

Source File: ~/1337/42/lab42. (C|CPP|cpp|c++|cc|cxx|cp)
Input: Standard Input
Output: Standard Output
Value: 1

Write a program that reads from standard input character-by-character and determines the number of whitespace characters, punctuation characters, and the distribution of character digits and alphabetic characters (case-insensitive). The input is of unknown length; however, input can terminate when the end-of-data marker is encountered. The output should be formatted as shown below. Only non-zero counts should be written.

A sample execution sequence is shown in Figure 1. To use the Makefile as distributed in class, add a target of lab42 to targets1srcfile.

```
1 newuser@csunix ~> cd 1337
2 newuser@csunix ~/1337> mkdir 42
3 newuser@csunix ~/1337> cd 42
4 newuser@csunix ~/1337/42> cp /usr/local/1337/data/42/* .
5 newuser@csunix ~/1337/42> cp /usr/local/1337/src/Makefile .
6 newuser@csunix ~/1337/42> touch lab42.cpp
7 newuser@csunix ~/1337/42> # Edit Makefile and lab42.cpp
8 newuser@csunix ~/1337/42> make lab42
9 g++ -g -Wall -std=c++11 -c lab42.cpp -I/usr/local/1337/include -I.
10 g++ -o lab42 lab42.o -L/usr/local/1337/lib -lm -lbits
11 newuser@csunix ~/1337/42> cat 01.dat
12 1992 1993 1994
13 This is a test of your word analysis program.
14 How many words did you find that begin with a vowel?
15 WHAT ABOUT STARTING WITH AN S OR ENDING IN AN s?
16 Mary said, "I like C++."
17 newuser@csunix ~/1337/42> cat 01.dat | ./lab42
18 Your Name - CS 1337 - Lab 42
19
20 whitespace = 43
21 punctuation = 9
22 -----
23 Character    Count
24 -----
25      1         3
26      2         1
27      3         1
28      4         1
29      9         6
30      A        14
31      B         2
32      C         1
33      D         7
34      E         5
35      F         2
36      G         4
37      H         6
```

Figure 1. Commands to Compile, Link, & Run Lab 42 (Part 1 of 2)

```
38      I          14
39      K           1
40      L           3
41      M           3
42      N          10
43      O          10
44      P           1
45      R           8
46      S          10
47      T          11
48      U           3
49      V           1
50      W           7
51      Y           5
52 -----
53 newuser@csunix ~/1337/42> cat 01.dat | ./lab42 > my.out
54 newuser@csunix ~/1337/42> diff 01.out my.out
55 newuser@csunix ~/1337/42> cat 04.dat | ./lab42 > my.out
56 newuser@csunix ~/1337/42> diff 04.out my.out
57 newuser@csunix ~/1337/42> cat 06.dat | ./lab42 > my.out
58 newuser@csunix ~/1337/42> diff 06.out my.out
59 newuser@csunix ~/1337/42>
```

Figure 1. Commands to Compile, Link, & Run Lab 42 (Part 2 of 2)