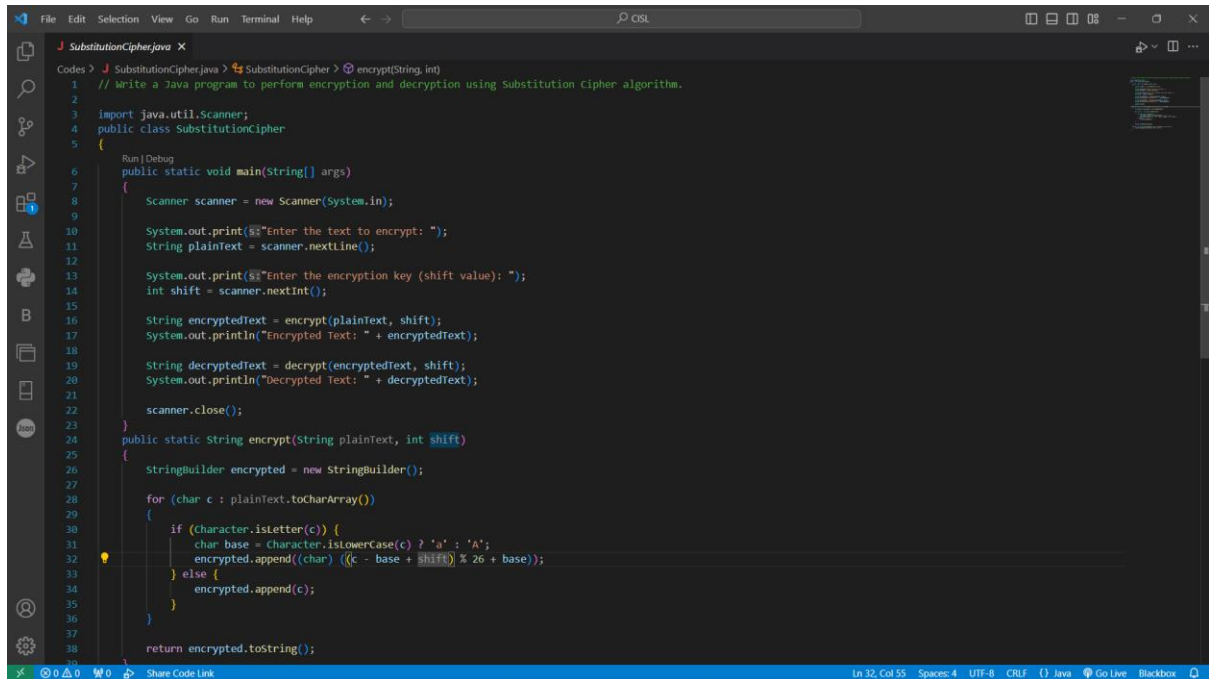
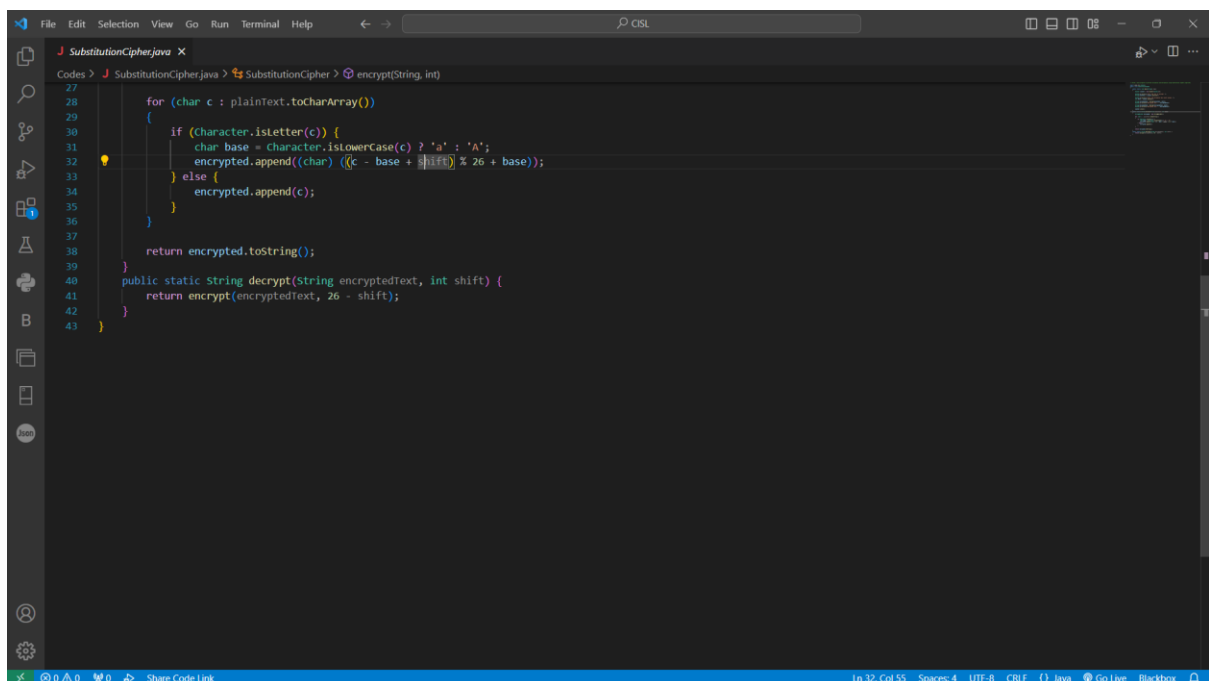


