

# Systems' Recruitment Task

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## Step 1

The problem statement is presented as follows, just a website url along with a story.

Mr. Cheems is the owner of <https://www.somewebsite.com>, however he has recently had difficulty accessing the admin dashboard.

Mr. Cheems was foolish, using the same and extremely weak password for both his website and mail service provider.

Mr. Cheems claims that his email address, [someemailaddress@gmail.com](mailto:someemailaddress@gmail.com), has been hacked.

He received an email from his own account ([someemailaddress@gmail.com](mailto:someemailaddress@gmail.com)) in which the Hacker stated, "You must contact me if you wish to regain access to your account."

Mr. Cheems seems unconcerned about the tainted email, but really wants to get back his website access. Can you assist Mr. Cheems in regaining access to his website?

BTW, when Mr. Cheems created the website, he hid a backup password inside the website, and wasn't foolish enough to hide it in plain sight.

<https://www.somewebsite.com>

The website is just a login page with two fields - username and password.

In the website source code, there is an easily decipherable cipher text, encrypted using caesar cipher. which says

GUR HFREANZR VF: UHRUHRUHR

GUR ONPXHC CNFFJBEQ VF: V NZ GUR ORFG QBTR

THE USERNAME IS: HUEHUEHUE

THE BACKUP PASSWORD IS: I AM THE BEST DOGE

This is however, just meant to stall the candidate. The username and the password work, but lead to a deadend on the website.

## Step 2

"You must contact me if you wish to regain access to your account."

This is the line that the candidate needs to focus on.

When the candidate sends a email to the given email address, he/she receives a reply containing the

Ciphertext that needs to be deciphered.

## Message received from email

```
\x48\x4f\x53\x49\x44\x55\x4d\x59\x4f\x50\x49\x41\x4d\x49\x43\x5a\x41\x5a\x42\x55\x44\x54\x50\x43\x49\x4c\x4e\x56\x4d\x50\x5a\x42\x45\x42\x5a\x42\x47\x54\x45\x42\x4d\x4c\x46\x43\x43\x41\x51\x49\x4d\x47\x52\x4c\x44\x59\x45\x58\x49\x50\x51\x4d\x43\x4b\x4e\x5a\x43\x54\x52\x5a\x4c\x58\x44\x46\x43\x4c\x43\x54\x55\x51\x49\x4f\x41\x45\x4f\x59\x55\x42\x4f\x46\x48\x4b\x50\x54\x51\x4e\x44\x59\x5a\x42\x51\x41\x44\x55\x47\x4f\x43\x55\x41\x5a\x42\x55\x44\x49\x44\x56\x41\x5a\x42\x55\x44\x59\x47\x4f\x44\x55\x4b\x43\x58\x54\x55\x51\x49\x4f\x41\x45\x4f\x59\x53\x49\x44\x5a\x46\x43\x49\x59\x4e\x54\x49\x4b\x49\x51\x4c\x4d\x42\x44\x43\x55\x53\x49\x43\x4b\x42\x44\x50\x4b\x51\x42\x4e\x5a\x4c\x45\x55\x42\x4f\x53\x4f\x56\x50\x41\x49\x51\x42\x4c\x43\x55\x51\x43\x4b\x42\x53\x49\x42\x55\x43\x55\x48\x47\x44\x4d\x5a\x59\x58\x44\x41\x46\x4f\x57\x58\x54\x41\x46\x47\x4c\x55\x57\x41\x59\x51\x44\x4e\x50\x54\x4e\x49\x4e\x56\x49\x41\x48\x46\x4c\x55\x57\x44\x47\x4d\x54\x58\x55\x4c\x56\x54\x4e\x57\x50\x51\x5a\x57\x43\x4b\x47\x51\x48\x4f\x49\x49\x55\x4b\x59\x4c\x46\x4e\x49\x4b\x47\x54\x44\x44\x59\x52\x4b\x51\x42\x47\x41\x4f\x54\x51\x4b\x4e\x50\x48\x59\x48\x54\x48\x47\x58\x54\x41\x46\x47\x4c\x44\x4d\x5a\x59\x58\x44\x41\x46\x4f\x57\x42\x53\x52\x48\x52\x48\x47\x51\x45\x51\x41\x46\x46\x4c\x57\x44\x57\x56\x52\x57\x45\x4b\x46\x41\x48\x59\x47\x54\x45\x4b\x49\x4d\x57\x49\x49\x56\x59\x44\x55\x57\x41\x5a\x56\x4b\x41\x51\x52\x48\x47\x41\x42\x51\x56\x48\x44\x54\x5a\x59\x56\x49\x46\x47\x58\x55\x48\x56\x4b\x56\x50\x59\x4e\x52\x48\x47\x58\x51\x48\x47\x44\x4c\x5a\x57\x56\x4b\x4c\x56\x45\x57\x55\x57\x47\x41\x4f\x59\x5a\x59\x56\x49\x46\x47\x59\x45\x59\x51\x57\x49\x59\x51\x47\x4f\x49\x47\x4e\x49\x4b\x47\x51\x58\x50\x54\x51\x4b\x5a\x59\x58\x54\x48\x47\x41\x48\x49\x58\x53\x54\x47\x51\x4f\x41\x59\x51\x54\x50\x45\x4b\x4b\x56\x4c\x46\x4e\x54\x48\x51\x48\x47\x51\x5a\x43\x56\x46\x4c\x57\x44\x57\x56\x52\x57\x45\x4b\x49\x4d\x57\x49
```

