Ex. No. 2	**Implementation of Caesar Cipher**
Date of Exercise	10.08.2023

Aim

To implement a substitution cipher (Caesar Cipher) using python

Description:

The Caesar Cipher, named after Julius Caesar, who is believed to have used it for secure communication, is one of the simplest and most well-known encryption techniques in history. This substitution cipher operates by shifting each letter in a message a fixed number of positions down or up the alphabet. In its original form, it was employed with a shift of three positions, a technique often referred to as the Caesar Shift. The beauty of the Caesar Cipher lies in its ease of implementation, making it a fundamental concept in cryptography education. However, it's relatively weak in terms of security due to its limited key space. In modern cryptography, more complex algorithms have replaced the Caesar Cipher for secure data encryption.

Algorithm:

Step 1: Prompt the user to enter an integer and store it in the variable num. This integer will be used as the encryption key.

Step 2: Prompt the user to enter a string and store it in the variable inputString.

Step 3: Convert inputString to lowercase and store it in the variable ins. This step ensures that the encryption is case-insensitive.

Step 4: Create an empty list called li to store the characters of the encrypted text.

Step 5: Iterate through each character, ch, in the lowercase input string ins:

Initialize a variable n to 0.

Calculate the new character code by adding the ASCII code of ch to the value of num and store it in n.

Check if the new character code n exceeds the ASCII code for 'z' (122). If it does, it means the character has wrapped around to the beginning of the alphabet. In this case, subtract 26 from n to ensure it stays within the valid range for lowercase letters.

Append the character represented by the modified code n to the li list.

Step 6: Join the characters in the li list to create a single string and store it in the variable out. This string represents the encrypted text.

Step 7: Print "Encrypted Text:" followed by the value of out, which is the result of the Caesar cipher encryption.

Program:

```
num = int(input("Enter the number: "))

inputString = input()

ins = inputString.lower()

li=[]

for ch in ins:

    n=0
```

n = ord(ch)+num

if(n>122):

n = n - 26

li.append(chr(n))

else:

li.append(chr(n))

out = ''.join(li)

print("Encrypted Text: ", out)

Output Screenshot:

```
Enter the number:  3
 rubanginosingh
Encrypted Text:  uxedqjlqrvlqjk
```

Result

Thus, the experiment to Implement Substitution Cipher (Caser Cipher) is carried out successfully and obtained the required output.