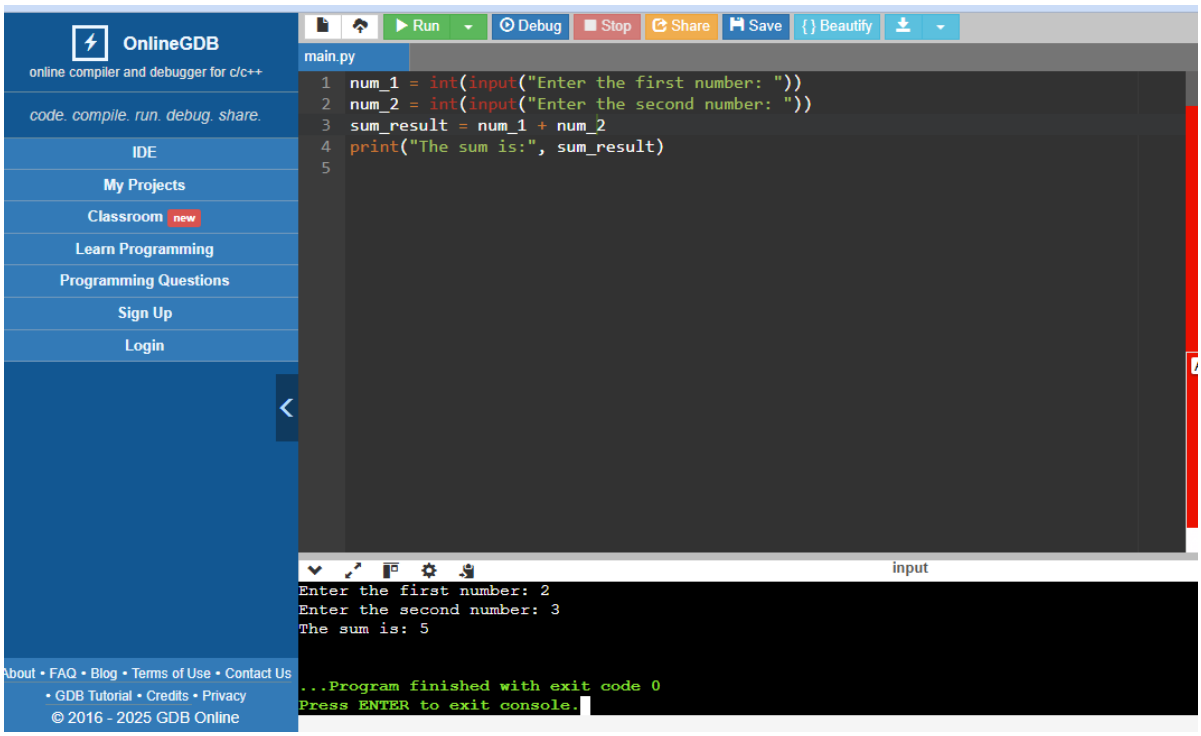
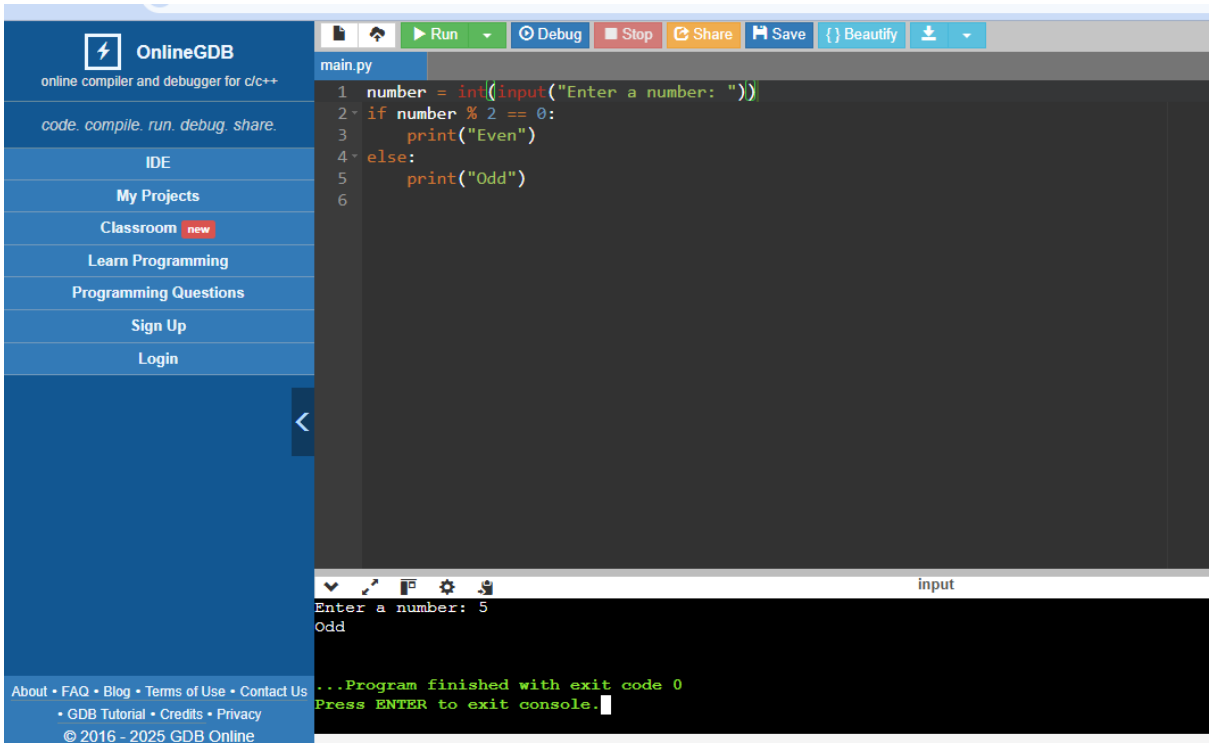
TASK:1

