COMSC 165

Summer 2020

Programming Assignment 7

Worth 20 points (2% of your grade)

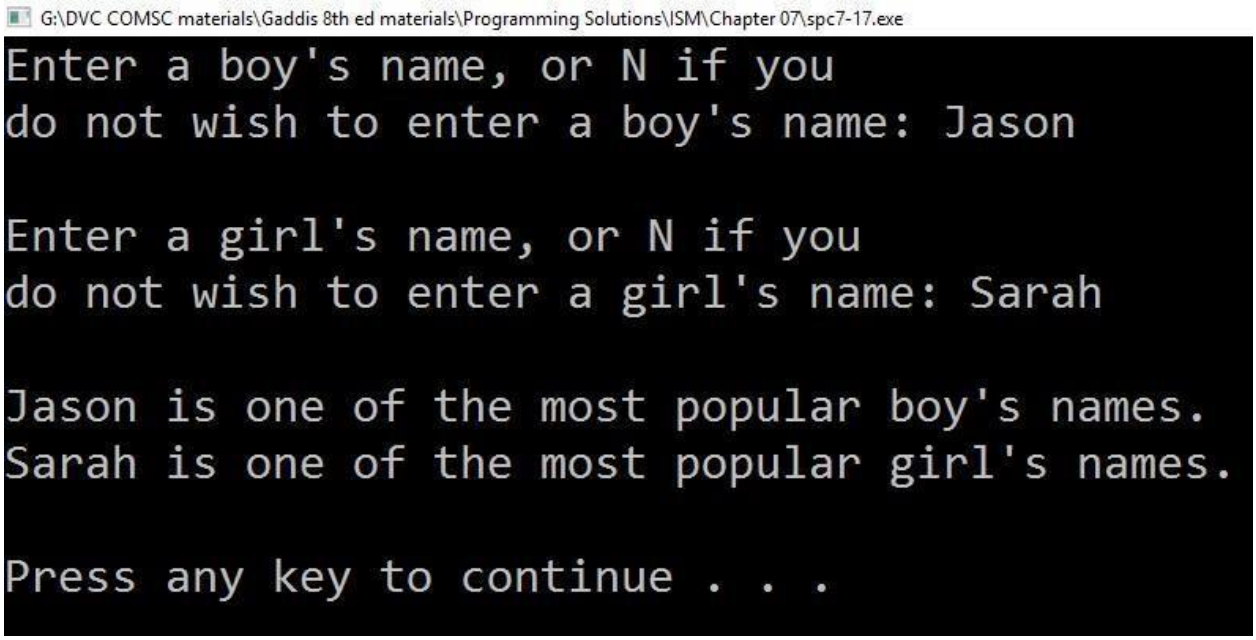
DUE: Friday, 7/10/20 by 11:59 P.M. on Canvas

You need to start by downloading the following files from Canvas: 165_assign7.cpp, BoyNames.txt, and GirlNames.txt

NOTE: Your submission for this assignment should consist of a total of **six (6)** files: a single **.cpp** file, a single **.pdf** file, and the four (4) **.txt** output files (the boys/girls names in ascending/descending order). The following naming convention should be used for naming your files: **firstname_lastname_165_assign7.cpp and firstname_lastname_165_assign7.pdf**. The pdf file that you submit should contain the screenshots of your sample runs of the program (see below). For example, if your first name is "James" and your last name is "Smith", then your files should be named James_Smith_165_assign7.cpp and James_Smith_165_assign7.pdf.

COMMENTS (7.5% of programming assignment grade): Your program should have at least **ten (10)** different detailed comments explaining the different parts of your program. Each individual comment should be, at a minimum, a sentence explaining a particular part of your code. You should make each comment as detailed as necessary to fully explain your code. You should also number each of your comments (i.e., comment 1, comment 2, etc.).

SAMPLE RUNS (7.5% of programming assignment grade): You should submit screenshots of at least **five (5)** different sample runs of your program. Each sample run needs to use different boy/girl names for the user inputs, and your sample runs should **NOT** be the same as the sample runs that are used in this write-up for the assignment. You should also number each of your sample runs (i.e., sample run 1, sample run 2, etc.). Each of your sample runs should be similar to this format:



NOTE: Vectors (rather than arrays) **must** be used for this assignment.

