CIS 150 – Lab 05

**Submission of Your Work**

You need to prepare and submit ONE SINGLE MS Word document to Canvas (in your lab section) as LastName\_FirstName\_Lab05.doc. It must contain:

* Your NAME
* For each question:
  + Specify the question number.
  + After reading the question requirements, but before beginning any coding, create the test case table, below, through column Expected Output. Write your program then complete the **test table** with actual output results and include in your report.
  + Copy/Paste your completed source code. You must include standard “header” in every program even if code is provided.
  + Paste in a snippet of output showing results for **every listed test case**, labeled with test case #

Test Table:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test # | Valid / Invalid Data | Description of test | Input Value | Actual Output | Test Pass / Fail |
| 1 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |
| 4 |  |  |  |  |  |

**ONLY 4 TEST CASES NEEDED FOR ALL QUESTIONS**

* Add / delete rows from Test Table as necessary
* Modify column widths as necessary
* Test both valid and invalid input
* Test for every output expected
* If failure is an expected output and it happens then that test Passes
* Any test that fails means the program must be fixed so that it passes the test

**Question 1**

# Write a program that asks the user for the number of students in the class.

# The program asks the user for the grade of each student, computes the average grade in the class, and displays the calculated average. **You are required to use the for loop.**

**Question 2 – bad practice cluttering your main function; so you want to segment it into sub functions (smaller functions defined outside of main function)**

Write a program that displays the following menu. Your program should include two **functions** that return the minimum and maximum. Do not use cout statements in your function. **The cout statements must be done in main based on the return value from each function.**

Hint: the main program should use a “**do while**” (guarantees you’ll do at least one pass; with only **while** it means you could not do any action at all if you don’t meet condition initially!) loop to display the menu.

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WELCOME

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A.) Maximum of two integers – separate function

B.) Minimum of two integers – separate function

C.) Quit

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Please select an operation: A

Please provide the first number: 3

Please provide the second number: 5

The maximum of 3 and 5 is 5

### **Question 3**

Write a program that prompts users for the name and number of points of two basketball teams. Then, it uses a nested if to display the winner (if any) or a message stating a tie if both teams have the same number of points – One screen shot per scenario – use one **function** to determine the possible scenarios.

(input for two teams, team 1 and team 2, then you must figure out who is the winner and display who is the winner (or if it is a tie)

**Question 4**

Write a program that prompts users for N integers and determines then displays the integer with the highest/lowest value – use separate **functions** to return the highest/lowest value.

DON’T USE COUT IN FUNCTION, COUT SHOULD BE DONE IN MAIN ONLY FOR DISPLAY.