PYTHON INTERNSHIP

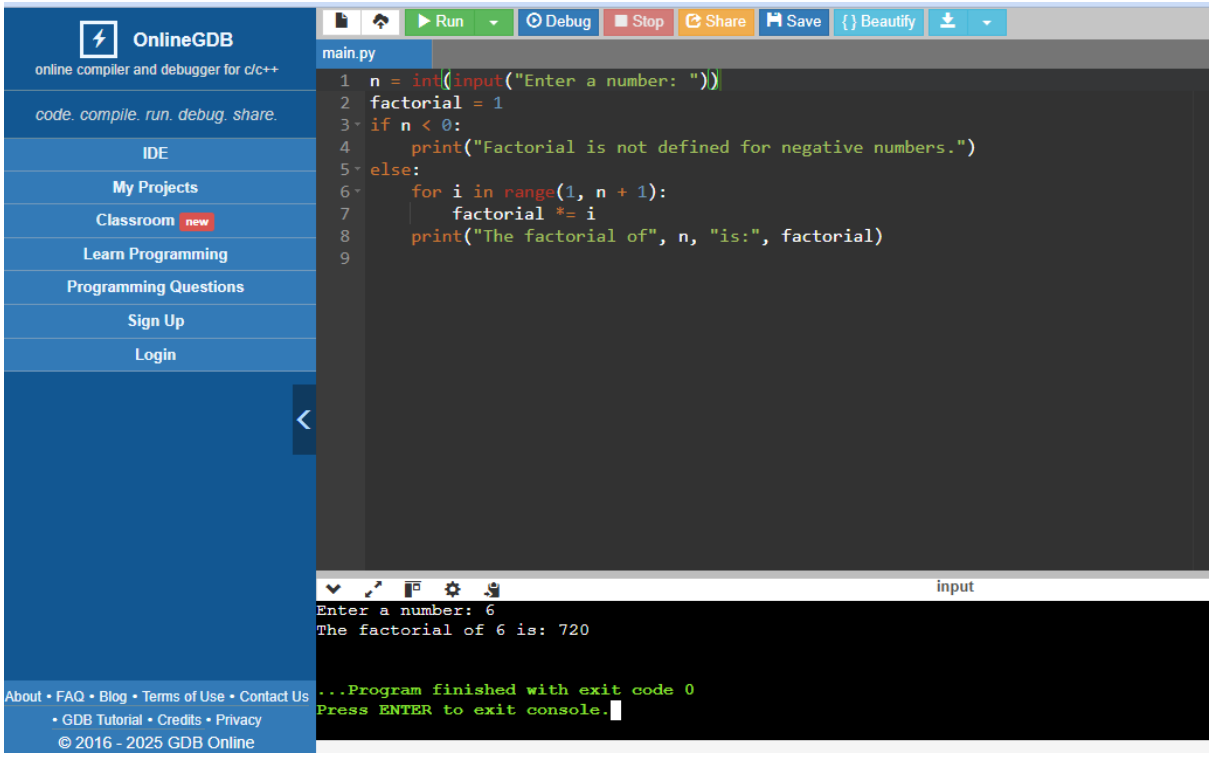
1. The sum of Two Numbers



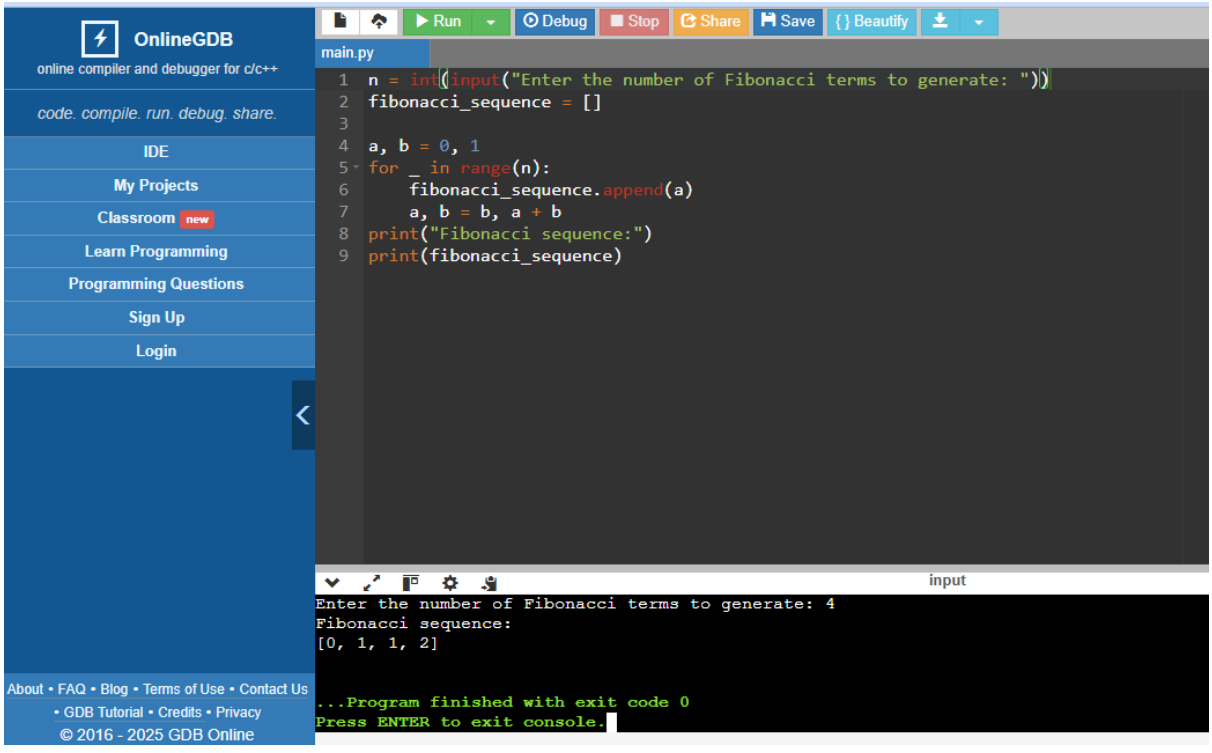
2. Odd or Even



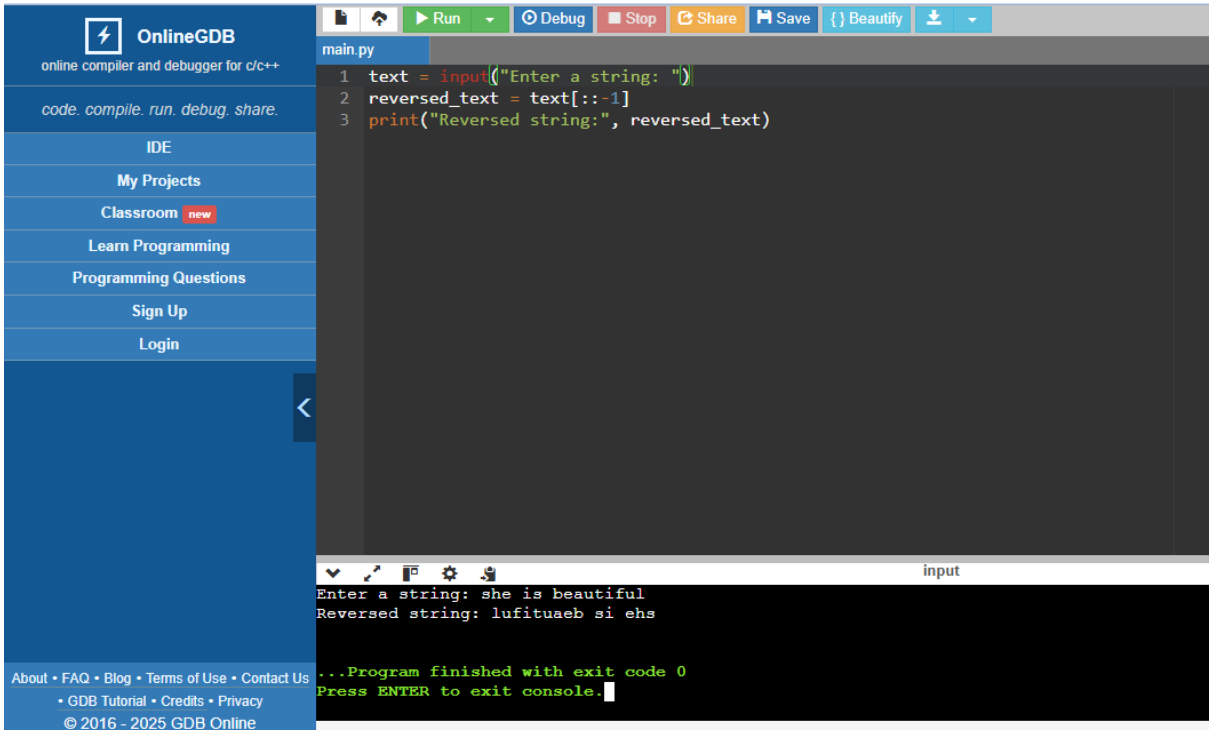
3. Factorial Calculation



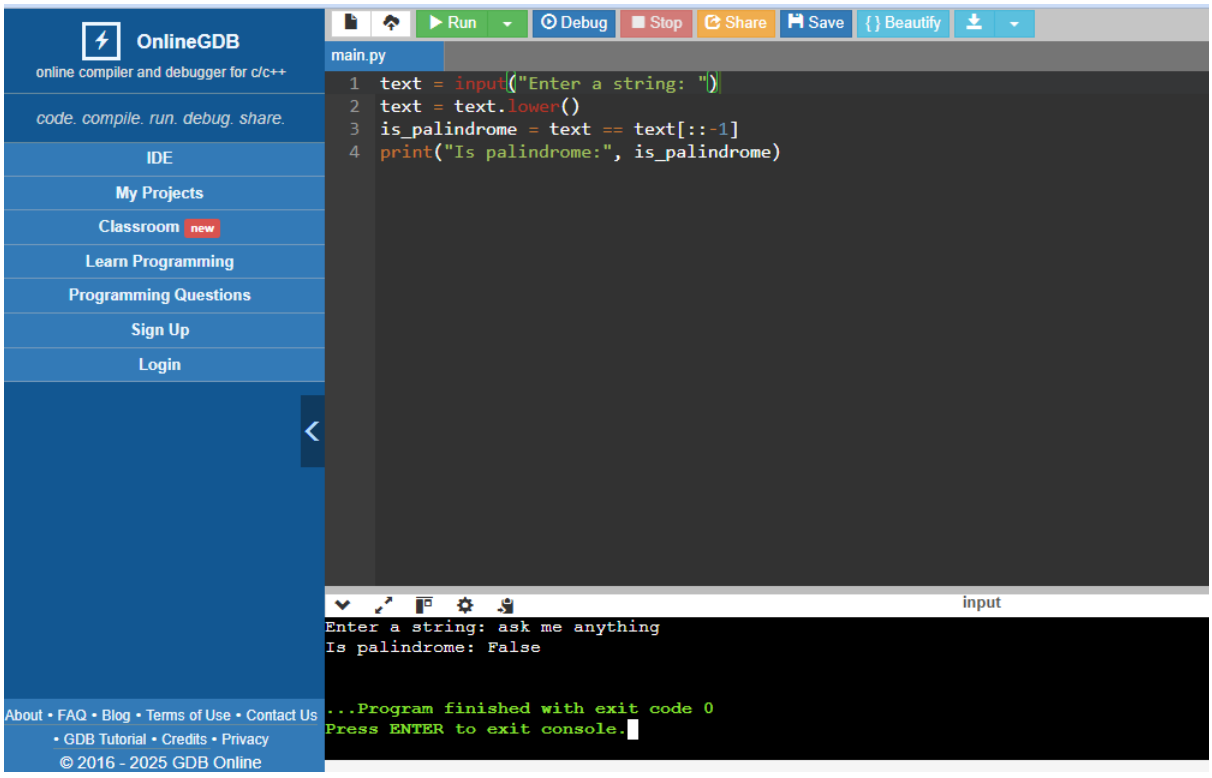
4. Fibonacci Sequence



