EXP NO: 1a
DATE: 27/1/24

CAESAR CIPHER

AIM:

To write a C Program to perform Caesar Cipher for both encryption and decryption process

ALGORITHM:

Step 1 : Start.

Step 2 : Include necessary header files.

Step 3 : Create a function for encryption process.

Step 4 : Define encryption function.

Step 5 : Create a function for decryption process.

Step 6 : Define decryption function.

Step 7 : Call both encryption and decryption function inside main function.

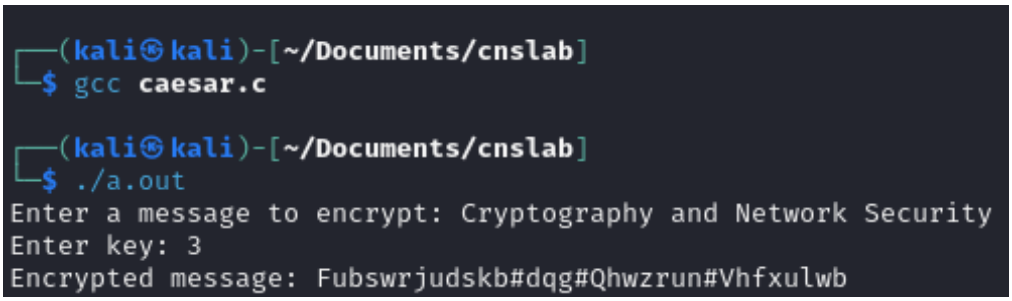
Step 8 : End.

PROGRAM:

```
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include <stdbool.h>
#include <ctype.h>


int main()
{
    char message[500], c;
    int i;
    int key;


    printf("Enter a message to encrypt: ");
    scanf("%[^\n]", message); // Read the whole line including spaces


    printf("Enter key: ");
    scanf("%d", &key);


    for (i = 0; message[i] != '\0'; i++) {
        c = message[i];


        // Encrypt alphabets (both lowercase and uppercase)
        if (isalpha(c)) {
            if (islower(c)) {
                c = (c - 'a' + key) % 26 + 'a';
            } else {
                c = (c - 'A' + key) % 26 + 'A';
            }
        } else { // Encrypt special characters
            c = (c + key) % 128;
        }


        message[i] = c;
    }


    printf("Encrypted message: %s\n", message);

    printf("*****Decryption*****");
    char message[500], c;
    int i;
    int key;
```

```
    printf("Enter a message to decrypt: ");
    scanf("%[^\n]", message); // Read the whole line including spaces
    printf("Enter key: ");
    scanf("%d", &key);
    for (i = 0; message[i] != '\0'; i++) {
        c = message[i];
        // Decrypt alphabets (both lowercase and uppercase)
        if (isalpha(c)) {
            if (islower(c)) {
                c = (c - 'a' - key + 26) % 26 + 'a';
            } else {
                c = (c - 'A' - key + 26) % 26 + 'A';
            }
        } else { // Decrypt special characters
            c = (c - key + 128) % 128;
        }

        message[i] = c;
    }
    printf("Decrypted message: %s\n", message);

    return 0;
}
```

OUTPUT:



RESULT:

Thus a C program was implemented to demonstrate Caesar Cipher.