

Cryptography And System Security

Experiment No. : 01

Aim : Design and Implementation of Caesar Cipher.

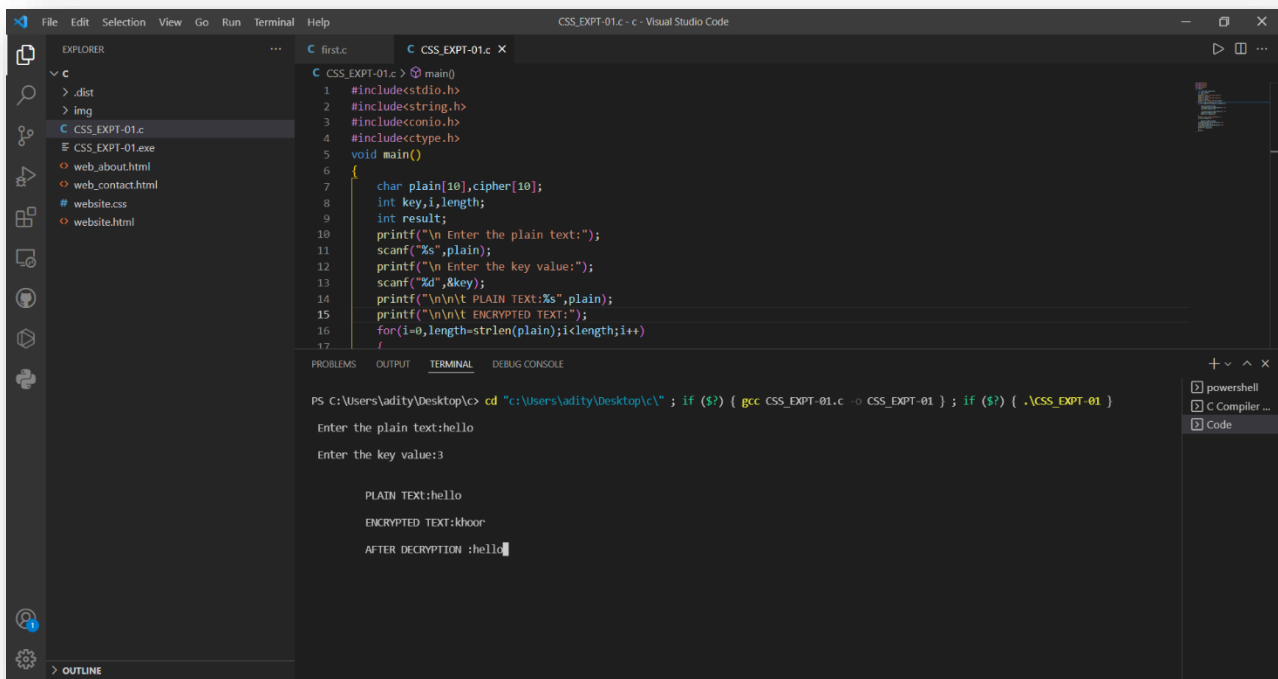
Program :

```
#include<stdio.h>
#include<string.h>
#include<conio.h>
#include<ctype.h>
void main()
{
    char plain[10],cipher[10];
    int key,i,length;
    int result;
    printf("\n Enter the plain text:");
    scanf("%s",plain);
    printf("\n Enter the key value:");
    scanf("%d",&key);
    printf("\n\n\t PLAIN TEXT:%s",plain);
    printf("\n\n\t ENCRYPTED TEXT:");
    for(i=0,length=strlen(plain);i<length;i++)
    {
        cipher[i]=plain[i]+key;
        if(isupper(plain[i])&&(cipher[i]>'z'))
            cipher[i]=cipher[i]-26;

        if(islower(plain[i])&&(cipher[i]>'z'))
            cipher[i]=cipher[i]-26;
        printf("%c",cipher[i]);
    }
    printf("\n\n\t AFTER DECRYPTION :");
    for(i=0;i<length;i++)
    {
        plain[i]=cipher[i]-key;
        if(isupper(cipher[i])&&(plain[i]<'A'))
            plain[i]=plain[i]+26;
        if(islower(cipher[i])&&(plain[i]<'a'))
            plain[i]=plain[i]+26;
        printf("%c",plain[i]);
    }
    getch();
}
```

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Output :



The screenshot shows the Visual Studio Code interface with a C program named `CSS_EXPT-01.c` open. The program implements a Caesar cipher for encryption and decryption. The code is as follows:

```
1 #include<stdio.h>
2 #include<string.h>
3 #include<conio.h>
4 #include<ctype.h>
5 void main()
6 {
7     char plain[10],cipher[10];
8     int key,i,length;
9     int result;
10    printf("\n Enter the plain text:");
11    scanf("%s",plain);
12    printf("\n Enter the key value:");
13    scanf("%d",&key);
14    printf("\n\n\t PLAIN TEXT:%s",plain);
15    printf("\n\n\t ENCRYPTED TEXT:");
16    for(i=0,length=strlen(plain);i<length;i++)
17    {
```

The terminal output shows the execution of the program:

```
PS C:\Users\adity\Desktop> cd "C:\Users\adity\Desktop\c\" ; if ($?) { gcc CSS_EXPT-01.c -o CSS_EXPT-01 } ; if ($?) { .\CSS_EXPT-01 }

Enter the plain text:hello
Enter the key value:3

PLAIN TEXT:hello
ENCRYPTED TEXT:khoor
AFTER DECRYPTION :hello
```