***LAB#2***

***VIGENERE CIPHER***

*WITH TABLE :*

def generate\_vigenere\_table():

"""Generate Vigenère table"""

table = []

for i in range(26):

row = [chr((i + j) % 26 + 65) for j in range(26)]

table.append(row)

return table

def vigenere\_encrypt(plaintext, key):

"""Encrypt plaintext using Vigenère cipher"""

plaintext = plaintext.upper()

key = key.upper()

table = generate\_vigenere\_table()

ciphertext = ''

key\_index = 0

for char in plaintext:

if char.isalpha():

row = ord(key[key\_index % len(key)]) - 65

col = ord(char) - 65

ciphertext += table[row][col]

key\_index += 1

else:

ciphertext += char

return ciphertext

def vigenere\_decrypt(ciphertext, key):

"""Decrypt ciphertext using Vigenère cipher"""

ciphertext = ciphertext.upper()

key = key.upper()

table = generate\_vigenere\_table()

plaintext = ''

key\_index = 0

for char in ciphertext:

if char.isalpha():

row = ord(key[key\_index % len(key)]) - 65

col = table[row].index(char)

plaintext += chr(col + 65)

key\_index += 1

else:

plaintext += char

return plaintext

def print\_vigenere\_table():

"""Print Vigenère table"""

table = generate\_vigenere\_table()

print(" ")

print(" Vigenere Table:")

for row in table:

print(' '.join(row))

if \_\_name\_\_ == "\_\_main\_\_":

print\_vigenere\_table()

plaintext = input("Enter plaintext: ")

key = input("Enter key: ")

encrypted\_text = vigenere\_encrypt(plaintext, key)

decrypted\_text = vigenere\_decrypt(encrypted\_text, key)

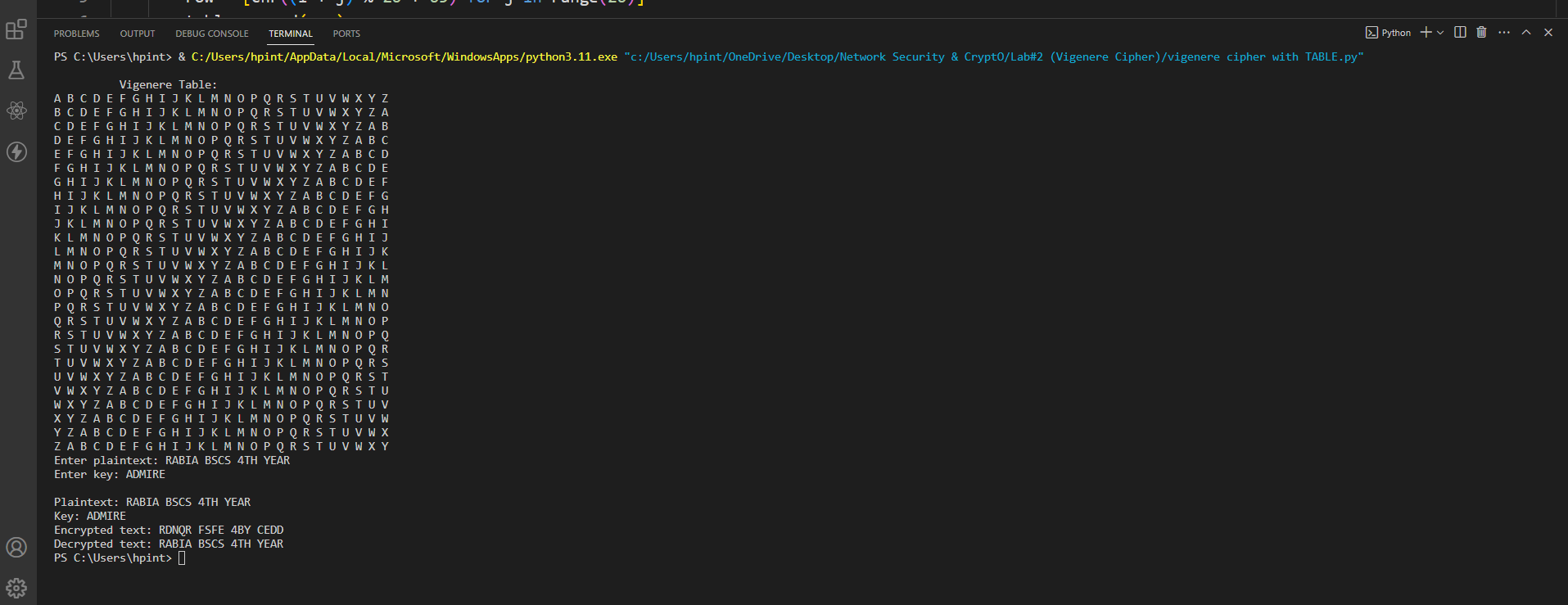
print("\nPlaintext:", plaintext)

print("Key:", key)

print("Encrypted text:", encrypted\_text)

print("Decrypted text:", decrypted\_text)

