ERROR! Enter test score between 0 and 100: 333
ERROR! Enter test score between 0 and 100: 3
-------------------------------------------------
Lowest test score dropped = 1
Average test score = 2.50
Letter Grade = F
-------------------------------------------------
```

4.

```
Welcome to Test Grade Calculator Program!
-------------------------------------------------
Enter test score between 0 and 100: 111
ERROR! Enter test score between 0 and 100: 222
ERROR! Enter test score between 0 and 100: 333
ERROR! Enter test score between 0 and 100: -1
ERROR! Enter test score between 0 and 100: -11
ERROR! Enter test score between 0 and 100: 100
Enter test score between 0 and 100: 100
Enter test score between 0 and 100: 0
-------------------------------------------------
Lowest test score dropped = 0
Average test score = 100.00
Letter Grade = A
-------------------------------------------------
```

5.

```
Welcome to Test Grade Calculator Program!
-------------------------------------------------
Enter test score between 0 and 100: 88
Enter test score between 0 and 100: -88
ERROR! Enter test score between 0 and 100: -8
ERROR! Enter test score between 0 and 100: 888
ERROR! Enter test score between 0 and 100: 80
Enter test score between 0 and 100: 85
-------------------------------------------------
Lowest test score dropped = 80
Average test score = 86.50
Letter Grade = B
-------------------------------------------------
```

6.

```
Welcome to Test Grade Calculator Program!
-------------------------------------------------
Enter test score between 0 and 100: 60
Enter test score between 0 and 100: 50
Enter test score between 0 and 100: 111
ERROR! Enter test score between 0 and 100: -5
ERROR! Enter test score between 0 and 100: 88
-------------------------------------------------
Lowest test score dropped = 50
Average test score = 74.00
Letter Grade = C
-------------------------------------------------
```

4. a) The first thing you should enter in your python program script file is a top comment block which includes the following:

```
# Name: Enter your full name here
# Program: Chapter 5 – Loops
# Description: Enter a paragraph description of the program (at least 5 sentences)
```

b) Below the top comment block, type the actual Python code for the problem described in step 3 ***(Refer to the below Sample Algorithm and Source Code screenshot with example statements and HINTS):***

```
# Sample Algorithm:
```

I. Create your CONSTANTS
II. Print program title
III. Input a test score and validate using a loop, repeat the same for 2 more test scores
IV. Using chain/series of if blocks or if/elif statement find the lowest of the 3 test scores *(avoid using min, sort, or any other readily available functions but instead apply the logic of finding the lowest test score)*
V. Calculate the average (after dropping the lowest test score)
VI. Using if/elif logic determine the corresponding letter grade of the average
VII. Display the results (refer to output screenshots above)

c) ***Make sure to include the following in your code:***

1. Generally, we use all caps (capital letters) for **CONSTANTS** with underscores separating the words. For example: `NUM_TESTS, A_GRADE`, etc. *(refer to line #s 8 to 11 in the screenshot below)*
2. Use descriptive and appropriate **identifiers** (variables names) with **camelCase** naming style. For example: `loScore`, `avgScore`, `letterGrade`, etc. *(refer to variables in the screenshot below)*
3. Keep proper **documentation** for **understandability of your program** by adding **comments** in the program using line (#) comment. *(refer to EXAMPLE PROGRAMS listed in Canvas modules)*

4. Use proper **indentation** and **blank/line spaces** in your program for **readability of your code/program** *(refer to EXAMPLE PROGRAMS listed in Canvas modules)*

CH5RaoSuma.py - C:\COSC1436\Assignments\CH5RaoSuma.py (3.9.5)

File Edit Format Run Options Window Help

```
# Name: Enter your full name here
# Program: Chapter 5 - Loops
# Description: Enter a paragraph description of the program (at least 5 sentences in your own words)

# CONSTANTS
TITLE = "Welcome to Test Grade Calculator Program!\n"
LINE = '-' * len(TITLE)
NUM_TESTS = 3
A_GRADE = 90
# HINT: define remaining constants: B_GRADE, C_GRADE, D_GRADE here...



# Print program title
print(TITLE+LINE)

# Input first test score and validate in the range 0-100 as shown below:
score1 = int(input("Enter test score between 0 and 100: "))
# Complete remaining statements to validate score1 as HINTS given below:
# HINT: you can use while loop with 'or' logical operator to check in range 0-100 here...
    # HINT: print ERROR! message with end argument equals ' ' here...
        # HINT: repeat line 18 to receive a valid score1 here...

# Repeat lines 17-22 to input and validate score2 and score3 below:









# Find the lowest of the 3 test scores by using chain/series of if blocks as shown below:
loScore = score1
if score2 < loScore:
    # HINT: Assign score2 to loScore
# HINT: Repeat above 2 lines to check score3 is less than loScore and assign it to loScore here...



# HINT: Find avgScore by adding 3 scores and subtracting loScore and dividing by (NUM_TESTS-1) here..


# Using if/elif/else logic to find letterGrade of avgScore below:
if avgScore >= A_GRADE:
    letterGrade = 'A'
# Complete remaining elif/else statements to find letterGrades B, C, D, and F below...









# Display loScore, avgScore, and letterGrade
print(LINE)
print("Lowest test score dropped =", lowest)
# HINT: print avgScore formatted to 2 decimal places here...
# HINT: print letterGrade here...
print(LINE)
```

5. After completing your program as instructed, make sure to **Run** your program file to obtain the output/result as required ***(refer to the screenshots in the table above in step 3b for various inputs entered and output displayed)***

6. You may now proceed to Program Assignment INSTRUCTIONS and UPLOAD link within this module and follow the steps in the link or follow the steps below to submit your work as a **File Upload** (an attached **.py** file):

    a. Choose the **Start Assignment** button,
    b. Choose **File Upload** tab,
    c. Choose **Browse** to locate your **script (source/program) file** to add,
    d. Choose **Submit Assignment** to complete file upload.

NOTE: ONE OF THE COMMON MISTAKES IS THAT STUDENTS ENTER PYTHON COMMANDS/STATEMENTS IN THE "IDLE SHELL" DIRECTLY AND SAVE THE RESULTS TO A FILE AND SUBMIT WHICH IS INCORRECT!!!

INSTEAD...

YOU SHOULD FOLLOW THE ABOVE STEPS TO CREATE A NEW SCRIPT (SOURCE CODE/PROGRAM) FILE FROM THE IDLE SHELL, SAVE THE FILE, ENTER PYTHON STATEMENTS (PROGRAM) INTO THE FILE, RUN YOUR PROGRAM, AND SUMBIT THAT SCRIPT (SOURCE CODE/PROGRAM) FILE AND NOT THE OUTPUT OF THE IDLE SHELL!!!