



**ANJUMAN-I-ISLAM'S KALSEKAR TECHNICAL CAMPUS**  
**School of Engineering & Technology**

Affiliated to : University of Mumbai, Recognised by : DTE (Maharashtra) & Approved by : AICTE (New Delhi)

**Course Code : CSL604**

**Course Name : System Security Lab**

**Class : TE-CO**

**Batch : Computer Engineering**

**Roll no : 18CO63**

**Name : SHAIKH TAUSEEF MUSHTAQUE ALI**

**Experiment : 01**

**Aim :** Design and Implementation of a product cipher using Substitution and Transposition ciphers

**Code :**

```
import string
```

```
k=int(input("ENTER A KEY VALUE:"))
```

```
d=str(input("ENTER A STRING: "))
```

```
ct = []
```

```
alphabets = string.ascii_uppercase
```

```
for j in d:
```

```
    b=j.upper()
```

```
    if b in alphabets and j.islower():
```

```
        e=(alphabets.index(b)+k)%26
```

```
        ct.append(alphabets[e].lower())
```

```
    elif b in alphabets and j.isupper():
```

```
        a=(alphabets.index(b)+k)%26
```

```
        ct.append(alphabets[a].upper())
```

```
    else:
```

```
        ct.append(" ")
```

```
matrix = [[False for i in range(len(ct))]
```

```
for j in range(k)]
```

```
print("Cipher Text: ",*ct)
```

```
j=0
```

```
for i in range(len(ct)):
```

```
    matrix[j][i]=ct[i]
```

```
    if j == k - 1:
```

```
        flag = False
```

```
    elif j == 0:
```

```
        flag = True
```

```
    if flag == True:
```

```
        j = j + 1
```

```
    else:
```

```
        j = j - 1
```

```
answer=[]
```

```
for key in range(k):
```

```
    for text in range(len(ct)):
```

```
        if matrix[key][text]!=False:
```

```
            answer.append(matrix[key][text])
```



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```
print("Encrypted Text: ", *answer)
```

**Output :**

```
code — -zsh — 60x12  
mastmac@MASTMACs-Mac-mini code % python3 cipher.py  
ENTER A KEY VALUE:4  
ENTER A STRING: TAUSEEF  
Cipher Text: X E Y W I I J  
Encrypted Text: X J E I Y I W  
mastmac@MASTMACs-Mac-mini code %
```

### Conclusion:

A <b>product cipher</b> combines two or more transformations in a manner intending that the resulting cipher is more secure than the individual components to make it resistant to cryptanalysis. Implemented product cipher using Substitution and Transposition ciphers
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