For this programming assignment you will be working with vectors and files.

You will be implementing the following **SIX (6)** functions:

getVector

// **
// The getVector function reads data from a file, stores *
// it in a vector, and returns the vector. *
// **

getName

```
// ******************************************************
// The getName function prompts the user to enter a    *
// boy's/girl's name and returns the value.            *
// ******************************************************
```

search

```
// ******************************************************
// The search function returns true if the boy/girl name is found *
// in the boy/girl vector. Otherwise, it returns false.        *
// ******************************************************
```

displayResult

```
// ******************************************************
// The displayResult function determines if the boy's/girl's  *
// name is popular or not and displays the result.        *
// ******************************************************
```

writeToFile

```
// ******************************************************* //
The writeToFile function writes the contents of the specified vector * //
into the specified file  *
// ******************************************************
```

reverseVector
// ** // The reverseVector function reverses the order of the specified vector * // **

NOTE: Do **NOT** use the built-in reverse function for the reverseVector function! You need to manually implement the logic for reversing a vector to get credit for this function.

NOTE: The **only** built-in vector functions you should be using are (1) push_back() to build the boy/girl vectors from the boy/girl files and (2) size() to get the size of the boy/girl vectors.

ALSO do **NOT** copy the contents of the vector to another array or vector.

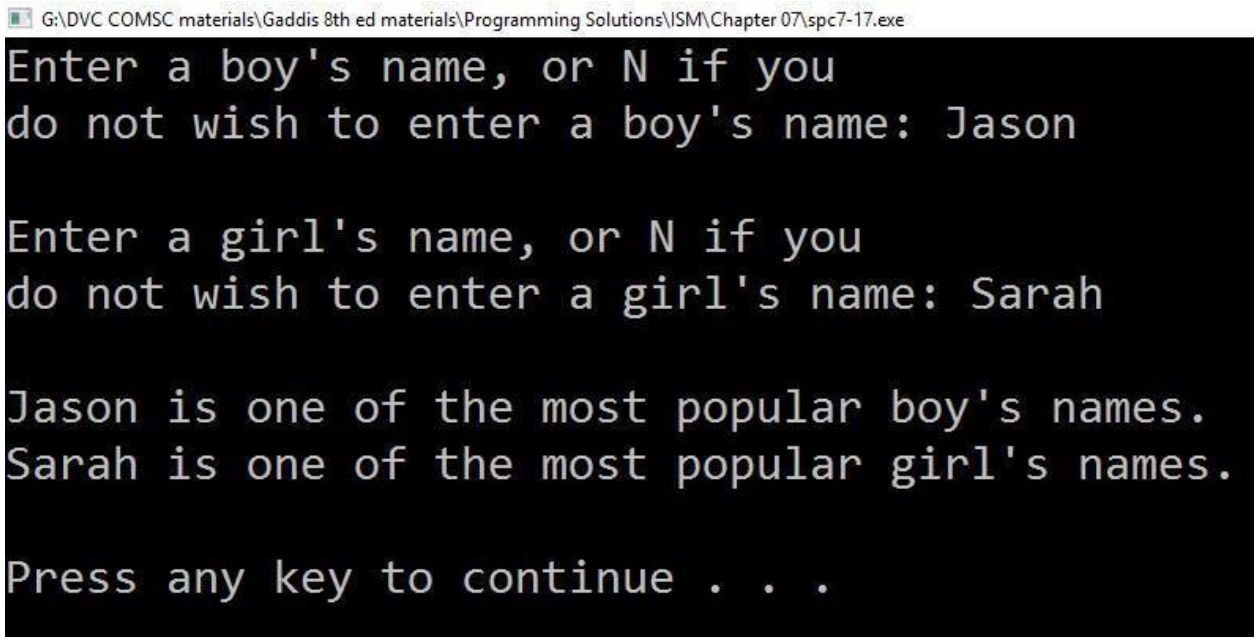
The vector should be reversed **in-place**; it is not necessary to create a copy of it.

