

## Lab Assignment: Using STL

In this assignment, we are going to solve two programs by using the knowledge of map, stack, and linked list. Please study the following problem descriptions and prepare your solutions for the two questions. Please submit the solutions on the Blackboard website by Friday, 30 April 2021. Thank you.

For each program add sufficient comments to explain the logic of the codes throughout the program. In addition, add screenshots that will show the output of each of the programs.

### Question : Word Frequency

Write a program that reads the contents of a text file, named "words.txt". The program should create a map in which the keys are the individual words found in the file and the values are the number of times each word appears in the file. For example, if the word "the" appears 120 times, the map would contain an element with "the" as the key and 120 as the value.

The program should display the frequency of each word by using cout.

#### Sample Run of the Program

Suppose the content of the file "words.txt" is the following:

*Can you can a can as a canner can can a can?*

Then output of the program would be the following:

*can 6  
you 1  
a 3  
as 1  
canner 1*

#### Work frequency rubrics | Total points: 10

1. The logic of the code is explained by using sufficient comments --2
2. The program reads lines of text from a text file --1
3. The program uses map variable to determine the count of each word --4
4. The program displays the count of each word --2
5. Screenshots were provided to demonstrate the input/output of the program --1
6. The program provides accurate output and does not have any compiler errors

### Question : Reverse the File Using

Define a dynamic Stack (by using linked list) that is template based. That is, the defined class should be able to store different types of data including string, int, double, etc.

Use the defined Stack class to solve the following problem. Read a text file, named input.txt. After reading each word add them to the stack object. Now, use the stack object and pop its items to write its content in another file named, output.txt. If you have done it right then the content of the output.txt file should be the reverse of the content of the input.txt.

#### Sample Run of the Program:

Here is the content of the input.txt file:

*When you are courting a nice girl an hour seems like a second. When you sit on a red-hot cinder a second seems like an hour. That's relativity. -- Albert Einstein*

Here is the content of the output.txt file:

*Einstein Albert -- relativity. That's hour. an like seems second a cinder red-hot a on sit you When second. a like seems hour an girl nice a courting are you When*

Reverse file rubrics | Total points: 10

1. The logic of the code is explained by using sufficient comments --2
2. The program reads lines of text from a text file --1
3. The program implements a dynamic stack --2
4. The program uses the dynamic stack to reverse the file --3
5. The program writes the output in the output file in reverse order --1
6. Screenshots were provided to demonstrate the input/output of the program --1
7. The program provides accurate output and does not have any compiler errors