Assignment 4

Program 1

Write a c++ program that will read in strings from a file. The strings will only contain upper and lower case letters. Then your program should print out the unorganized string. Then your program should organize the string so that all the upper case letters come before the lower case letters and then print out the organized string (You must **not** create a new string you should only move characters in the string to organize it). Write a text file that justifies your design decisions and what you think the running time of your algorithm is.

```
What file do you wish to run
q1Test.txt
unorganized HSLJdfjfklsdjidLJSLsKsdjndsnDSslJSdjlaslKLJD
organized HSLJJLKSJSDKLSJLDdisjsdjndsndssllkdjlaslfjfd

unorganized hfsdkljhfsdhfklsdhfksh
organized hfsdkljhfsdhfklsdhfksh

unorganized SJKHADKLASJHDHAS
organized SJKHADKLASJHDHAS

unorganized SAASDASDASDhdjhsjhdksjd
organized SAASDASDASDddjhsjhdksjh

unorganized jsadjsdjsakjWEIOQPOIPERQW
organized QREPIOPQOIEWWjkasjdsjdasj
```

Program 2

Write a c++ program read in a file containing sorted sequences of integers. They are all sorted either ascending or descending order(The file is organized such that the length of the sequence is give in the line above the sequence itself). Your program should read in these sequences in groups of 2. And put them into vectors. Then your program should print out the vectors. Then your program should combine the two vectors to create a new vector that contains the values of the other two vectors in non-descending order. Write a text file that justifies your design decisions and what you think the running time of your algorithm is.

```
What file do you wish to run
q2Test.txt
Vector 1
2 4 10 11 20 23 28 30 39 42 45 52 59 65 67
Vector 2
3 13 14 21 26 28
Merged Vector
2 3 4 10 11 13 14 20 21 23 26 28 28 30 39 42 45 52 59 65 67

Vector 1
122 117 108 100 97 92 83 73 67 62 56 55 53 49 48 38 37 33 27
Vector 2
53 48 46 43 31 18 17 15 2 -2
Merged Vector
-2 2 15 17 18 27 31 33 37 38 43 46 48 48 49 53 53 55 56 62 67 73 83 92 97 100 108 117 122

Vector 1
9 19 29 35 41 42 45 47
Vector 2
45 44 43 28 27 23 22 19 15 5 -1
Merged Vector
-1 5 9 15 19 19 22 23 27 28 29 35 41 42 43 44 45 45 47

Vector 1
45 32 24 12 7 -4 -5 -9 -18 -19 -31 -39 -50 -57
Vector 2
1 8 11 14 23 28 34 38
Merged Vector
-57 -50 -39 -31 -19 -18 -9 -5 -4 1 7 8 11 12 14 23 24 28 32 34 38 45
```

Submissions

Make sure that your code is neat and is well commented

Check that all of your programs work the way they are intended to work by running them with different inputs

Submit to D2L a zip/archive file containing only the .cpp and .txt you have written and all other files needed to run your program