

Source File: ~/1337/56/lab56. (C|CPP|cpp|c++|cc|cxx|cp)
Input: Under control of main function
Output: Under control of main function
Value: 2

Write a boolean function that determines if a string is a valid password. To be valid, a password must meet the following criteria:

- The password should be at least six characters long.
- The password should contain at least one uppercase and at least one lowercase letter.
- The password should have at least one digit.

The function should return true if the string argument represents a valid password and false otherwise.

A sample main function for testing your function is shown in Figure 1. Commands to compile, link, and run this assignment are shown in Figure 2. To use the Makefile as distributed in class, add a target of lab56 to targets2srcfiles.

```
1 #include <iostream>
2 #include <cstdlib>
3 #include <string>
4
5 using namespace std;
6
7 // Function passwordVerifier returns true if string password
8 // represents a valid password and false otherwise. A valid
9 // password must
10 // 1) be at least six characters long,
11 // 2) contain at least one uppercase letter,
12 // 3) contain at least one lowercase letter, and
13 // 4) contain at least one digit character.
14 bool passwordVerifier(string password);
15
16 int main()
17 {
18     string password;
19
20     while (getline(cin, password))
21     {
22         cout << password << " is ";
23         if (!passwordVerifier(password))
24             cout << "in";
25         cout << "valid" << endl;
26     }
27
28     return EXIT_SUCCESS;
29 }
```

Figure 1. /usr/local/1337/src/lab56main.C

```
1 newuser@csunix ~> cd 1337
2 newuser@csunix ~/1337> mkdir 56
3 newuser@csunix ~/1337> cd 56
4 newuser@csunix ~/1337/56> cp /usr/local/1337/data/56/* .
5 newuser@csunix ~/1337/56> cp /usr/local/1337/src/lab56main.C .
6 newuser@csunix ~/1337/56> cp /usr/local/1337/src/Makefile .
7 newuser@csunix ~/1337/56> touch lab56.cpp
8 newuser@csunix ~/1337/56> # Edit Makefile and lab56.cpp
9 newuser@csunix ~/1337/56> make lab56
10 g++ -g -Wall -std=c++11 -c lab56main.C -I/usr/local/1337/include -I.
11 g++ -g -Wall -std=c++11 -c lab56.cpp -I/usr/local/1337/include -I.
12 g++ -o lab56 lab56main.o lab56.o -L/usr/local/1337/lib -lm -lbits
13 newuser@csunix ~/1337/56> cat 01.dat
14 password
15 1b!gF1sh
16 ASURams1
17 short
18 2fEw
19 1abcde
20 2TUVWXYZ
21 9422101
22 1a@B#$%^&*()
23 my Password1
24 newuser@csunix ~/1337/56> cat 01.dat | ./lab56
25 password is invalid
26 1b!gF1sh is valid
27 ASURams1 is valid
28 short is invalid
29 2fEw is invalid
30 1abcde is invalid
31 2TUVWXYZ is invalid
32 9422101 is invalid
33 1a@B#$%^&*() is valid
34 my Password1 is valid
35 newuser@csunix ~/1337/56> cat 01.dat | ./lab56 > my.out
36 newuser@csunix ~/1337/56> diff 01.out my.out
37 newuser@csunix ~/1337/56> cat 02.dat | ./lab56 > my.out
38 newuser@csunix ~/1337/56> diff 02.out my.out
39 newuser@csunix ~/1337/56> cat 03.dat | ./lab56 > my.out
40 newuser@csunix ~/1337/56> diff 03.out my.out
41 newuser@csunix ~/1337/56>
```

Figure 2. Commands to Compile, Link, & Run Lab 56