Assignment Program #1: Review

OBJECTIVES:

At the end of this assignment students will

- Review Programming and Algorithms I concepts.

PROBLEM STATEMENT

Design and implement a program that will perform operations on strings. The program will also have some functions to work with arrays.

REQUIREMENTS

Function 1

Function Name: CheckAlphabetic

Function Parameters: string (by const reference)

Function Return: bool

Function Description: This function will check to make sure all characters in a given string are alphabetic. It returns true if the string is all alphabetic, otherwise it returns false. The empty string should also return false.

Function 2

Function Name: CountWords

Function Parameters: string

Function Return: int

Function Description: This function will count the number of words (delimited by space characters) in a string. Assume the parameter will never have multiple spaces back-to-back and will never begin or end with spaces).

Function 3

Function Name: EncryptString

Function Parameters: string (by reference), int (Number of characters to shift by)

Function Return: bool

Function Description: This function will perform a Caesar Cipher Shift (http://en.wikipedia.org/wiki/Caesar_cipher). If the string contains any

non-alpha characters do not perform the encryption and return false. Otherwise perform the encryption and return true.

Function 4

Function Name: DecryptSTring

Function Parameters: string (by reference), int (Number of characters to shift by)

Function Return: bool

Function Description: This function decrypts a Caesar Cipher shift. If the string contains any non-alpha characters do not perform the encryption and return false. Otherwise perform the encryption and return true.

Function 5

Function Name: ComputeAverage

Function Parameters: double[], unsigned int(size of array)

Function Return: double

Function Description: This function will compute the mean average of the values in the array. The array will always be at least size of 1.

Function 6

Function Name: FindMinValue

Function Parameters: double[], unsigned int(size of array)

Function Return: double

Function Description: This function will find and return the smallest value in an array. The array will always be at least of size 1.

Function 7

Function Name: FindMaxValue

Function Parameters: double[], unsigned int(size of array)

Function Return: double

Function Description: This function will find and return the largest value in an array. The array will always be at least of size 1.

GRADING – 20 POINTS

	Excellent (100%)	**Satisfactory (80%)**	**Satisfactory (60%)**	**Unsatisfactory (0%)**

Requirements (7 points)	Program meets and exceeds the requirements OR is extremely efficient. Program has no coding, semantic or syntax errors. (7 points)	Program meets the major requirements. May have errors that do not effect program output. (5 – 6 points)	Program meets one major requirement or has significant errors that effect program output. (3 – 4 points)	The program is producing incorrect results at all times. (0 – 2 points)
Readability (5 points)	The code is exceptionally well organized and very easy to follow. Documentation clearly explains what the code is accomplishing and how. Documentation is completed before the program is written (submitted before program submittal). ALL class coding conventions are followed. (5 points)	The code is organized and easy to follow. Documentation is complete and follows class coding conventions. (4 points)	The code is readable. The documentation consists of embedded comments and some simple header documentation. Most coding conventions are followed. (3 points)	The code is difficult to read. The documentation is simple embedded comments (or missing) and does not help the reader understand the code. Coding conventions are not followed. (0 – 2 points)
Current Tasking (5 points)	Program uses current topic as appropriate. (5 points)	Program uses major elements of the current tasking appropriately. (4 points)	Program uses current topic but it may not be used correctly. (3 - 4 points)	Program does not use the current topic appropriately. (0 – 2 points)
Self Assessment (3 points)	Self Assessment is completed demonstrating insight into what you have done and how the topic works. (3 points)	Self assessment is complete. (2 points)	Self Assessment is partially complete (at least 50%). (1 point)	Self Assessment is not completed. (0 points)

Your functions will evaluated against the UNIT TEST for this project.

SUBMISSION:

Post your all of your files as a zip folder to Blackboard (you will have to copy and paste your Cloud 9 code into a text editor on your desktop).

- Assignment_1.h
- Assignment_1.cpp

Include a link to your Cloud9 IDE workspace AND a link to your GitHub repository.