## converting the utf-8 email message to plain text

```
THE NEXT CIPHER KEYSQUARE IS THE ALPHABETS WITHOUT J  
HOSIDUMYOPIAMICZAZBUDTPCILNVMPZBEBZBGTEBMLFCCAQIMGRLDYEXIPQMCKNZCTRZLXDFCLCTUQIOAE  
OYUBOFHKPTQNDYZBQADUGOCUAZBUDIDVAZBUDYGODUKCXTUQIOAEOYSIDZFCIYNTIKIQLMBDCUSICKBDPK  
QBNZLEUBOSOVPAPBLCUQCKBSIBUCUHGDMZYXDFAFOWXTAFGLUWAYQDNPTNINVIAHFLUWDGMTXULVTNWPQZ  
WCKGQHOIUIKYLBNIKGTDDYRKQBGAOTQKNPHYHTHGXTAFGLDMZYXDFAFOWBSRHRHQEQAFFLWDWVRWEKFAHY  
GTEKIMWIIIVYDUWAZVKAQRHGABQVHDTZYVIFGXUHVKVYPYNRHGXQHGDZLWVKLVEWUWGAOYZYVIFGYEQWIIYQ  
GOIGNIKGQXPTQKZYXTHGAHIXSTGQOAYQTPEKKVLFNTHQHGQZCVFLWDWVRWEKIMWI
```

## Decrypting the message using Playfair Cipher.

```
IN THE TOWN OF DOGE XEVERYONE FOLXLOWED A WEIRD ALPHABET FGBQMYTCZKORLEHPXDSUWNVAI  
AND STUDIED IT RELIGIOUSLY TWELVE TIMES EVERYDAY EVERYTIME THEY STUDIED IT THEY  
HAD TO SHIFT PLACES THE HACKER APXPARENTLY LEFT A MESSAGE THERE  
SGFBOYXYCVAMYYSAFMRZDVTAMOSHOYFCFAFRZBIORZSFQSOZMUVXBIFSFIDKTIZFAOHIFOYYTUGRAFBI  
OUFMOIXISGFYSVAFMBOYXYCVAMYCRSGSFRAUVAIFYBVZMRZEAVIXIRZEGOYGFYTYRZEVZFVLSGFBARXFY
```

OYXYFKFZSFXFZOZMSGFVSGFAOYVZFFQBZRZFBITYXYFKFZDVTYGVTIMHFOHIFSVOUUFYXYSGF CFHYRSFRL  
DVTUOZEZFZFAOSFSGFUVAXAFYBVZMRZEGOYG

You will have to manually add spaces.

in the town of doge everyone followed a weird alphabet fgbqmytczkorlehpdxsuwnvai  
and studied it religiously twelve times every day every time they studied it they  
had to shift places

the hacker apparently left a message there

sgf boyycvamy ysvafm rz dvta mosohoyf cfaf rz biorzsfqs ozm uvxbifsfid ktizfaohif  
oy ytug r afbioufm oii sgf ysvafm boyycvamy crsg sgfra uvaafybvzmrze aviirze  
goygyf tyrze vzf vl sgf barxfy oy yfkfzsffz ozm sgf vsgfa oy vzffqbzrzfbityyfkfz  
dvt ygvtim hf ohif sv ouufyy sgf cfhyrsf rl dvt uoz efzfaosf sgf uvaafybvzmrze  
goyg

Using fgbqmytczkorlehpdxsuwnvai as the alphabet and applying Caesar Cipher using it.

the passwords stored in your database were in plaintext and completely vulnerable  
as such i replaced all the stored passwords with their corresponding rolling  
hashes using one of the primes as seventeen and the other as oneexpnineplusseven  
you should be able to access the website if you can generate the corresponding  
hash