Lab Exam-1
Started: Feb 25 at 1:34pm
Quiz Instructions
CMPE-50 Lab Exam 1, Spring 2021, Duration: 1:40pm – 4:20pm

Instructions (Read before you begin)

- **You need to work individually on the lab exam.**
- **As soon as you are done, you can submit your files and leave the Zoom meeting (you don't have to ask me if you submitted the quiz).**
- **You should upload the entire .cpp file you created on Canvas->Quiz->Lab Exam 1 -> Exercise 1.**
- **Exercise 2 and 3 are optional. You can leave Exercise 2 and Exercise 3 blank if you don't want to submit any text files for the algorithms.**
- **Your code needs to contain comments on all functions and major code blocks. Attach the test input and output in the source code as code comments.**
- **The exam ends at 4 pm promptly. All work needs to be completed and submitted before 4 pm.**
- **Your webcam must be turned on in the Zoom meeting for the complete duration of the exam. If in case you need any breaks in the middle, you can leave your seat with the camera on and come back in a few minutes.**

You are highly encouraged to write algorithms and pseudo-code. In the event that you cannot finish the program correctly in time, algorithms and pseudo-code would allow the instructor to award you partial credit. Algorithms and pseudo-code can be written in the same .cpp file or in separate text files which can be uploaded for the respective questions.

In this exam, there are 3 exercises and you will need to create a C++ program to implement the following 3 exercises

Flag this Question
Question 1
2 pts

1. **Main Module** (2 points)

The main module should contain a menu allowing the user to

- [a] execute exercise 2 (Grocery Expense) below
- [b] execute exercise 3 (Frequency of the letters) below
- [c] end the program.

Include a loop that lets the user repeat the selection again and again until the user selects the option to end the program.
Include appropriate UI messages.

Submit the entire .cpp file here (For all the exercises)
Upload Choose a File

Flag this Question
Question 2
3 pts
2. Grocery Expense (3 points)

Write a function to read in cost of grocery purchase of each month in dollars (in type double) and calculate the annual grocery expense, highest grocery expense, lowest grocery expense, and average monthly expense and print them to the console. Allow user to input from the keyboard to take 12 numbers (indicating 12 months) in type double for testing. Print the output to the console with the given input. The input and output should be mentioned in the comments with sample tests done with this selection.
(Optional)- Text file upload for the algorithm if in case the code is not executed.
Upload Choose a File

Flag this Question
Question 3
5 pts
Write a function that will read an input (in the format of characters, ending with a period) and calculates the count of the letters: “a”, “b”, “c” and "d", the other letters are to be considered as “others” and must be saved into that category.
You may assume that the input uses all lowercase letters and will not contain spaces in them.
The input and output should be mentioned in the comments with sample tests done with this function.

Example,

Given Input: abbceafdz.

Output:

Letter	Number of Occurrences
a	2
b	2
c	1

d 1
others 4
(Optional)- Text file upload for the algorithm if in case the code is not executed.