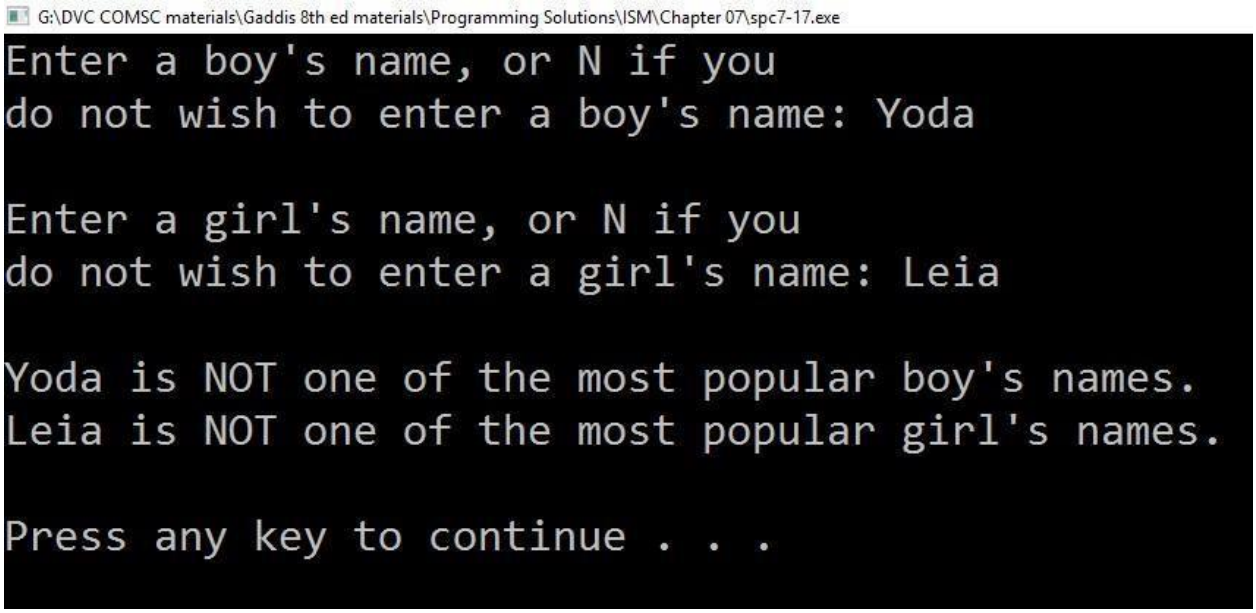
Make sure to ***carefully*** study the code in main:

