Week 8 Programming Assignment 1

Due on 2020-03-25, 23:59 IST

Given below is a main program that reads a line from the keyboard and prints the number of words in it. For this it calls a function `words()` which really does the work. You are to write the function `words()` and enter that into the text box. The main program is already entered.

A "word" is a (contiguous) sequence of non space characters which is maximal, i.e. it cannot be extended on either side. So as an example, if the character string is "He came, he saw, he conquered." then the words are "He", "came," "he", "saw," "he", "conquered.". Notice that for simplicity we are treating punctuation marks also as part of words. Also, note that two words may be separated by several spaces, not necessarily just one. Finally, we may have spaces also at the beginning or the end of the character string. For your reference, the main() program calling the function `words()` is given below.

```cpp
int main(){
    char line[80];
    cin.getline(line,80);
    cout << words(line) << endl;
}
```

Hint: Clearly you will need a loop in each iteration of which you will process a single character in the line. You will also keep a count of how many words you have seen so far. Identify the condition under which you will increment the count. Alternatively, think about what you need to remember as a summary from all the characters seen so far.

**Sample Test Cases**

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>NPTEL</td>
</tr>
<tr>
<td>NPTEL</td>
<td>An Introduction To Programming Through C++</td>
</tr>
</tbody>
</table>
Test Case 1  abc abcl abc, abc:; -- ,.  7
Test Case 2  0
Test Case 3  $  1
Test Case 4  The quick brown fox, jumped , over, the lazy dog.  9
Test Case 5  I me myself  3

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Sample solutions (Provided by instructor)
1 #include <iostream>
2 #define repeat(x) for(int _iterator_i = 0, _iterator_limit = x; _iterator
3 #define main_program int main()
4 #include <cmath>
5 using namespace std;
6 int words(char A[]){
7 int count=0;
8 bool inWord=false;
9 for(int i=0; A[i] != '\0'; i++){
10 if(A[i] == ' '){
11 inWord = false;
12 }
13 else{
14 if(inWord == false) count++; // start of a word
15 inWord = true;
16 }
17 } return count;
18 }
19 
20 int main(){
21 char line[80];
22 cin.getline(line,80);
23 cout << words(line) << endl;
24 
25 }