Lab 3

Due Date: Sep 18, 2019
Total Points: 15 points

The purpose of this lab is to practice working with strings, string streams, and vectors of structs.

Program 1

Write a function *ReplaceSubString* that takes three strings as parameters: *string1*, *string2*, and *string3* and modifies one or more substrings of *string1*. The function should search *string1* for all occurrences of *string2*. When it finds an occurrence of *string2*, it should replace it with *string3* and save the result in a new string *string4*.

For example, suppose the three strings have the following values:

String1: "the dog jumped over the fence"

String2: "the"

String3: "that"

The new string object will have the value "that dog jumped over that fence".

Write a main program to test your function. Your main program should:

- read three strings from the user: *string1*, *string2*, and *string3* (You may use the string values provided above)
- call the function *ReplaceSubString* to modify *string1*
- display the new string.

Note:

- You should make sure *string2* and *string3* are not the same.
- You may use string member functions such as find, replace…

Program 2

A palindrome is any word, phrase, or sentence that reads the same forward and backward. Here are some well-known palindromes:

- able was I ere I saw elba
- a man a plan a canal panama
- desserts I stressed
- kayak

Write a bool function *isPalindrome* that takes one string parameter and returns true if that string is a palindrome and false otherwise.

Write a main program to test your function. Your main program should:

- prompt the user to enter a string value
- call the function *isPalindrome* to check if the string is palindrome
- display whether it was palindrome or not.

You may test your function using the palindromes listed above (ignore spaces in the strings.)

Program 3

Write a function *removeSpace* that takes one string argument (by value), removes spaces from this string using stringstream, and returns the resulting string.

Write a main program to test your function. Your main program should:

- prompt the user to enter a string *string1*
- call the function *removeSpace* and send *string1* as argument
- print the new string value.

Sample run:

```
Please enter a phrase: Welcome to CS211, let the fun begin

The resulting phrase is: WelcometoCS211,letthefunbegin
```

Program 4

Write a program that keeps track of a telephone directory. The program should create a structure, Person, with the following data:

```
struct Person
{
      string firstName;
      string lastName;
      string phoneNumber;
};
```

The program should then create a vector of Person structs, called directory. Your program should have functions to:

- Read the vector data from a data file "telephoneData.txt" into the vector directory.
- Print the details of all Persons in the vector.

You may use the following "telephoneData.txt" file:

```
Tom Garcia 855-433-2076
Nancy James 202-872-1010
Bill Meyer 120-343-5623
Jack Didier 352-654-1983
```

Your program should print something like this:

```
Name             Telephone
------------------------------
Tom Garcia       855-433-2076
Nancy James      202-872-1010
Bill Meyer       120-343-5623
Jack Didier      352-654-1983
```