# Brute Force Attack

***A brute force attack is a trial-and-error method used to obtain information such as a user password or personal identification number (PIN). In a brute force attack, automated software is used to generate a large number of consecutive guesses as to the value of the desired data. Brute force attacks may be used by criminals to crack encrypted data, or by security analysts to test an organization's network security.***

The Caesar Cipher was used back in Roman times because the technology of decrypting was difficult. There were few who could read, and even fewer who were able to make sense of nonsense. By the time someone was found, the decryption was too late to help anyway. Today, a simple Caesar Cipher would be terrible for sending communications because computers can run many repetitions so easily. So let's learn how to break it!

Somehow, a message like this one lands in your possession:

*cdqdsn tmetrih iwt hepcxhw xcfjxhxixdc!*

Yes, you could sit down with a pencil and start swapping letters. It may take you a while to sort it out. And what if you received another message, even longer, with a different shift, or multiple shifts!

*uax inokl ckgvut oy yaxvxoyk... yaxvxoyk gtj lkgx... lkgx gtj yaxvxoyk...*
*uax zcu ckgvuty gxk lkgx gtj yaxvxoyk... uhx lonbfymm yzzcwcyhws...*
*Iol nblyy qyujihm uly zyul, moljlcmy, uhx lonbfymm yzzcwcyhws...*
*uhx uh ufgimn zuhuncwuf xypincih ni nby Jijy...*
*Msp dmsp... lm... ykmleqr msp ucynmlq.... ykmleqr msp ucynmlpw...*
*ypc qsaf cjckclrq yq dcyp, qspnpgqc.... g'jj amkc gl yeygl.*

You should have already designed a function that can encrypt a message as a Caesar Cipher. Using brute force, you can break this odd message. First, reuse the function for a Caesar Cipher, and tweak a program slightly to do the following:

Run the message through the function 25 times (25 possible combinations) increasing the amount of shift each time by 1. Each time the text is sent through the function, print it out to the screen. One of the printouts should be in plain English.

**Bonus Points:** Can you make a program that detects which shifts create plain English results automatically?

**Super Bonus Points:** Can you make a program that does the above, with multiple shifts?