

**CS 280**  
**Spring 2021**  
**Recitation Assignment 2**  
**September 15, 2021**

**Due Date: Sunday, September 19, 2021, 23:59**  
**Total Points: 7**

Write a C++ program that reads lines from a file until the end of file. The program should prompt the user for the file name to read from. The program should open the file for reading, and if the file cannot be opened, it should print the message "File cannot be opened ", followed by the filename, and exit.

The program acts like a simple interpreter for a scripting/command language. The file includes commented lines that are recognized by either the character '#', as the start character of the line; or by '//', as the first two characters of the line. The program should skip over all commented lines. For the rest of the file, the program should keep track of the total number of lines read, the number of non-commented lines, the line of the maximum length, the number of words, and the word of maximum length.

A word is defined as a sequence of one or more non-whitespace characters separated by whitespace. Note that a line having only whitespace characters is referred to as a blank line. After reading the contents of the input file, the program should print out the total number of lines, the number of non-commented lines, the line of the maximum length delimited by double quotes, the number of words, and the word of maximum length delimited by double quotes, as shown in the following example. Given the following file contents,

Line number	File contents
1	3456 george 10.25
2	//1234 smith -45
3	
4	
5	
6	# 4321 staci 12.7
7	67899 smith 9643.45
8	
9	
10	
11	278 hello - +654
End of File	→

the generated results after reading the file contents are as follows:

```
Enter the name of a file to read from:
infile6

Total Number of Lines: 11
Number of non-commented lines: 9
Line of Maximum Length: "67899 smith 9643.45"
Number of Words: 10
Word of Maximum Length: "9643.45"
```

### **Notes:**

1. **The example assumes that the file name is entered from the keyboard.**
2. There are 11 lines in this input file.
3. The screen pointer is at a new line after displaying the results.
4. You have to apply the same format in order to have exact match.

### **Hints:**

1. You can use *get()* or *getline()* methods for reading from the input. However, it is recommended that you use *getline()* to read an entire line into a string, then you can use the *length()* method on the string to figure out the length of the line.
2. A string can be treated like an array of characters.
3. You can create an input string stream (istringstream) for each read line to extract each word in the line into a string.
4. Download the zipped file for the test cases from Canvas. These are the test cases you will be graded against on your submission to Vocareum. Use the test cases to test your implementation. Note that case 1 is not included in the set. Your program will be checked against a file name, infile1, that does not exist.
5. There are 6 test cases, case1 through case6. Each case includes a file name as an input file name similar to what you would type from the keyboard. Case1 includes a non-existing file, infile1, while case2-case6 files include infile2 through infile6 for existing files. Expected correct outputs are included in the files case1.correct-case6.correct. The actual input files are infile2-infile6.
6. If you want to look at the input for one of the test cases, use the linux "cat" command. The cases are in the directory \$LIB/public/RA\_Fall2021/RA2. You can, for example, look at infile3 by saying "cat \$LIB/public/RA\_Fall2021/infile3", and you can look at the expected output by saying "cat \$LIB/public/ RA\_Fall2021/case3.correct".

### **Submission Guidelines**

1. Please name your file as "RAx\_firstinitial\_lastname.cpp". Where, "firstinitial" and "lastname" refer to your first name initial letter and last name, respectively, and "x" refers to the recitation assignment number (e.g., 1, 2, etc). Your program Submission is to Vocareum environment. Follow the link of Recitation Assignment 2 on Canvas in the Modules or Assignments pages to connect to the current assignment on Vocareum.
2. **Submissions after the due date are accepted with a fixed penalty of 25%. No submission is accepted after Tuesday September 21, 2021, 11:59 pm.**

### **Grading Table**

<b>Testing Cases</b>	<b>Points</b>
Case 1: File cannot be found	1.0
Case 2: Empty File	1.0
Case 3: Blank File	1.0
Case 4: File with All commented lines	1.0
Case 5: File with non-commented lines	1.0
Case 6: File with some commented lines	1.0
Compiles Successfully	1.0
Total	7