Lab Week 9 - Lists

Skills needed to complete this Lab

|  |
| --- |
| * Understand create, append, remove items from lists. |

## Weighted Grades

We’re going to work on something that is important to all students, grade weighting. Our program will allow the user to enter 2 types of grades; Tests and Programs. Each of our scores is assumed to be out of 100, so we only need the users score. The tests are 60% of a student’s grade, while the assignments are 40%. In order to calculate the final score, we multiply the mean score of the tests by 0.6 and add it to the mean of assignments multiplied by 0.4.

When we display scores we will also show them the low, high, mean, and standard deviation of their tests and assignments.

The mean is the average. To calculate the mean you would sum all the values and divide by the number of values. If the values we want a mean for are 5, 8, 4, 9 then the mean is

+ 9) / 4

In this case our mean is 6.5

The standard deviation is calculated by taking each value and subtracting the mean, and squaring the value. Divide the sum of those values by the numbers of values, and take the square root of that result. Using the example above

Std is 2.06155281…

Work on one thing at a time, and build it up slowly as you get each portion working.

### Some Additional items to think about.

* When entering scores, it must be a valid number (a float) and cannot be less than zero. ( we’ll allow scores greater than 100 however )
* If you try to remove a score and it is not in the list of scores, then warn the user that it could not be removed.
* If there are no scores for one of the categories, then you can’t calculate the avg, std, etc. instead display n/a for those values.

### Example Program

>>> ================================ RESTART ================================

>>>

Grade Menu

1 - Add Test

2 - Remove Test

3 - Clear Tests

4 - Add Assignment

5 - Remove Assignment

6 - Clear Assignments

D - Display Scores

Q - Quit

==> d

Type # min max avg std

============================================================

Tests 0 n/a n/a n/a n/a

Programs 0 n/a n/a n/a n/a

The weighted scores is 0.00

Grade Menu

1 - Add Test

2 - Remove Test

3 - Clear Tests

4 - Add Assignment

5 - Remove Assignment

6 - Clear Assignments

D - Display Scores

Q - Quit

==> 1

Enter the new Test score 0-100 ==> 90

Grade Menu

1 - Add Test

2 - Remove Test

3 - Clear Tests

4 - Add Assignment

5 - Remove Assignment

6 - Clear Assignments

D - Display Scores

Q - Quit

==> 1

Enter the new Test score 0-100 ==> 95

Grade Menu

1 - Add Test

2 - Remove Test

3 - Clear Tests

4 - Add Assignment

5 - Remove Assignment

6 - Clear Assignments

D - Display Scores

Q - Quit

==> 4

Enter the new Assignment score 0-100 ==> 70

Grade Menu

1 - Add Test

2 - Remove Test

3 - Clear Tests

4 - Add Assignment

5 - Remove Assignment

6 - Clear Assignments

D - Display Scores

Q - Quit

==> 4

Enter the new Assignment score 0-100 ==> 82

Grade Menu

1 - Add Test

2 - Remove Test

3 - Clear Tests

4 - Add Assignment

5 - Remove Assignment

6 - Clear Assignments

D - Display Scores

Q - Quit

==> 4

Enter the new Assignment score 0-100 ==> 88

Grade Menu

1 - Add Test

2 - Remove Test

3 - Clear Tests

4 - Add Assignment

5 - Remove Assignment

6 - Clear Assignments

D - Display Scores

Q - Quit

==> 4

Enter the new Assignment score 0-100 ==> 103

Grade Menu

1 - Add Test

2 - Remove Test

3 - Clear Tests

4 - Add Assignment

5 - Remove Assignment

6 - Clear Assignments

D - Display Scores

Q - Quit

==> 5

Enter the Assignment to remove 0-100 ==> 100

Could not find that score to remove

Grade Menu

1 - Add Test

2 - Remove Test

3 - Clear Tests

4 - Add Assignment

5 - Remove Assignment

6 - Clear Assignments

D - Display Scores

Q - Quit

==> 5

Enter the Assignment to remove 0-100 ==> 103

Grade Menu

1 - Add Test

2 - Remove Test

3 - Clear Tests

4 - Add Assignment

5 - Remove Assignment

6 - Clear Assignments

D - Display Scores

Q - Quit

==> d

Type # min max avg std

============================================================

Tests 2 90.0 95.0 92.50 2.50

Programs 3 70.0 88.0 80.00 7.48

The weighted scores is 87.50

Grade Menu

1 - Add Test

2 - Remove Test

3 - Clear Tests

4 - Add Assignment

5 - Remove Assignment

6 - Clear Assignments

D - Display Scores

Q - Quit

==> q

>>>

**Grading and Turning In**

Turn in your program before the end of the lab. Only upload the .py Solution file, as other files will be ignored.