Name : khushi Chhatwani
Roll No. CSCS/21/55
Course : B.Sc(H) CS

QUES: Implement hill cipher substitution

operation.. CODE:

```
# CSC/21/5 UDDHISUTA BAKSHI
from math import sqrt
import numpy
key_c=input("Enter Key for Hill Cipher Substitution :- ")
def check_matrix(n):
    sq_root = int(sqrt(n))
    return (sq_root*sq_root) == n
key_c=key_c.lower()
nkey=""
for char in key_c:
    if ord(char) >= 97 and ord(char) <= 122:
        nkey += char
if check_matrix(len(nkey)):
    temp=[]
    for char in nkey:
        temp.append(ord(char)-97)
    arr=numpy.array(temp)
    arr=arr.reshape(int(sqrt(len(nkey))),int(sqrt(len(nkey))))
    plaintext=input("Enter Plain Text :- ")
    if len(plaintext)==sqrt(len(nkey)):
        text=plaintext.lower()
        t1=""
        for char in text:
            if ord(char) >= 97 and ord(char) <= 122:
                t1 += char
        temp1=[]
        for char in t1:
            temp1.append(ord(char)-97)
```

```
        result=arr.dot(temp1)
        result=result%26
        result=result+97
        res = ""
        for val in result:
            res = res + chr(val)
        print("Cipher Text is :- ",str(res))
    else:
        print("Plain text of Wrong length ")
else:
    print("Key is not valid ")
```

OUTPUT:

```
Enter Key for Hill Cipher Substitution :- AARI
Enter Plain Text :- HI
Cipher Text is :-  ab
```