**Assignment 3**

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**Python Programming Assignment: "Secret Code Generator"**

# Function to encode a message

def encode\_message(message, shift):

    encoded = ""

    for char in message:

        if char.isalpha():

            base = ord('A') if char.isupper() else ord('a')

            # Wrap around the alphabet

            new\_char = chr((ord(char) - base + shift) % 26 + base)

            encoded += new\_char

        else:

            # Keep punctuation, numbers, spaces as-is

            encoded += char

    return encoded

# Function to decode a message

def decode\_message(message, shift):

    # Decoding is simply encoding in reverse

    return encode\_message(message, -shift)

# Function to show user menu

def menu():

    print("\n--- Secret Code Generator ---")

    print("1. Encode a message")

    print("2. Decode a message")

    print("3. Exit")

# Main program loop

def main():

    while True:

        menu()

        choice = input("Enter your choice (1/2/3): ")

        if choice == '1':

            message = input("Enter the message to encode: ")

            try:

                shift = int(input("Enter the shift number: "))

                result = encode\_message(message, shift)

                print("Encoded Message:", result)

            except ValueError:

                print("Invalid shift. Please enter a number.")

        elif choice == '2':

            message = input("Enter the message to decode: ")

            try:

                shift = int(input("Enter the shift number: "))

                result = decode\_message(message, shift)

                print("Decoded Message:", result)

            except ValueError:

                print("Invalid shift. Please enter a number.")

        elif choice == '3':

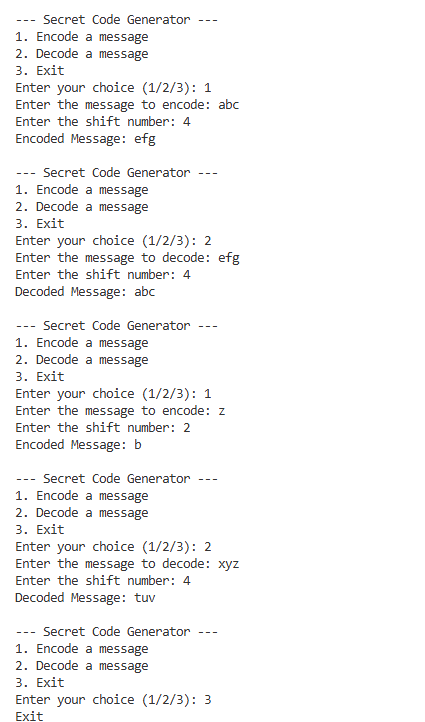
            print("Exit")

            break

        else:

            print("Invalid choice. Please select 1, 2, or 3.")

**Output:**

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