4. Write a Java program to perform encryption and decryption using Substitution Cipher algorithm.

Program:



```
SubstitutionCipher.java
Codes > J SubstitutionCipher.java > SubstitutionCipher > encrypt(String, int)
1 // Write a Java program to perform encryption and decryption using Substitution Cipher algorithm.
2
3 import java.util.Scanner;
4 public class SubstitutionCipher
5 {
6     Run | Debug
7     public static void main(String[] args)
8     {
9         Scanner scanner = new Scanner(System.in);
10
11         System.out.print("Enter the text to encrypt: ");
12         String plainText = scanner.nextLine();
13
14         System.out.print("Enter the encryption key (shift value): ");
15         int shift = scanner.nextInt();
16
17         String encryptedText = encrypt(plainText, shift);
18         System.out.println("Encrypted Text: " + encryptedText);
19
20         String decryptedText = decrypt(encryptedText, shift);
21         System.out.println("Decrypted Text: " + decryptedText);
22
23         scanner.close();
24     }
25     public static String encrypt(String plainText, int shift)
26     {
27         StringBuilder encrypted = new StringBuilder();
28         for (char c : plainText.toCharArray())
29         {
30             if (Character.isLetter(c)) {
31                 char base = Character.toLowerCase(c) ? 'a' : 'A';
32                 encrypted.append((char) ((c - base + shift) % 26 + base));
33             } else {
34                 encrypted.append(c);
35             }
36         }
37         return encrypted.toString();
38     }
39 }
```



```
SubstitutionCipher.java
Codes > J SubstitutionCipher.java > SubstitutionCipher > encrypt(String, int)
27     for (char c : plainText.toCharArray())
28     {
29         if (Character.isLetter(c)) {
30             char base = Character.toLowerCase(c) ? 'a' : 'A';
31             encrypted.append((char) ((c - base + shift) % 26 + base));
32         } else {
33             encrypted.append(c);
34         }
35     }
36     return encrypted.toString();
37 }
38
39 public static String decrypt(String encryptedText, int shift) {
40     return encrypt(encryptedText, 26 - shift);
41 }
42
43 }
```

## Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS  SEARCH TERMINAL OUTPUT  Debug: SubstitutionCipher + - [ ] ... ^ X

PowerShell 7.2.14
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https://aka.ms/powershell
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:53443' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\ADITYA\AppData\Roaming\Code\User\workspaceStorage\2c5117f80b3c499b77006503e097c6ad\redhat.java\jdt_ws\CISL_5c1d45bd\bin' 'SubstitutionCipher'
Enter the text to encrypt: SUBSTITUTIONCIPHERALGORITHM
Enter the encryption key (shift value): 2
Encrypted Text: UMDUWKVMKQPEKRJGTCNITKVJO
Decrypted Text: SUBSTITUTIONCIPHERALGORITHM
PS E:\Study\SEM-V\LABS\CISL> █
```

Search Terminal Output

Ln 32, Col 55 Spaces: 4 UTF-8 CRLF {} Java Go Live Blackbox