**Submission of Your Work**

You need to prepare and submit ONE SINGLE MS Word document to Canvas (in your lab section) as LastName\_FirstName\_Lab10.doc. It must contain:

* Your NAME
* For each question:
  + Specify the question number.
  + After reading the question requirements, but before beginning any coding, create the test case table, below, through column Expected Output. Write your program then complete the **test table** with actual output results and include in your report.
  + Copy/Paste your completed source code. You must include standard “header” in every program even if code is provided.
  + Paste in a snippet of output showing results for **every listed test case**, labeled with test case #

Test Table:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test # | Valid / Invalid Data | Description of test | Input Value | Actual Output | Test Pass / Fail |
| 1 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |
| 4 |  |  |  |  |  |
| 5 |  |  |  |  |  |
| 6 |  |  |  |  |  |

* Add / delete rows from Test Table as necessary
* Modify column widths as necessary
* Test both valid and invalid input
* Test for every output expected
* If failure is an expected output and it happens then that test Passes
* Any test that fails means the program must be fixed so that it passes the test

### **Question 1**

Write a program that reads a list of words. Then, the program outputs those words and their frequencies. The input begins with an integer indicating the number of words that follow. You must use vectors in your solution. You must provide at least 4 test cases.

|  |  |
| --- | --- |
| **Sample input/user entries shown in red** | **Corresponding output** |
| Enter input: **5 hey hi Mark hi mark** | hey 1  hi 2  Mark 1  mark 1 |

Use two functions in addition to main.

//Returns index of word in wordVec or -1 if word is not found in wordVec

int search(vector <string> & wordVec, string word);

//Displays the word frequency information.

void display(vector <string> & wordVec, vector <int> & freqVec)

**Hint:** Use two vectors, one vector for tracking the unique words (wordVec) and another for tracking the frequency of each word (freqVec).

**Question 2**

You are required to use vectors in this question. We consider a vector that contains daily recorded temperatures.

Write the following two functions:

// The function returns a new vector that contains all the freezing

// temperatures in the original vector V. (<=32oF)

// You need to consider the case where the vector is empty

vector <int> vectorFreezingTemperatures (vector<int> & V)

{

}

### // The function reads temperatures (integers) from a text file and

### // pushes them to the vector V. The number of integers in the file is

### // unknown.

void readTemperaturesFromFile (vector<int> & V, ifstream& ifs)

{

}

Write a main program that asks the user for a file name. The file contains daily temperatures (integers). The main calls the two functions to (1) store temperatures in the vector (2) displays the number of days with freezing temperatures. **You must provide at least 4 test cases** (4 separate files consisting of different temperature data).