*OUTPUT*



*WITHOUT TABLE :*

def vigenere\_encrypt(plaintext, key):

"""Encrypt plaintext using Vigenère cipher"""

plaintext = plaintext.upper()

key = key.upper()

ciphertext = ''

key\_index = 0

for char in plaintext:

if char.isalpha():

shift = ord(key[key\_index % len(key)]) - 65

encrypted\_char = chr((ord(char) - 65 + shift) % 26 + 65)

ciphertext += encrypted\_char

key\_index += 1

else:

ciphertext += char

return ciphertext

def vigenere\_decrypt(ciphertext, key):

"""Decrypt ciphertext using Vigenère cipher"""

ciphertext = ciphertext.upper()

key = key.upper()

plaintext = ''

key\_index = 0

for char in ciphertext:

if char.isalpha():

shift = ord(key[key\_index % len(key)]) - 65

decrypted\_char = chr((ord(char) - 65 - shift) % 26 + 65)

plaintext += decrypted\_char

key\_index += 1

else:

plaintext += char

return plaintext

if \_\_name\_\_ == "\_\_main\_\_":

plaintext = input("Enter plaintext: ")

key = input("Enter key: ")

encrypted\_text = vigenere\_encrypt(plaintext, key)

decrypted\_text = vigenere\_decrypt(encrypted\_text, key)

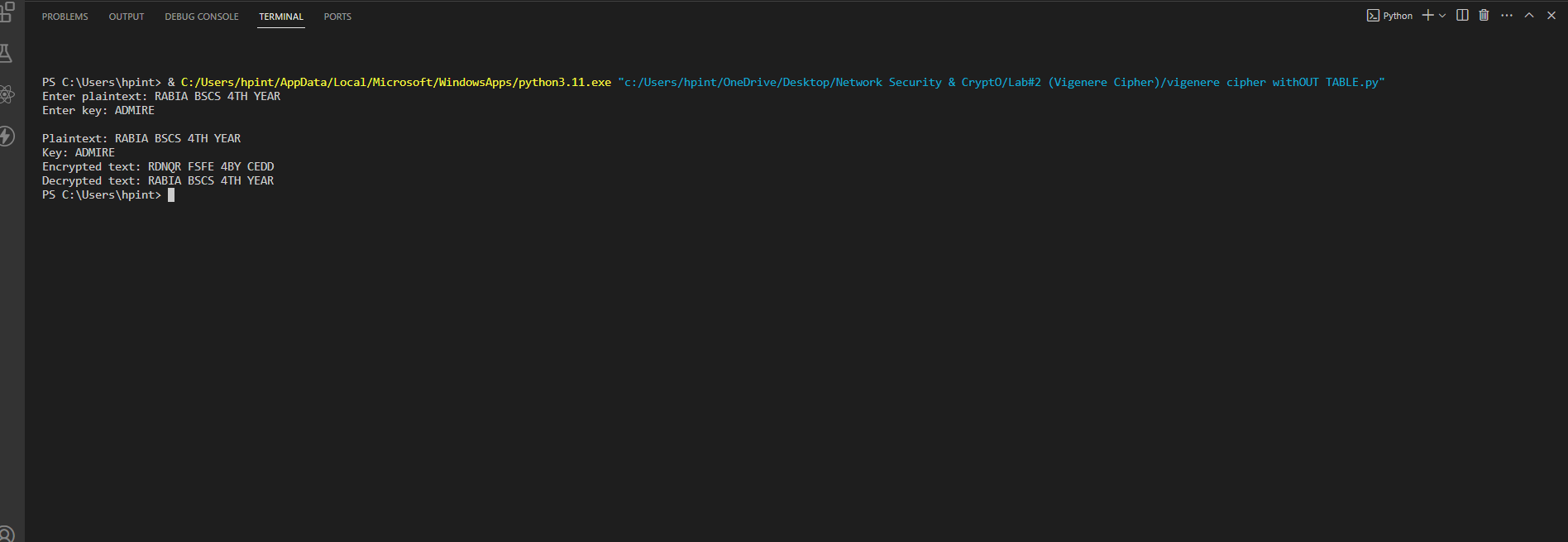
print("\nPlaintext:", plaintext)

print("Key:", key)

print("Encrypted text:", encrypted\_text)

print("Decrypted text:", decrypted\_text)

***OUTPUT***

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