



Coding Marathon 2016 Abu Dhabi Polytechnic(ADPOLY)-MBZ

March 15th 2016

Sample Problems

Problem
Sample 1: Password Strength Meter
Sample 2: Encryption

Sample 1: Password Strength Meter

Source file: passmeter.java

Input file: passwordmeter.in

Secure City of Abu Dhabi (SCAD) company wants you to create password strength meter by having following requirements:

As a password is entered, your program will use the following criteria (weighted equally) to determine the level of its strength:

Password is not in the plague list of 25 most commonly used passwords (see below)- (1 pt)

Password is 8 characters or more in length - (1 pt)

Password contains 1 or more upper case letter(s) - (1 pt)

Password contains 1 or more digit(s) - (1 pt)

Your program adds up all the points and then uses the following grading criteria to report the overall strength of the password.

4 pts = Exceptional

3 pts = Strong

2 pts = Weak

1 pt = Unacceptable

List of plague:

(123456, password, 12345678, qwerty, abc123, 123456789, 111111, 1234567, iloveyou, adobe123, 123123, admin, 1234567890, letmein, photoshop, 1234, monkey, shadow, sunshine, 12345, password1, princess, azerty, trustno1, 000000)

Input

The input is one line of code which contains the password.

Output

Your program should print the password strength in a number range from 1-4

Sample Input

passsword123

Sample Output

2

Sample 2: Encryption

Source file: encryption.java

Input file: encryption.in

You are required to build an encryption program to hide your messages on your smart phone. Your program will read in a message file, encrypt it as described below.

The input file for this program will be named encryption.in. The input file consists of lines of text. It may be assumed that the shortest line of text in the file to be encrypted will be of length no less than four characters. The number of lines of text in the file is unknown. The end of file/data while statement processing loop pattern must be used. A trivial sample input file is shown below:

```
abcdefghijklmnopqrstuvwxyz
```

Encryption Process

Below is the description of each step of the encryption process. Where necessary an example is given to clarify the process described in the step.

1. Remove any leading or trailing whitespace from the line.
2. Convert all letters in the string to UPPERCASE.

Step 2 Input Line: "abcdefghijklmnopqrstuvwxyz"

Step 2 Output Line: "ABCDEFGHIJKLMNOPQRSTUVWXYZ"

3. Perform the following character substitutions:

Original	Substitution
A	@
E	=
I	!
J	?
O	*
P	#
R	&
S	\$
T	+
V	^
X	%
(space)	-

Sample Input

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Sample Output

C*D=-M@&@+H*N-@D#*LY