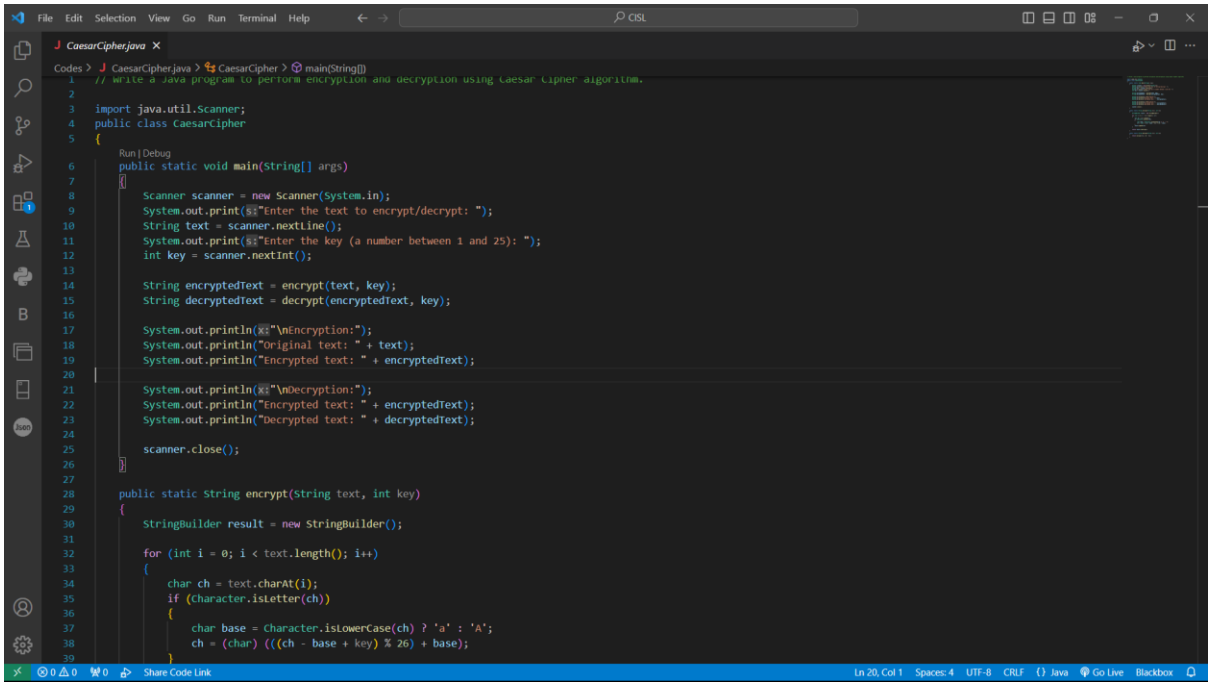
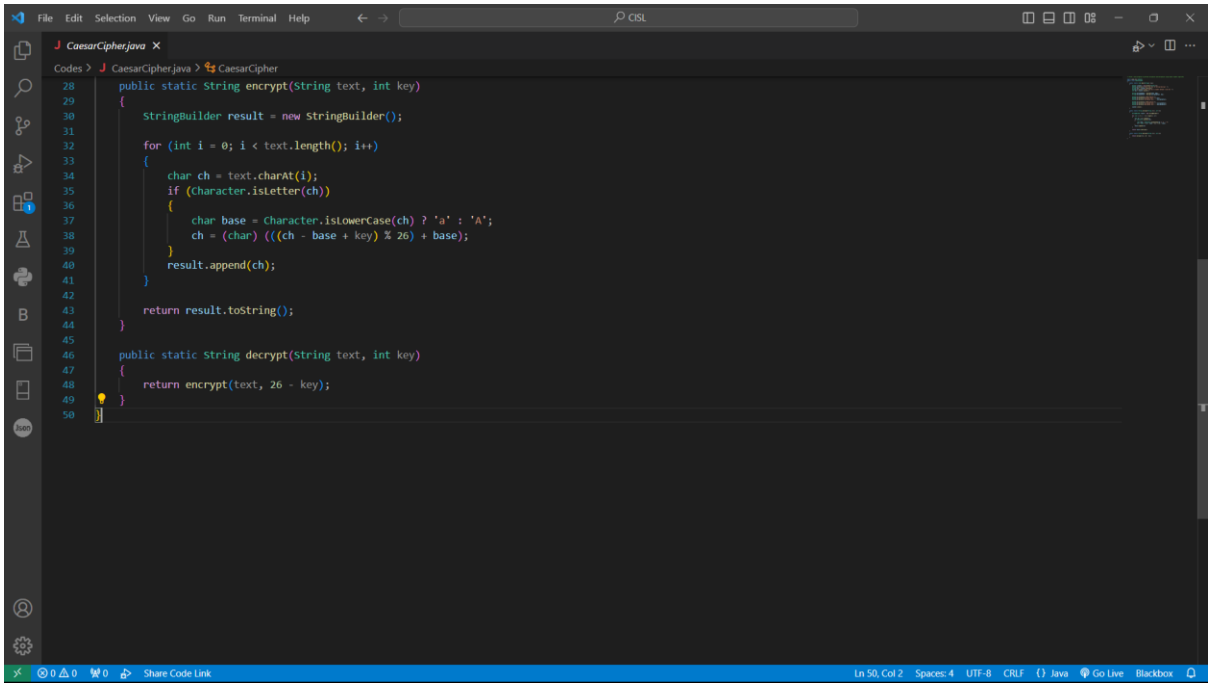
3. Write a Java program to perform encryption and decryption using Caesar Cipher algorithm.

