In [1]:

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"""
1. Write a program in Python with one class called Cipher.Within the construct
and store it. Use a static variable, key to store a randomly generated integer
two methods, encrypt and decrypt within this class. Encrypt generates and prir
string and the key and decrypt generates decrypted string from ciphertext. The
numeric (A-Z, a-z, 0-9). All Symbols, such as - , ; %, remain unencrypted. The
Use generator expression to filter out alpha and numeric characters of the inp
Create an instance of this class, encrypt and decrypt back the user entered st

"""
import numpy as np
# defining a class in a better way
class Cipher:
    # constructor initialization
    def __init__(self,K,instr=""):
        self.Instr=str(input("Enter the input string"))
        self.key=K
    def encrypt(self,key):
        L2I = dict(zip("ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz01
        I2L = dict(zip(range(62),"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqr
        ciphertext = ""
        Instr=self.Instr
        for c in Instr:
            if c.isalnum(): ciphertext += I2L[ (L2I[c] + key)%62 ]
            else: ciphertext += c
        return ciphertext
    def decrypt(self,Instr,key):
        L2I = dict(zip("ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz01
        I2L = dict(zip(range(62),"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqr
        plaintext2 = ""
        for c in Instr:
            if c.isalnum(): plaintext2 += I2L[ (L2I[c] - key)%62]
            else: plaintext2 += c
        return plaintext2

k=np.random.randint(1,50,1)
key=k[0]
c=Cipher(key)
encryptstr=c.encrypt(key)
decryptstr=c.decrypt(encryptstr,key)
print("\n Input String is :\t"+c.Instr)
print("\nEncryption vaue of given string is :\t"+encryptstr)
print("\nDecryption vaue of given string is :\t"+decryptstr)
```

```
Enter the input stringCipher CLASS with ENCRYPTION & decryption functions 123
*-)#

 Input String is :      Cipher CLASS with ENCRYPTION & decryption functions 12
3 *-)#

Encryption vaue of given string is :    nJQIFS nwl33 XJUI pyn2904tzy & EFDSZQU
JPO GVODUJPOT cde *-)#

Decryption vaue of given string is :    Cipher CLASS with ENCRYPTION & decrypt
ion functions 123 *-)#
```