(05CH3) Assignment Instructions

Last Changed: 9/16/2021

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. Make sure and check your work prior to uploading the assignment *(Print this instruction sheet if needed).*

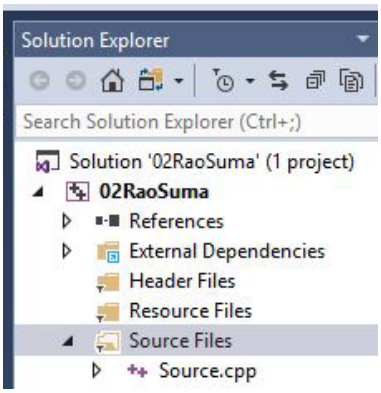
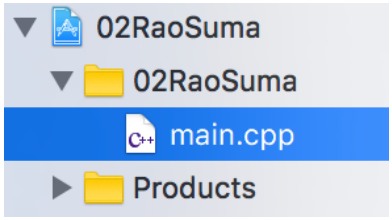
Instructions

1. Using Visual Studio, or Xcode, create a new *empty project* in your working drive. Name the Project: **03LastFirst**

   *(NOTE: where **LastFirst** is your actual Lastname and Firstname. For Example, if your name is Mary Smith then your empty project folder will be named 02SmithMary)*

2. Keep the default filename for the source file: **source.cpp** in Visual Studio, or **main.cpp** in Xcode

   (NOTE: If your filenames are incorrect, don't try to rename them. Either start over or leave them as is)

Solution Explorer in Visual Studio should now look similar to this:	*Navigator in Xcode should now look similar to this:*
	

3. You will be designing an **Algorithm** and developing a **C++ Program** for the problem described below:

   Have the user input three test grades and then display the tests in increasing order, followed by the average. For example:

   Enter score 1: 88.8

   Enter score 1: 50

   Enter score 1: 100

   The average of 50, 88.8 and 100 is: 79.6

   (NOTE: Follow the steps below in creating your Algorithm and C++ Program)

4. The first thing you should enter in your source file is a comment block. Add a comment block at the top of the .cpp file (your program file), which includes the following:

```
/*
Name: Enter your full name here
Lab: Chapter 3
Description: Enter the description of the program here
Algorithm: Enter the Algorithm, discussed in step 5 below
*/
```

5. You will be typing an **Algorithm** for the problem described in step 3 in the comment section of the program *(see comment block in Step 4)*. Remember, an algorithm contains the steps necessary to solve the problem. Think of it as the outline to your program! You will be creating a simple outline before you sit down and start writing the code/program. You will be entering that outline in the comment block at the top of your program.

   For example, your algorithm in the comment block could start like this:

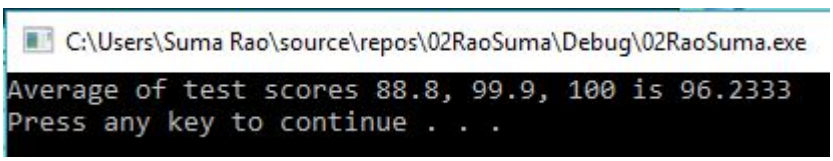
   a. Declare an integer constant for number of tests: NUM_TESTS = 3
   b. Declare three double variables for test scores: test1, test2, test3
   c. Declare three double variables for test scores: low, mid, high
   d. Declare a double variable to calculate the test average: averageTestScore
   e. Prompt user to enter test1 as shown above
   f. Using **cin >> test1** read in the first test
   g. Prompt user to enter test2 as shown above
   h. Using **cin >> test2** read in the first test
   i. Prompt user to enter test3 as shown above
   j. Using **cin >> test3** read in the first test
   k. Using an if statement check to see:
      if (**test1 < test2 && test1 < test3 && test2 < test3)** and if so, set **low = test1; mid = test2; high = test3;**
   l. else if (**test1 < test2 && test1 < test3 && test3 < test2)** and if so, set **low = test1; mid = test3; high = test2;**
   m. else if (**test2 < test1 && test2 < test3 && test1 < test3)** and if so, set **low = test2; mid = test1; high = test3;**
   n. Write three more if statements to handle the other cases (there are 6 possible cases)
   o. Calculate the average and save in averageTestScore
   p. Print out the output as shown above

6. Below the comment block, type the actual **C++ program** for the problem described in step 3 based on the algorithm you wrote in step 5.

7. After typing your C++ program, make sure to build/compile and run your program so that you obtain the result as in the snapshot below (Xcode users, don't worry about the "Press any key…" line):

   NOTE:

   - ✓ Feel free to be creative on the output, but make sure the answer is correct
   - ✓ Make sure you do not have typos in the output



BONUS (highly recommend) (+5):

A. STOCK COMMISSION:

   i. Declare **fName** and **lname** *string* variables that holds a first and last name.

ii. Declare a **sharesOfStock** *int* variable that holds a value of 1000
iii. Declare a **pricePerShare** *double* variable that holds a value of 35.00
iv. Declare a **commissionRate** *double* variable that holds .02 (which is 2%)
v. Description: Assume that the person listed in the **fName** and **lName** variables purchased the amount of stock stored in **sharesOfStock** at the price stored in **pricePerShare**. She must pay a stockbroker the **commissionRate** percentage for the transaction. Write a program that calculates and displays:
    1. The amount paid for the stock alone (without commission)
    2. The amount of commission
    3. The total amount paid for the stock, including the commission
    4. Make sure and use appropriate labels

You may now upload your .cpp file.