Problem Statement:-

Consider the following stream cipher (which takes some ideas from the Enigma system used by Germans in World War II). Let π be a fixed permutation of Z26 and K a fixed element of Z_{26} . For all integers i ≥ 1,the key stream element Z_i € Z_{26} is defined by
Z_i = (K +i-1) mod 26.
Encryption and decryption using π are done as follows:
ez(x) = (π(x) + z) mod 26;
$dz(y)=\pi^{-1}((y- z)\text{mod}26)$;
Assuming
π (0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25) = 23 13 24 0 7 15 14 6 25 16 22 1 19 18 5 11 17 2 21 12 20 4 10 9 3 8
Write a program to implement the cipher.

Input Specification:-

Plaintext or Cipher text,Key

Output Specification:-

Cipher text when Plain text is given as input and vice versa

Algorithm:-

Each letter from a to z refers to a corresponding index from 0 to 25 (letters are case insensitive). For our convenience we call them the corresponding letter indices in our algorithm.Also Z_i is calculated for a given key K.

Encryption:-

For a given string(plain text) every letter is encrypted as: ez(x) = (π(x) + z) mod 26 where x is the corresponding letter index for every letter in the given string.This encryption returns a letter index and this is converted to corresponding letter.

Decryption:-

For a given string(cipher text) every letter is decrypted as: $dz(y)=\pi^{-1}((y- z) \text{ mod } 26)$ where y is the corresponding letter index for every letter in the given string. This decryption returns a letter index and this is converted to corresponding letter.

Sample Input:-

Encryption:-

1)

Key: 12
Plain text: hello

2)

Key: 25
Plain text: WORLD

Decryption:-

1)

Key:13
Cipher text: Wupnvkz

2)

Key: 1
Cipher text: nEj

Output of Sample Input:

Encryption:-

1)rtopu

2)IECCC

Decryption:-

1) Welcome

2) bYe