

# Project Title: *Caesar Cipher*

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## INTRODUCTION

### What is Caesar Cipher?

In cryptography, a Caesar cipher, also known as Caesar's cipher, the shift cipher, Caesar's code or Caesar shift, is one of the simplest and most widely known encryption techniques. It is a type of substitution cipher in which each letter in the plaintext is replaced by a letter some fixed number of positions down the alphabet. For example, with a left shift of 3, D would be replaced by A, E would become B, and so on. The method is named after Julius Caesar, who used it in his private correspondence.

### SOURCE CODE:

```
#include <iostream>
using namespace std;

void encrypt(){
    string Cipher_Text , Plain_Text;
    int key;
    cout<<"ENTER YOUR MESSAGE HERE (WITHOUT SPACES): "<<endl;
    cin>>Plain_Text;
    getline(cin,Plain_Text); // Used getline to read entire input
    for(int i=0;i<Plain_Text.size();i++){
        if(Plain_Text[i]==' '){
            cout<<"INCORRECT INPUT: MESSAGE CONTAINS SPACES"<<endl;
            return;
        }
    }

    cout<<"ENTER KEY (1-25): "<< endl;
    cin>>key;
    if(key<1 || key>25){
```

```

        cout<<"INCORRECT INPUT!ENTER KEY (1-25)"<<endl;
        cout<<endl;
        cout<<endl;
        return;
    }

    for(int i=0;i<Plain_Text.size();i++){
        Cipher_Text+=(Plain_Text[i]-'A'+key)%26+'A';
    }
    cout <<"ENCRYPTED TEXT IS: "<<Cipher_Text<<endl;
}

void decrypt (){
    string Plain_Text , Cipher_Text;
    int key;
    cout<<"ENTER YOUR ENCRYPTED MESSAGE HERE (WITHOUT SPACES): "<<endl;
    cin>>Cipher_Text;
    getline(cin,Plain_Text);
    for(int i=0;i<Plain_Text.size();i++){
        if(Plain_Text[i]==' '){
            cout<<"INCORRECT INPUT: MESSAGE CONTAINS SPACES"<<endl;
            return;
        }
    }

    cout<<"ENTER KEY (1-25): "<<endl;
    cin>>key;
    if(key<1 || key>25){
        cout<<"INCORRECT INPUT!ENTER KEY (1-25)"<<endl;
        cout<<endl;
        cout<<endl;
        return;
    }
    for(int i=0;i<Cipher_Text.size();i++){
        Plain_Text+=(Cipher_Text[i]-'A'-key)%26+'A';
    }
    cout <<"YOUR MESSAGE TEXT IS: "<<Plain_Text << endl;
}

int main (){
    //string Plain_Text,Cipher_Text;
    int key,menu;
    cout << "======"<< endl;
    cout << "W E L C O M E   T O   C A E S A R   C I P H E R"<< endl;
    cout << "======"<< endl;
    do {
        cout << "PRESS 1 TO ENCRYPT YOUR MESSAGE: " << endl << "PRESS 2 TO
DECRYPT YOUR MESSAGE: " << endl << "PRESS 3 TO EXIT: " << endl;
        cin >> menu;

        switch (menu){

```

```

        case 1: encrypt();
                break;
                cout<<endl;
        case 2 : decrypt();
                cout<<endl;
                break;
        case 3 :
                cout<<"THANKYOU FOR USING CAESAR CIPHER PROGRAM!"<<endl;
                break;
        default :
                cout<<"WRONG CHOICE...."<<endl;
                break;
    }
}

while (menu != 3);

}

```

### **Features:**

It can encrypt and decrypt text efficiently.  
 Used it with a shift of three (A becoming D when encrypting, and D becoming A when decrypting) to protect messages of military significance.  
 It can decipher the plaintext.

### **RULES :**

You have two options. One is encryption and another is decryption.  
 You must enter a plain text without space if you choose to encrypt.  
 You must enter an encrypted text to decrypt it to plain text.

### **Algorithm:**

1. Start
2. Two void functions are used where one function is used for encryption of plain text and the other function is used for decryption of encrypted text.
3. Enter a Key for encryption
4. In Int main, the main menu is presented where option is given to either encrypt or decrypt.
5. Switch case is used and 3 cases are there
6. If press 1, then it will encrypt plain text
7. If press 2, then it will decrypt cipher text
8. If press 3, then exit the program

9. Use For loop to traverse the Plain text and cipher text, to merge it with the key.
10. Use For loop to traverse the encrypted text, to merge it with the key if user presses 2.
11. Then
12. Formula is used that the key must be entered between 1 and 26, and if key is entered above 26, then the %26 will bring the key in the range of 1 to 26 or multiple of 26.
13. Formula will make sure the plain text or encrypted text will be in range of A-Z and avoid any special characters from ASCII.
14. Then
15. The message text is displayed OR
16. The encrypted text is displayed
17. End

## **Conclusion**

What was learned from this Cipher code is finding the logic and following the rules such as the key entered should be from 1 to 25. Two functions are being used and from switch case it's being decided whether to use encryption function or decryption function. The mistakes in encryption and decryption are terminated and there is a 100% success rate. In previous times, it used to take time for decrypting text and encrypting text but in this time is saved and code is efficient. What we also learned while completing this project was that Caesar is one of the easiest methods to use in cryptography and can provide minimum security to the information. It is one of the best methods to use if the system cannot use any complicated coding techniques.