**Submission of Your Work**

You need to prepare and submit ONE SINGLE MS Word document to Canvas (in your lab section) as LastName\_FirstName\_Lab11.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**

Let’s consider the following code.

* Compile and fix all errors.
* **No test cases are required for this question.**
* Run and provide a single screenshot showing the output.
* Complete the missing comments to explain the action performed by each statement highlighted in red. The first comment is given as an example.
* Copy and paste the source code with the comments filled out in your report.

#include <vector> // Compiler directive to use vectors  
#include <iostream>  
  
using namespace std;  
  
int main () {  
        vector<double> v; //  
  
        v.assign( 8, 16.3 ); //  
        v[2] = 16.4; v[3] = 20.6; //  
        v.push\_back(17.8); //  
        v.push\_back(-7.3); //  
  
        for( int i = 0; i < v.size(); i++ ) { // v.size()gives   
                cout << v[i] << " "; // v[i] gives   
                }  
        cout << endl;  
        cout << v.front() << " " << v.at(2) << " " << v.back() << endl;

// v.front() gives

// v.at(2) gives

// v.back() gives   
}

### **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).