Name: Arham Sharif

Seat No.: EB21102022

Section: B

Subject: Network Security & Cryptography

Language: Python

LAB# 1
CESEAR CIPHER

Objective: Design and implement a simple encoding and decoding program in Python that allows users to input a string, encode it using a specified algorithm, and then decode it back to the original form. This lab aims to reinforce understanding of string manipulation, algorithmic concepts, and basic programming skills while demonstrating the principles of encoding and decoding.

Technique: Substitution

Code:

```
"""-----------------ENCODE-----------------"""
# Function Can Encode Char
def encodeChar(char):
    encode_char = ''
    index = -1
    for i in range(len_char_arr):
        if char_arr[i] == char:
            index = i + inc
            if index >= len_char_arr:
                index %= len_char_arr
            encode_char = char_arr[index]
            break
    if index != -1:
        return encode_char
    else:
        return char
```

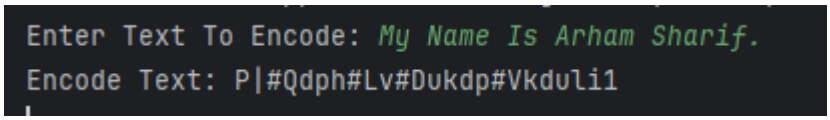
```
if __name__ == "__main__":
    # Initialize Variables
    inc = 3
    char_arr = [chr(i) for i in range(256)]
    len_char_arr = len(char_arr)
    encoded_arr = []

    # Input
    decoded_text = input("Enter Text To Encode: ")

    for char in decoded_text:
        # Call Function -> Encode Char
        encoded_arr.append(encodeChar(char))

    # Print Encoded Text
    print(f'Encode Text: {"".join(encoded_arr)}')
```

Output:



Code:

```
"""-----------------DECODE-----------------"""
# Function to Decode Char
def decodeChar(char):
    decode_char = ''
    index = -1
    for i in range(len_char_arr):
        if char_arr[i] == char:
```

```
            index = i - inc
            if index < 0:
                index += len_char_arr
            decode_char = char_arr[index]
            break
    if index != -1:
        return decode_char
    else:
        return char
if __name__ == "__main__":
    # Initialize Variables
    inc = 3
    char_arr = [chr(i) for i in range(256)]
    len_char_arr = len(char_arr)
    decoded_arr = []

    # Input
    encoded_text = input("Enter Text To Decode: ")

    for char in encoded_text:
        # Call Function -> Decode Char
        decoded_arr.append(decodeChar(char))

    # Print Decoded Text
    print(f'Decoded Text: {"".join(decoded_arr)}')
```

Output:

```
Enter Text To Decode: P|#Qdph#Lv#Dukdp#Vkduli1
Decoded Text: My Name Is Arham Sharif.
```