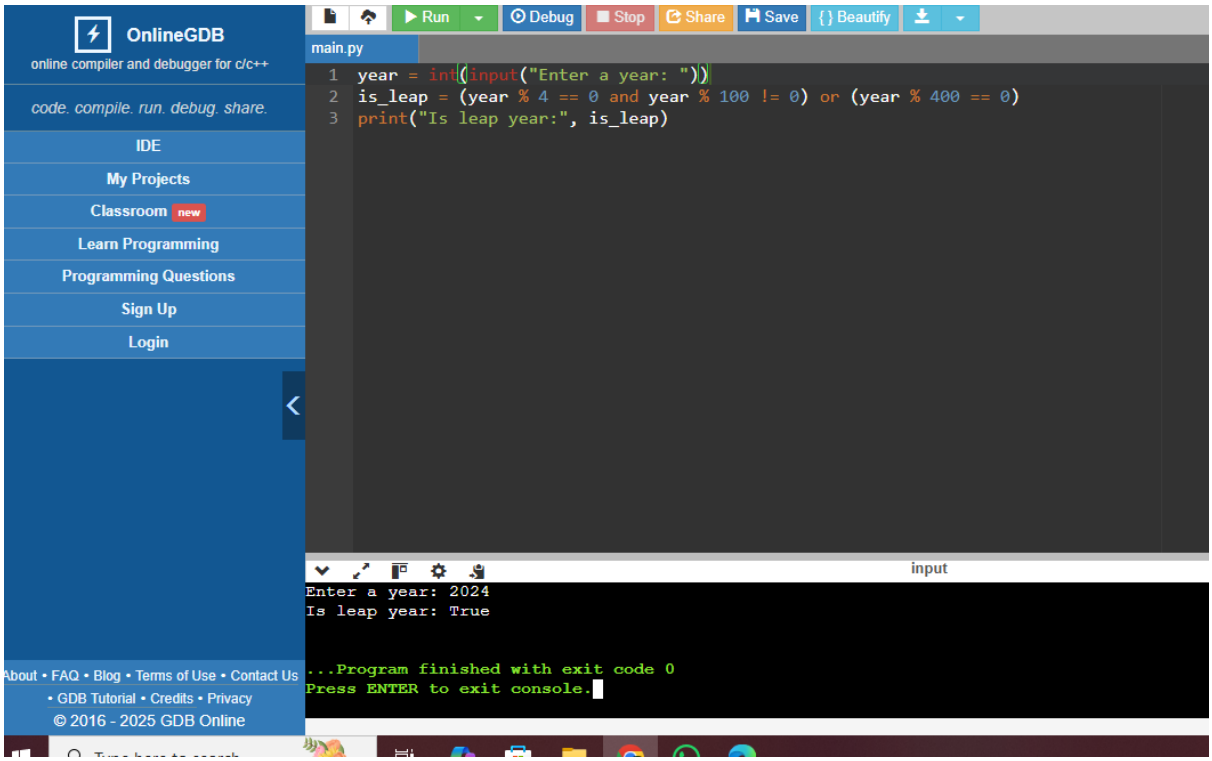
5. **Reverse a String**



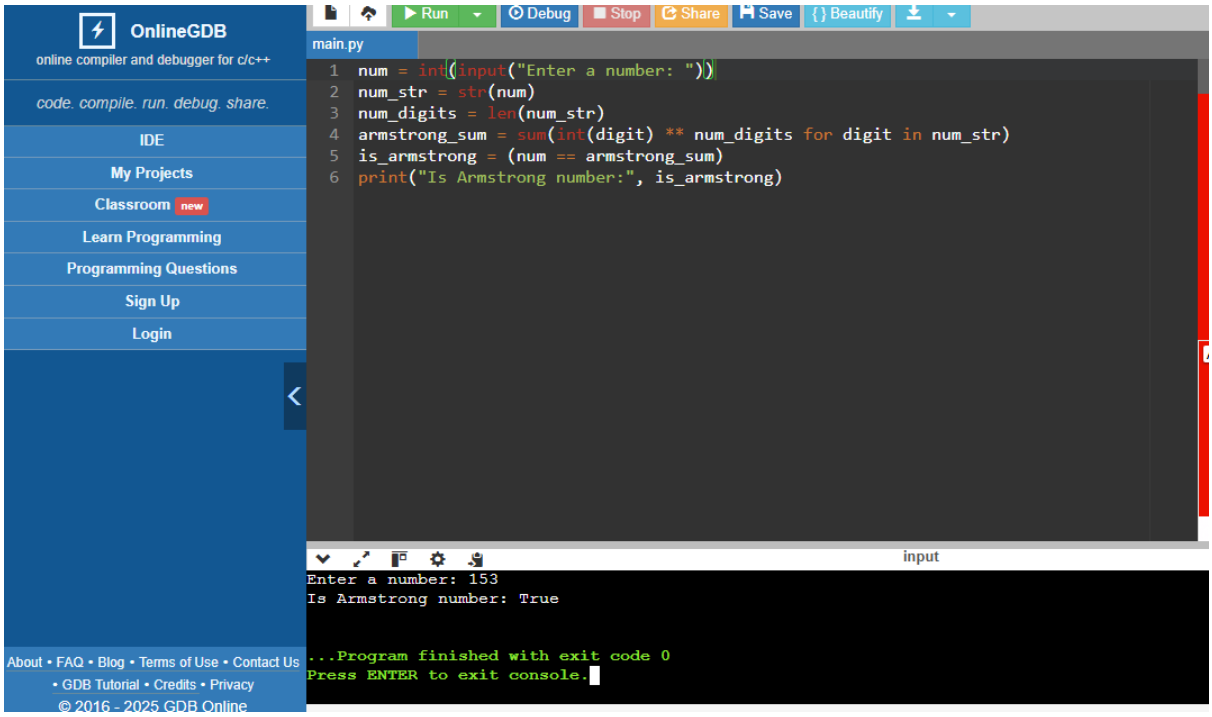
6. **Palindrome Check**



7. Leap Year Check



8. Armstrong Number



1. Custom Encryption-Decryption System

>APPROACH: -

The aim of this project is to create an original encryption-decryption system without calling any pre-compiled libraries, like "cryptography" or "hashlib." Three positions in a substitution cipher were shifted by characters. Reversal of the string and case switching was used for an optional multi-layered system to enhance security.

>CHALLENGES HANDELS: -

Both uppercase and lowercase letters also special characters, then spaces, and here comes numbers are handled by the system. Additional questions is provided by an optional time taken encryption layer so, making brute-force attacks harder.

>SKILLS DEMONSTRATED: -Logical reasoning, string manipulation, and algorithm design skills are to be demonstrated by this project. Students gain the ability to make educated decisions regarding set structure, key design, and encryption.

