SAVEETHA SCHOOL OF ENGINEERING

SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES

EX NO:01	Write a program to encrypt and decrypt a message using **Caesar cipher** along with the key
DATE:21.02.24	

Aim: To write a c program to encrypt and decrypt a message using Caesar cipher along with the key and execute.

Algorithm:

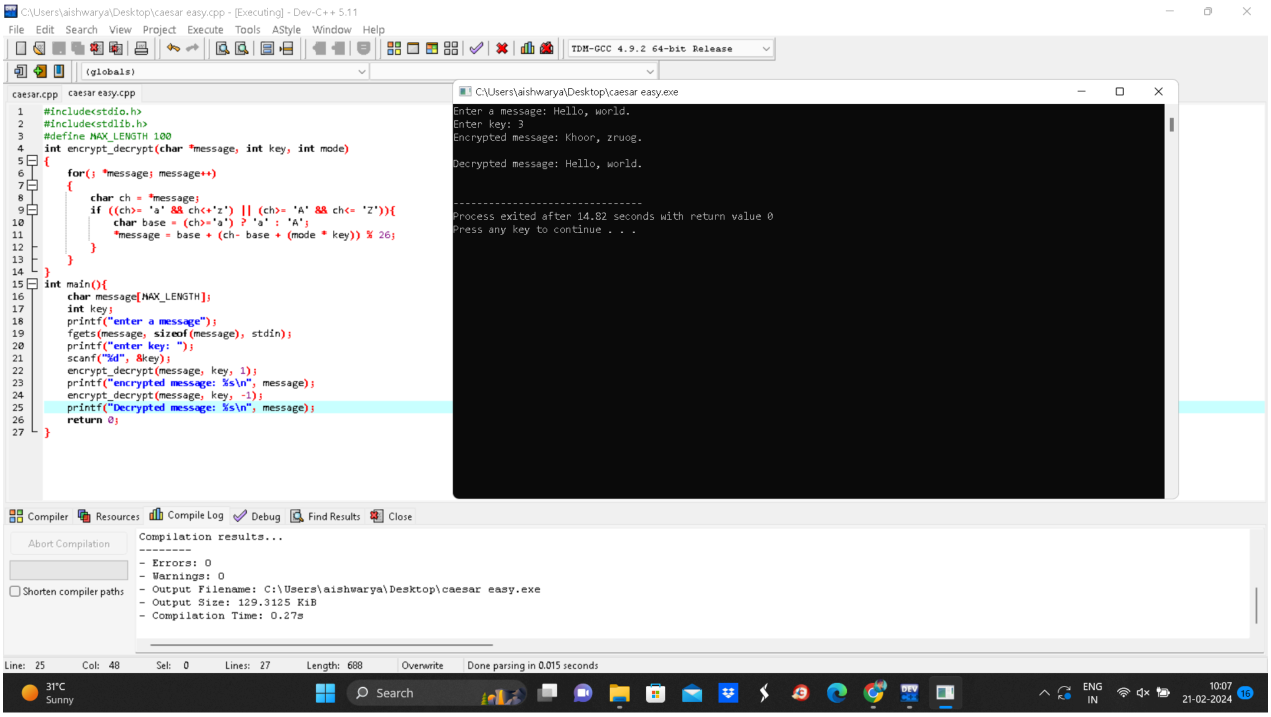
1. Take the message and the key (an integer) as input.
2. Declare a character array to store the message and read the message from the user and store it in the array.
3. Iterate through each character in the message.
4. For each alphabetic character (a-z or A-Z), shift it by the key value.
5. Print the encrypted message.
6. Take the encrypted message and the key as input.
7. Declare a character array to store the decrypted message and read the encrypted message from the user and store it in the array.
8. Iterate through each character in the encrypted message.
9. For each alphabetic character (a-z or A-Z), shift it back by the key value.
10. Print the decrypted message.

Program:

```
#include<stdio.h>
#include<stdlib.h>
#define MAX_LENGTH 100

// Function to encrypt or decrypt the message

int encrypt_decrypt(char *message, int key, int mode) {
   for(; *message; message++) {
      char ch = *message;
      if ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')) {
         char base = (ch >= 'a') ? 'a' : 'A';
         *message = base + (ch - base + (mode * key)) % 26;
      }
   }
}

int main() {
   char message[MAX_LENGTH];
   int key;

   // Input the message

   printf("Enter a message: ");
   fgets(message, sizeof(message), stdin);
```

```
    // Input the key

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

    // Encrypt the message

    encrypt_decrypt(message, key, 1);
    printf("Encrypted message: %s\n", message);

    // Decrypt the message

    encrypt_decrypt(message, key, -1);
    printf("Decrypted message: %s\n", message);

    return 0;
}
```

Input and Output:


C:\Users\aishwarya\Desktop\caesar easy.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
caesar.cpp
caesar easy.cpp
C:\Users\aishwarya\Desktop\caesar easy.exe
Compiler
Resources
Compile Log
Debug
Find Results
Close
Abort Compilation
Shorten compiler paths
31°C
Sunny
Search
ENG
IN
10:07
21-02-2024

```
#include<stdio.h>
#include<stdlib.h>
#define MAX_LENGTH 100
int encrypt_decrypt(char *message, int key, int mode)
{
    for(; *message; message++)
    {
        char ch = *message;
        if ((ch>= 'a' && ch<+'z') || (ch>= 'A' && ch<= 'Z')){
            char base = (ch>='a') ? 'a' : 'A';
            *message = base + (ch- base + (mode * key)) % 26;
        }
    }
}
int main(){
    char message[MAX_LENGTH];
    int key;
    printf("enter a message");
    fgets(message, sizeof(message), stdin);
    printf("enter key: ");
    scanf("%d", &key);
    encrypt_decrypt(message, key, 1);
    printf("encrypted message: %s\n", message);
    encrypt_decrypt(message, key, -1);
    printf("Decrypted message: %s\n", message);
    return 0;
}
```

```
Enter a message: Hello, world.
Enter key: 3
Encrypted message: Khoor, zruog.

Decrypted message: Hello, world.


--------------------------------
Process exited after 14.82 seconds with return value 0
Press any key to continue . . .
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\aishwarya\Desktop\caesar easy.exe
- Output Size: 129.3125 KiB
- Compilation Time: 0.27s
```

Line: 25 Col: 48 Sel: 0 Lines: 27 Length: 688 Overwrite Done parsing in 0.015 seconds

Result: A C program to encrypt and decrypt a message using Caesar cipher along with the key is executed successfully.

SAVEETHA SCHOOL OF ENGINEERING

SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES

CSA 5136 – CRYPTOGRAPHY AND NETWORK SECURITY FOR EFFECTIVE STEGANOGRAPHY