Program:

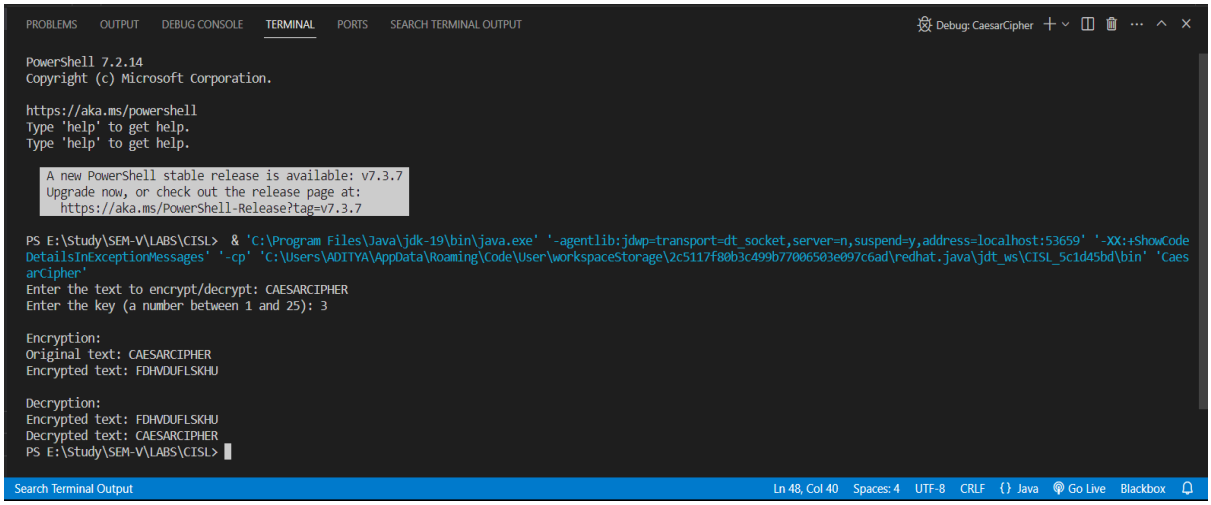


```java
// Write a Java program to perform encryption and decryption using Caesar Cipher algorithm.

import java.util.Scanner;
public class CaesarCipher
{
    Run | Debug
    public static void main(String[] args)
    {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the text to encrypt/decrypt: ");
        String text = scanner.nextLine();
        System.out.print("Enter the key (a number between 1 and 25): ");
        int key = scanner.nextInt();

        String encryptedText = encrypt(text, key);
        String decryptedText = decrypt(encryptedText, key);

        System.out.println("\nEncryption:");
        System.out.println("Original text: " + text);
        System.out.println("Encrypted text: " + encryptedText);

        System.out.println("\nDecryption:");
        System.out.println("Encrypted text: " + encryptedText);
        System.out.println("Decrypted text: " + decryptedText);

        scanner.close();
    }

    public static String encrypt(String text, int key)
    {
        StringBuilder result = new StringBuilder();

        for (int i = 0; i < text.length(); i++)
        {
            char ch = text.charAt(i);
            if (Character.isLetter(ch))
            {
                char base = Character.isLowerCase(ch) ? 'a' : 'A';
                ch = (char) (((ch - base + key) % 26) + base);
            }
```



```java
    public static String encrypt(String text, int key)
    {
        StringBuilder result = new StringBuilder();

        for (int i = 0; i < text.length(); i++)
        {
            char ch = text.charAt(i);
            if (Character.isLetter(ch))
            {
                char base = Character.isLowerCase(ch) ? 'a' : 'A';
                ch = (char) (((ch - base + key) % 26) + base);
            }
            result.append(ch);
        }

        return result.toString();
    }

    public static String decrypt(String text, int key)
    {
        return encrypt(text, 26 - key);
    }
}
```

Output:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
SEARCH TERMINAL OUTPUT
Debug: CaesarCipher
PowerShell 7.2.14
Copyright (c) Microsoft Corporation.
https://aka.ms/powershell
Type 'help' to get help.
Type 'help' to get help.
A new PowerShell stable release is available: v7.3.7
Upgrade now, or check out the release page at:
https://aka.ms/PowerShell-Release?tag=v7.3.7
PS E:\Study\SEM-V\LABS\CISL> & 'C:\Program Files\Java\jdk-19\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53659' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ADITYA\AppData\Roaming\Code\User\workspaceStorage\2c5117f80b3c499b77006503e097c6ad\redhat.java\jdt_ws\CISL_5c1d45bd\bin' 'CaesarCipher'
Enter the text to encrypt/decrypt: CAESARCIPHER
Enter the key (a number between 1 and 25): 3
Encryption:
Original text: CAESARCIPHER
Encrypted text: FDHVDUFLSKHU
Decryption:
Encrypted text: FDHVDUFLSKHU
Decrypted text: CAESARCIPHER
PS E:\Study\SEM-V\LABS\CISL>
Search Terminal Output
Ln 48, Col 40
Spaces: 4
UTF-8
CRLF
{} Java
Go Live
Blackbox