LW: String Processing

**A grade of "complete" on this lab work requires 25 points.**

Submit your code on Mimir. Work with others in your group, but submit individually.

The focus should be on using the string class. Communicate with the string objects with the functions. Pick your favorite task. Complete that plus enough of another to get 5 more points. You should do more for practice.

* Use the string.at(int) function rather than string[].
* You are only allowed to use objects and functions from <iostream> and <string> that were introduced so far in the course. No other objects or functions from those libraries or any additional libraries are allowed.

# Option 1. Sentence Deobfuscate **[20 points]**

*Name this file deobfuscate.cpp*

Prompt the user to enter a collection of sentence words (i.e., words in the sentence), with the spaces removed (i.e., the obfuscated sentence) and with words that are less than ten (10) letters each. Then prompt the user to enter a sequence of numbers that represent the length of each corresponding sentence word (i.e. the deobfuscated details). Output the deobfuscated sentence. *Hint:* Convert char c to int by subtracting 48 (‘0’) from c .

*Sample Execution:*

|  |
| --- |
| Please enter obfuscated sentence: **Thisisasentence**  Please enter deobfuscation details: **4218**  Deobfuscated sentence: This is a sentence |

## Simple Version **[5 points]**

Program **Sentence Deobfuscate** for single-word input (i.e., a single word and a single number). *Note:* Since the input consists of a single word input, the output must therefore also be a single word.

# Option 2. Word Filter **[20 points]**

*Name this file filter.cpp*

Prompt the user to enter a sentence and a filter word. Then output the updated sentence with the filter word replaced with number signs (#).

*Sample Execution:*

|  |
| --- |
| Please enter the sentence: **One fish, two fish, red fish, blue fish.**  Please enter the filter word: **fish**  Filtered sentence: One ####, two ####, red ####, blue ####. |

## Simple Version Only **[5 points]**

Program **Word Filter** for only single-word input.

# Option 3. Palindrome Counter **[20 points]**

*Name this file palindrome.cpp*

A palindrome is a word that looks the same when spelled forward and backward. Your code must prompt the user to enter a sequence of words, identify which words are palindromes, and output the number of palindromes. At the end, display the number of palindromes that the user had typed as shown in the sample execution (note: make sure that the result sentence is grammatically correct).

*Sample Execution*

|  |
| --- |
| Please enter a sentence (end with 'quit'): **my favorite car is a racecar quit**  You have typed 2 palindromes. |

## Simple Version Only **[5 points]**

Program **Palindrome Counter** for only single-word input that checks only the first and last letters (i.e., a minimum partial palindrome).

# Option 4. (In)Secure Password Converter[[1]](#footnote-0) **[20 points]**

*Name this file password.cpp*

Prompt the user to enter text, and replace a subset of letters in the text with corresponding symbols as shown in the table below to create the new password. Finally, append the reversed version of the new password to the new password.

|  |  |
| --- | --- |
| **Replace:** | **With:** |
| a | @ |
| e | 3 |
| i | ! |
| o | 0 |
| u | ^ |

*Sample Execution*

|  |
| --- |
| Please enter your text input: **password**  input: password  output: p@ssw0rddr0wss@p |

## Simple Version Only **[5 points]**

Program **(In)Secure Password Converter** that only appends the input word with its reversed version (i.e., no character replacement).

# 

# Option 5. Number Word Calculator **[20 points]**

*Name this file calculator.cpp*

Prompt the user to enter a sequence of numbers and arithmetic symbols as words, and then calculate the result of the equation.

* Valid number words: zero, one, two, three, four, five, six, seven, eight, nine
* Valid symbol words: plus, minus, times, divides
* Order of operation is simply left to right. That is, calculate immediately after reading two numbers and one arithmetic symbol.
* Use the std::to\_string function to convert an int to a string. E.g.,
  + string numberText = std::to\_string(9); // string numberText = "9";

*Sample Execution*

|  |
| --- |
| Please enter word equation (type equals' at the end):  **five times two plus four divides seven equals**  5 \* 2 + 4 / 7 = 2 |

## Simple Version Only **[5 points]**

Program **Number Word Calculator** with only a single number (i.e., a number word and the word "equal").

1. This is a horrible approach for creating a secure password. However, it’s good coding practice. [↑](#footnote-ref-0)