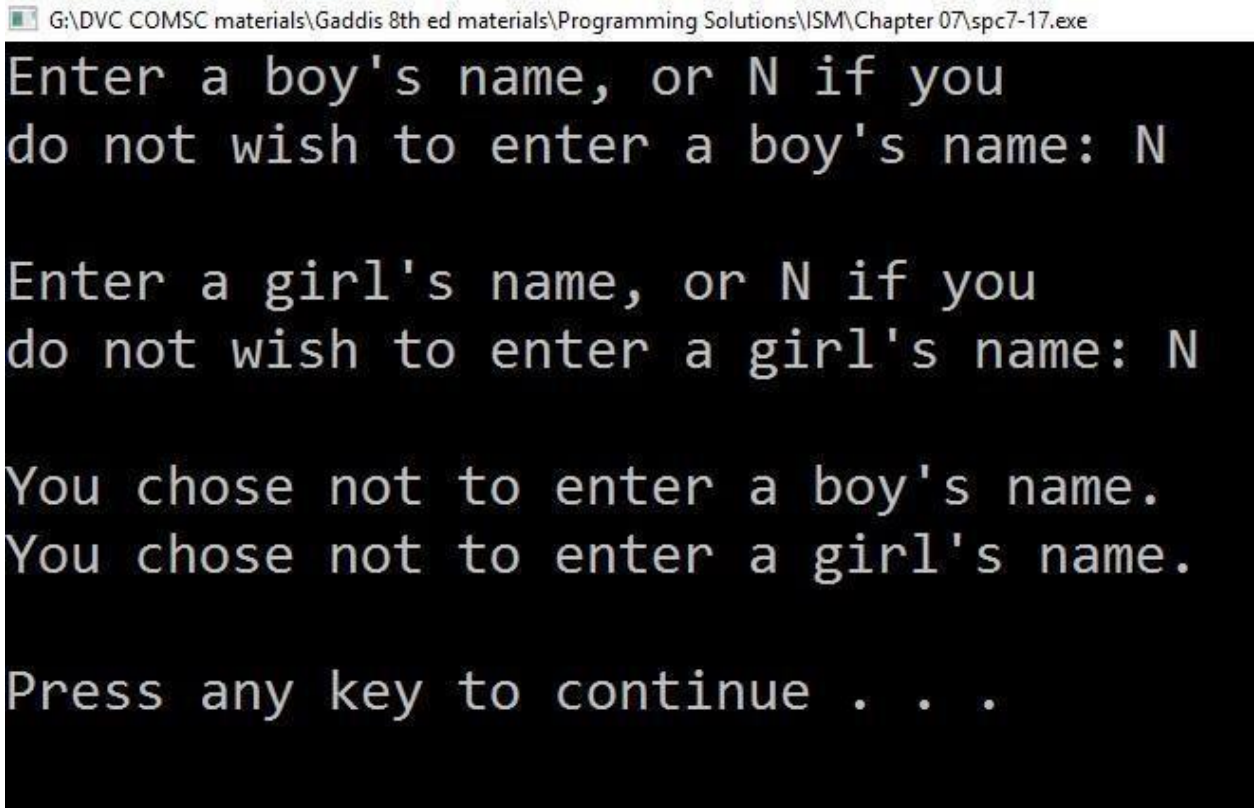
```
int main()
{
    string boyName, girlName;
    bool boyNameFound, girlNameFound;


    vector<string> boyNames(getVector("BoyNames.txt"));
    vector<string> girlNames(getVector("GirlNames.txt"));


    boyName = getName("boy's");
    girlName = getName("girl's");

    selectionSort(boyNames);
    selectionSort(girlNames);

    boyNameFound = search(boyName, boyNames);
    girlNameFound = search(girlName, girlNames);
```

```
    displayResult("boy's", boyName, boyNameFound);
    displayResult("girl's", girlName, girlNameFound);

    writeToFile("Boynames_asc.txt", boyNames);
    writeToFile("Girlnames_asc.txt", girlNames);

    reverseVector(boyNames);
    reverseVector(girlNames);

    writeToFile("Boynames_desc.txt", boyNames);
    writeToFile("Girlnames_desc.txt", girlNames);

    cout<<endl;

    system("PAUSE");
    return 0;
}
```

Sample Runs:

