EE 5103 - Assignment 4

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Total points: 10

Due: Mar 06 by 11:59 PM

Submission instructions:

Name your source files as <LastNameFirstName-q1>.cpp , <LastNameFirstName-q2>.cpp, etc. (e.g. KrishnanRam-q1.cpp). Place them in a folder called <LastNameFirstName> and zip the folder to get <LastNameFirstName>.zip. Upload the file to blackboard.

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Only use string, vector and iterator types from STL for solving these two problems. You can also use a math library.

Q1 (5 points) Write a program to read a number of lines of text from the user until the user signals end of file. Compute and display the following:

(a) The number of occurrences of each character in the input lines.
(b) The number of occurrences of each of the bigrams (a sequence of 2 chars) in the input lines.
(c) The number of occurrences of each of the trigrams (a sequence of 3 chars) in the input lines.

Q2 (5 points) We'll design a new data structure to hold a sequence of numbers and various statistics about that sequence. Design a class to hold a sequence of doubles and its corresponding mean, median, mode, standard deviation and variance. You will probably need to declare a vector of that structure to do the following.

(a) Write a function to read multiple sequences from the user and store them in your data structure. You should read as many sequences as the user wishes to input. You will need to figure out how to distinguish one sequence from another as the user inputs numbers, and how to determine if the user has finished inputting all the sequences.
(b) Write a function that computes the mean of each sequence and store that value in your data structure.
(c) Write a function that computes the median of each sequence and store that value in your data structure.
(d) Write a function that computes the mode of each sequence and store those values in your data structure.
(e) Write a function that computes the standard deviation of each sequence and store that value in your data structure.
(f) Write a function that computes the variance of each sequence and store that value in your data structure.
(g) Write a function to display the mean, median, mode, standard deviation and variance of each sequence input by the user.