>Code implementation :-

```
def encrypt(text, shift):
    ... # Shifts characters forward


def decrypt(ciphertext, shift):
... # Reverses the shift
```

>CODE:-

```
# Caesar Cipher - Custom Encryption-Decryption System


def encrypt(text, shift):
  encrypted = ""
  for char in text:
    if char.isalpha():
      base = ord('A') if char.isupper() else ord('a')
      encrypted += chr((ord(char) - base + shift) % 26 + base)
```

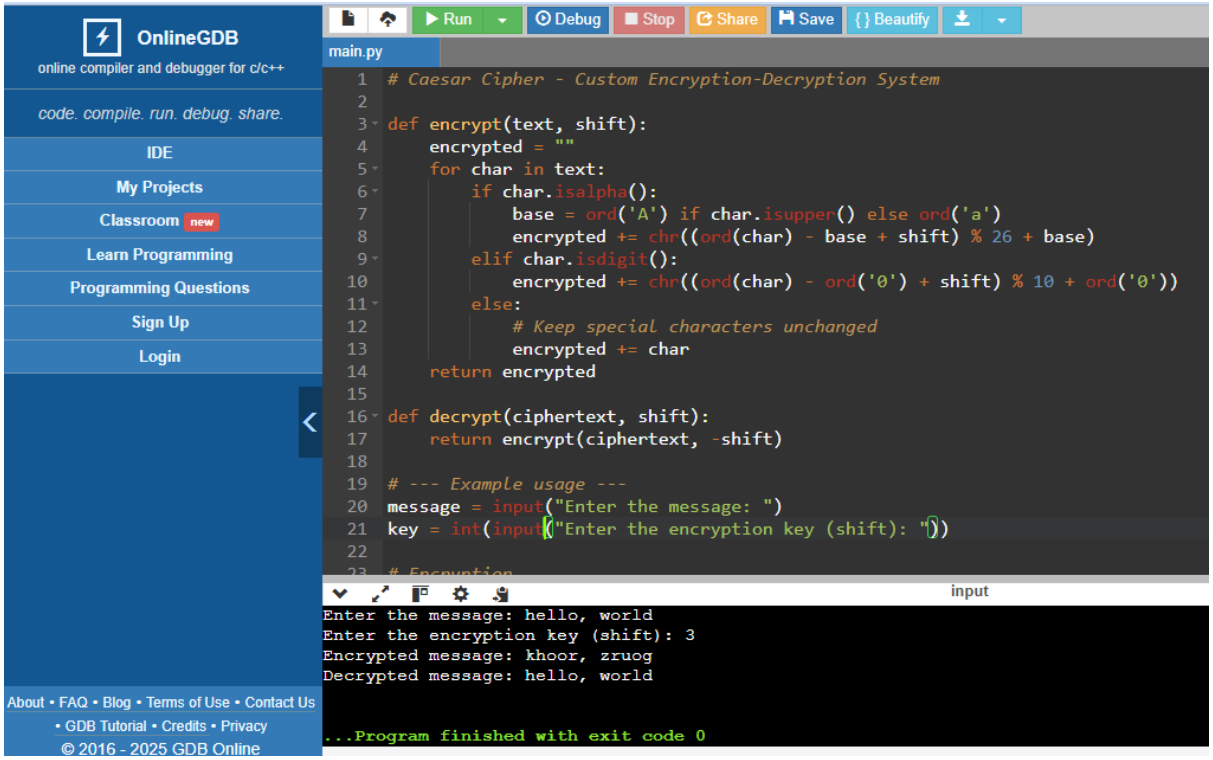
```
        elif char.isdigit():
            encrypted += chr((ord(char) - ord('0') + shift) % 10 + ord('0'))
        else:
            # Keep special characters unchanged
            encrypted += char
    return encrypted

def decrypt(ciphertext, shift):
    return encrypt(ciphertext, -shift)

# --- Example usage ---
message = input("Enter the message: ")
key = int(input("Enter the encryption key (shift): "))

# Encryption
cipher = encrypt(message, key)
print("Encrypted message:", cipher)

# Decryption
original = decrypt(cipher, key)
print("Decrypted message:", original)
```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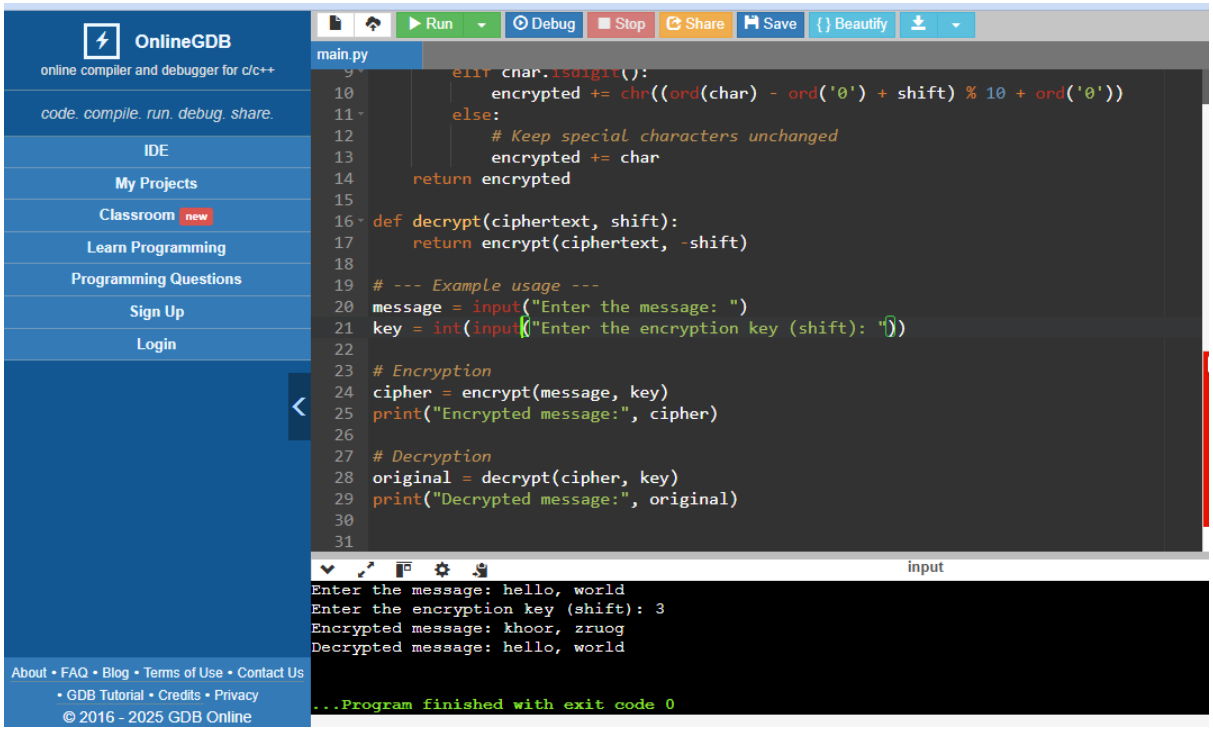
main.py
# Caesar Cipher - Custom Encryption-Decryption System
def encrypt(text, shift):
encrypted = ""
for char in text:
if char.isalpha():
base = ord('A') if char.isupper() else ord('a')
encrypted += chr((ord(char) - base + shift) % 26 + base)
elif char.isdigit():
encrypted += chr((ord(char) - ord('0') + shift) % 10 + ord('0'))
else:
# Keep special characters unchanged
encrypted += char
return encrypted
def decrypt(ciphertext, shift):
return encrypt(ciphertext, -shift)
# --- Example usage ---
message = input("Enter the message: ")
key = int(input("Enter the encryption key (shift): "))
input
Enter the message: hello, world
Enter the encryption key (shift): 3
Encrypted message: khoor, zruog
Decrypted message: hello, world
...Program finished with exit code 0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{ } Beautify
main.py
elif char.isdigit():
encrypted += chr((ord(char) - ord('0') + shift) % 10 + ord('0'))
else:
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return encrypted
def decrypt(ciphertext, shift):
return encrypt(ciphertext, -shift)
# --- Example usage ---
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key = int(input("Enter the encryption key (shift): "))
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original = decrypt(cipher, key)
print("Decrypted message:", original)
input
Enter the message: hello, world
Enter the encryption key (shift): 3
Encrypted message: khoor, zruog
Decrypted message: hello, world
...Program finished with exit code 0