Python Programming Competition

Message Decryption

National Security Agency (NSA) is intercepting all of the messages sending over the Internet.

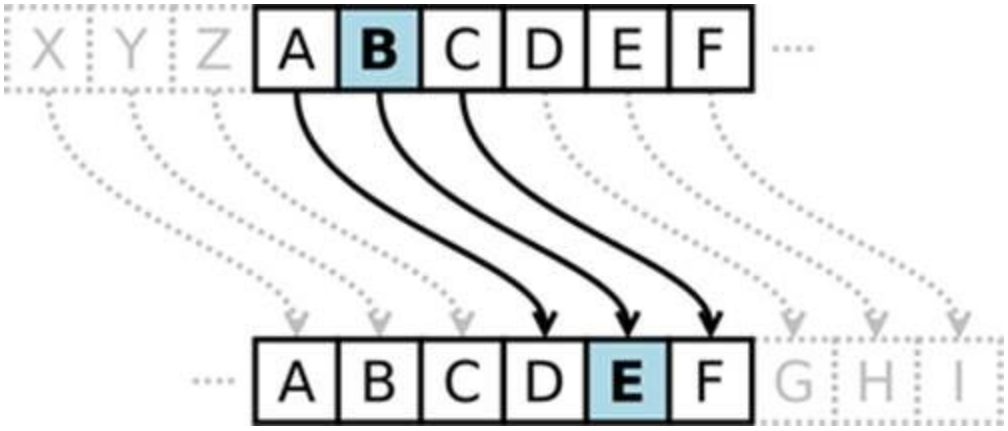
These days terrorists, spies are becoming smarter. To avoid their messages getting intercepted by the NSA , they started to encrypt their messages. It makes the messages unreadable.

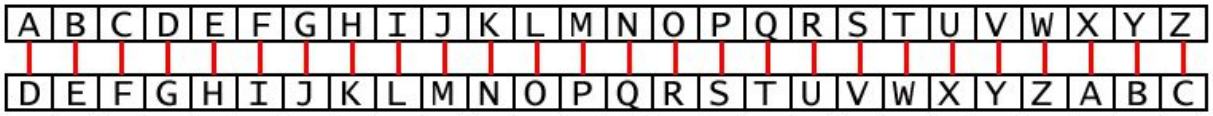
One day, the NSA received a mysterious message. They need your help to decrypt it. The NSA's secret agent *008* has reported that the messages are encrypted using the following method:

Each letter in the original message (called the plaintext) is replaced with a letter corresponding to a certain number of letters shifted left or right in the alphabetical order.

In this way, a message that initially was quite readable, ends up in a form that can not be understood at a simple glance.

For example, here's the encryption of a message, using a **right shift of 3**.





Alphabet shifted by 3 spaces.

For example:
”DOG” will become “GRJ” after the encryption which shifted any letter to the right 3 times.
“DOG” will become “ALD” after the encryption which shifted any letter to the left 3 times.
Note: for letters in the end of the above alphabetical table, they will be moved back to the beginning of the alphabetical table. For example, “XYZ” became “ABC”

Encryption Rules:

1. Letters will be shifted either to the left or to the right using a preset number. If a character is shifted out of the alphabetical table, it will be put back from the other end of the table. It is like arranging the letters in a circle where the next letter after z is a.
2. The NSA doesn’t know whether the encryption is to shift the letters to the left or to the right. They don’t know how far the letter will be

shifted either. But once the number is selected, it won't be changed during the encryption.

3. Lower case letters will be encrypted into lower case letters and uppercase letters will be encrypted to the upper case letters. Your decryption should keep this unchanged.
4. Any non-English letters (for example, numbers, special characters) will not be encrypted.

Your Mission

Write a program to **decrypt the following message**, A.S.A.P!

Bnlcdvbnvyaj, Xyydpwx, Ngynlcx Yjcaxwdv, Armmrtdudb, Fqrlq Qjaah Yxccna bynuu fruu Cajwboxav wjbch Kxppjacb oaxv bxvncqrwp bljah rwcx bxvncqrwp bruuh?

Your solution should include:

1. **The decrypted message**
2. **The preset number and the moving direction for the encryption.**
3. **Paste your program into your email.**

The timestamp of your email will be used to determine your rank.

Hints:

Please review our classes regarding the ASCII table and functions related to string and characters.

Some of the string functions may not be covered in our class, you can use Google to find out.

- isalpha()
- islower()
- isupper()

Although computers may not seem smart, they can calculate extremely fast. Therefore sometimes computers can just solve a problem by using a very simple and straightforward method (A.K.A brute force cracking), i.e., trying out all of the possibilities.