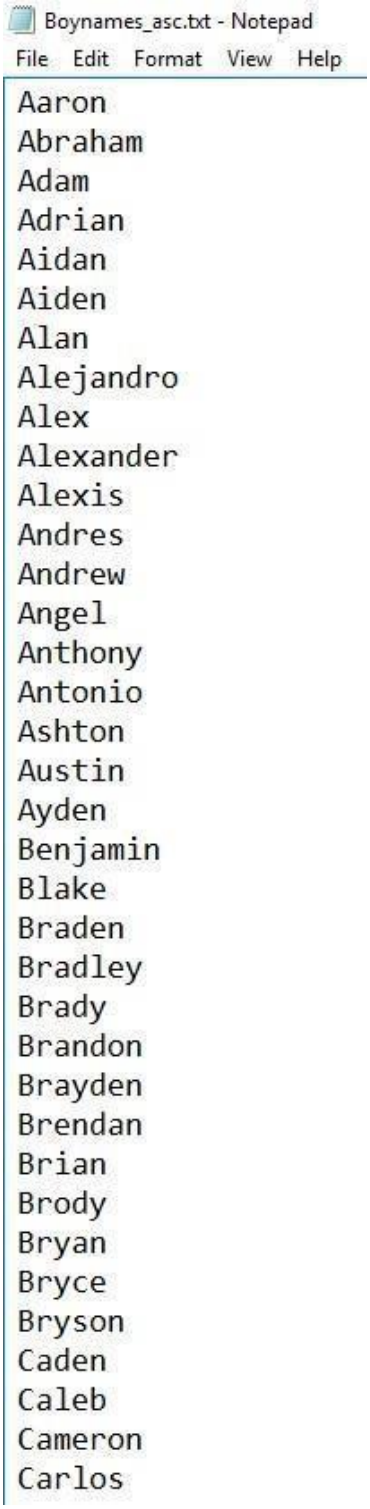

G:\DVC COMSC materials\Gaddis 8th ed materials\Programming Solutions\ISM\Chapter 07\spc7-17.exe
Enter a boy's name, or N if you
do not wish to enter a boy's name: Jason
Enter a girl's name, or N if you
do not wish to enter a girl's name: Sarah
Jason is one of the most popular boy's names.
Sarah is one of the most popular girl's names.
Press any key to continue . . .


G:\DVC COMSC materials\Gaddis 8th ed materials\Programming Solutions\ISM\Chapter 07\spc7-17.exe
Enter a boy's name, or N if you
do not wish to enter a boy's name: Yoda
Enter a girl's name, or N if you
do not wish to enter a girl's name: Leia
Yoda is NOT one of the most popular boy's names.
Leia is NOT one of the most popular girl's names.
Press any key to continue . . .

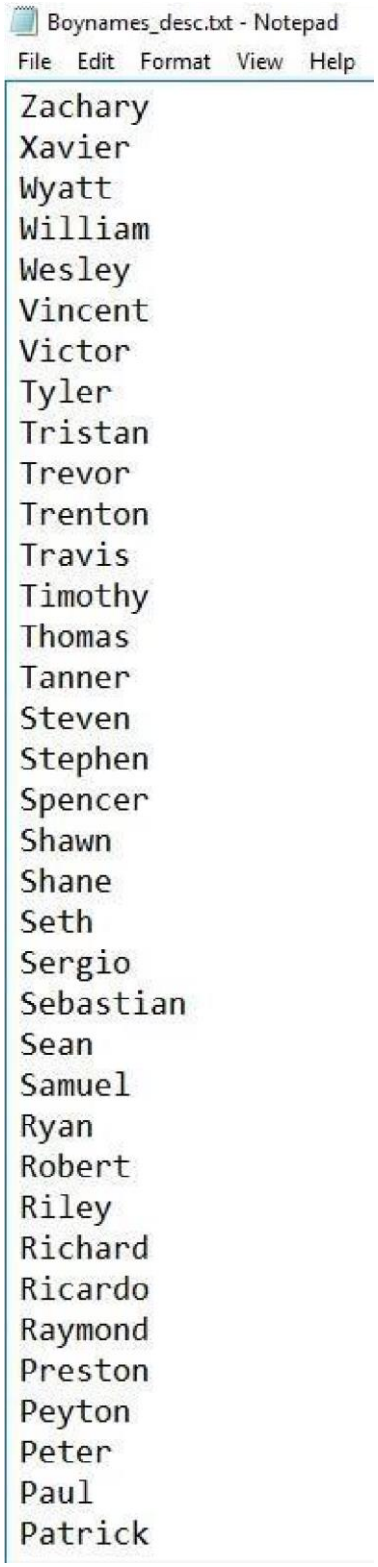


Next, the contents of the four new files are shown below. Note that these files should always be created regardless of the user's input. Also, only part of each file is shown below in the screenshots. **You need to submit these four (4) output files**:

The BoyNames_asc.txt file after the program has finished running:



The BoyNames_desc.txt file after the program has finished running:



The GirlNames_asc.txt file after the program has finished running:

The GirlNames_desc.txt file after the program has finished running:

Girlnames_desc.txt - Notepad

File Edit Format View Help

Zoey
Zoe
Victoria
Veronica
Vanessa
Valerie
Valeria
Trinity
Tiffany
Taylor
Sydney
Summer
Stephanie
Sophie
Sophia
Sofia
Skylar
Sierra
Shelby
Serenity
Savannah
Sarah
Sara
Samantha
Sadie
Sabrina
Rylee
Ruby
Riley
Rebecca
Reagan
Rachel
Peyton
Payton
Paige
Olivia