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CLASS: TE-CO ROLL-NO.: 18CO63
EXPERIMENT NO. 01: PRODUCT CIPHER USING PYTHON.

PROGRAM:

```
import string

print("\n\t\t\t PRODUCT CIPHER \n")
k=int(input("ENTER A KEY VALUE:"))
d=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(" ")

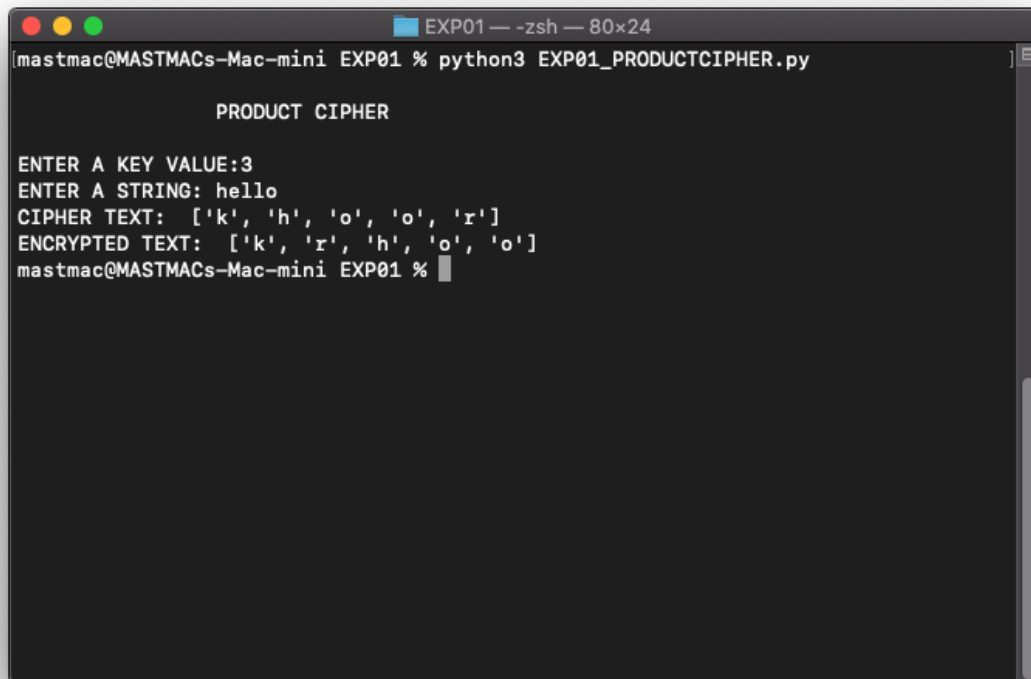
matrix = [[False for i in range(len(ct))]
for j in range(k)]

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])

print("ENCRYPTED TEXT: ", answer)
```

OUTPUT:



```
EXP01 — -zsh — 80x24
[mastmac@MASTMACs-Mac-mini EXP01 % python3 EXP01_PRODUCTCIPHER.py]
PRODUCT CIPHER

ENTER A KEY VALUE:3
ENTER A STRING: hello
CIPHER TEXT: ['k', 'h', 'o', 'o', 'r']
ENCRYPTED TEXT: ['k', 'r', 'h', 'o', 'o']
mastmac@MASTMACs-Mac-mini EXP01 %
```

The image shows a terminal window titled "EXP01 — -zsh — 80x24". The prompt is "[mastmac@MASTMACs-Mac-mini EXP01 %]". The user has run the command "python3 EXP01_PRODUCTCIPHER.py". The program outputs "PRODUCT CIPHER". It then prompts "ENTER A KEY VALUE:" and the user enters "3". Next, it prompts "ENTER A STRING:" and the user enters "hello". The program then displays "CIPHER TEXT: ['k', 'h', 'o', 'o', 'r']" and "ENCRYPTED TEXT: ['k', 'r', 'h', 'o', 'o']". Finally, the prompt returns to "[mastmac@MASTMACs-Mac-mini EXP01 %]".