**Ques 6.** Implement hill cipher substitution operation..

Ans:-

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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:-

