

Source File: ~/1337/50/lab50. (C|CPP|cpp|c++|cc|cxx|cp)
Input: Standard Input
Output: Standard Output
Value: 2

Write a program that reads from standard input word-by-word. The input will contain an unknown number of words; however, input can terminate when the end-of-data marker is encountered. For this assignment, define a word as a sequence of characters that begins a line or is preceded by whitespace (spaces, tabs, newline, etc.) and that is terminated by whitespace. The program should determine the total number of words in the input, the number of words that begin with a vowel (either uppercase or lowercase), the number of words that begin with a consonant (either uppercase or lowercase), and the number of words that begin with a non-alphabetic character. After the input has been read, your program should write these four counts along with descriptions to the standard output device.

A sample execution sequence is shown in Figure 1. To use the Makefile as distributed in class, add a target of lab50 to targets1srcfile.

```
1 newuser@csunix ~> cd 1337
2 newuser@csunix ~/1337> mkdir 50
3 newuser@csunix ~/1337> cd 50
4 newuser@csunix ~/1337/50> cp /usr/local/1337/data/50/* .
5 newuser@csunix ~/1337/50> cp /usr/local/1337/src/Makefile .
6 newuser@csunix ~/1337/50> touch lab50.cpp
7 newuser@csunix ~/1337/50> # Edit Makefile and lab50.cpp
8 newuser@csunix ~/1337/50> make lab50
9 g++ -g -Wall -std=c++11 -c lab50.cpp -I/usr/local/1337/include -I.
10 g++ -o lab50 lab50.o -L/usr/local/1337/lib -lm -lbits
11 newuser@csunix ~/1337/50> cat 01.dat
12 supercalifragilisticexpialidocious
13 A nonsense-word used esp. by children, now chiefly expressing excited
14 approbation: fantastic, fabulous.
15 Made popular by the Walt Disney film "Mary Poppins" in 1964. The
16 song containing the word was the subject of a copyright infringement
17 suit brought in 1965 against the makers of the film by Life Music
18 Co. and two song-writers: cf. quotes. 1949, 1951. In view of earlier
19 oral uses of the word sworn to in affidavits and dissimilarity between
20 the songs the judge ruled against the plaintiffs.
21
22 Taken from the OED.
23 newuser@csunix ~/1337/50> cat 01.dat | ./lab50
24 Your Name - CS 1337 - Lab 50
25
26 Total Number of Words = 86
27 Number of Words Beginning with a Vowel = 25
28 Number of Words Beginning with a Consonant = 56
29 Number of Words Beginning with a Non-Alpha = 5
30 newuser@csunix ~/1337/50> cat 01.dat | ./lab50 > my.out
31 newuser@csunix ~/1337/50> diff 01.out my.out
32 newuser@csunix ~/1337/50> cat 02.dat | ./lab50 > my.out
33 newuser@csunix ~/1337/50> diff 02.out my.out
```

Figure 1. Commands to Compile, Link, & Run Lab 50 (Part 1 of 2)

```
34 newuser@csunix ~/1337/50> cat 03.dat | ./lab50 > my.out
35 newuser@csunix ~/1337/50> diff 03.out my.out
36 newuser@csunix ~/1337/50> cat 04.dat | ./lab50 > my.out
37 newuser@csunix ~/1337/50> diff 04.out my.out
38 newuser@csunix ~/1337/50>
```

Figure 1. Commands to Compile, Link, & Run Lab 50 (Part 2 of 2)