

**Walchand College Of Engineering, Sangli**  
**Department of Computer Science and Engineering**  
**Subject: C&NS Lab**

**Batch: B4**

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**PRN:2020BTECS00210**

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**Assignment 1**

**Title:** Implement the Ceasar cipher.

**Introduction:**

The Caesar Cipher technique is one of the earliest and simplest methods of encryption technique. It's simply a type of substitution cipher, i.e., each letter of a given text is replaced by a letter with a fixed number of positions down the alphabet. For example with a shift of 1, A would be replaced by B, B would become C, and so on. The method is apparently named after Julius Caesar

**Algorithm:**

- Traverse the given text one character at a time .
- For each character, transform the given character as per the rule, depending on whether we're encrypting or decrypting the text.
- Return the new string generated.

**Encryption:**  $(\text{Plaintext} + \text{Key}) \bmod 26$

**Decryption:**  $(\text{CipherText} - \text{Key}) \bmod 26$

**Example:**

Text : ABCDEFGHIJKLMNOPQRSTUVWXYZ

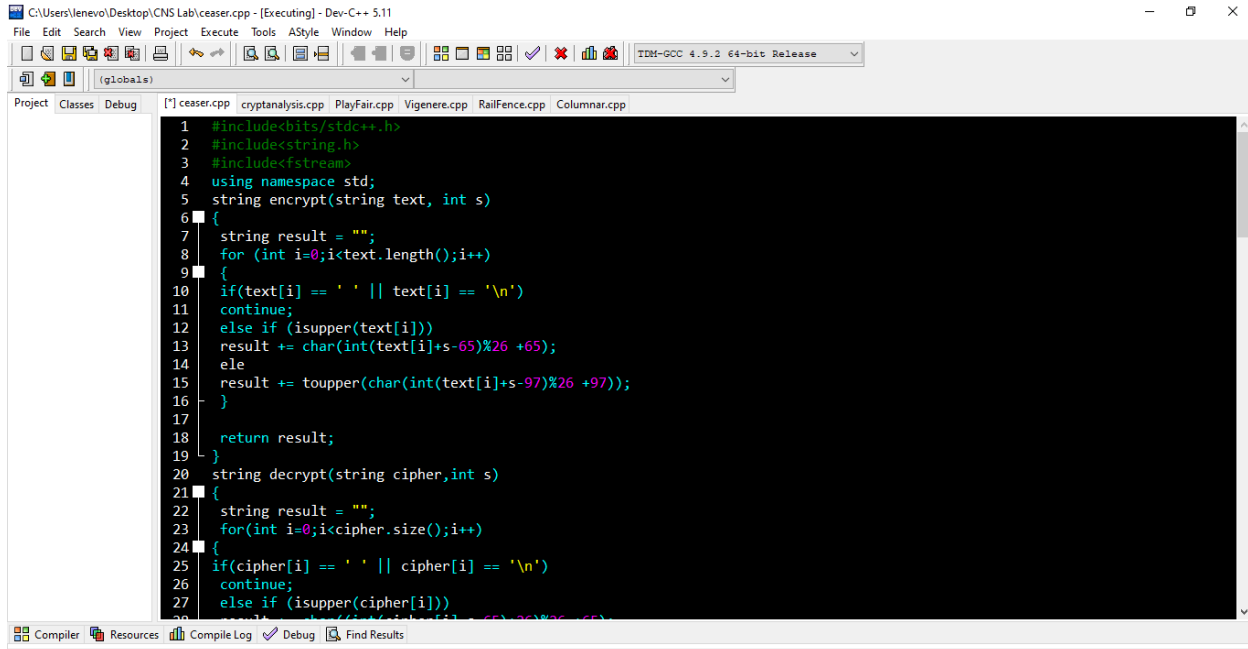
Key: 23

Cipher: XYZABCDEFGHIJKLMNOPQRSTUVW

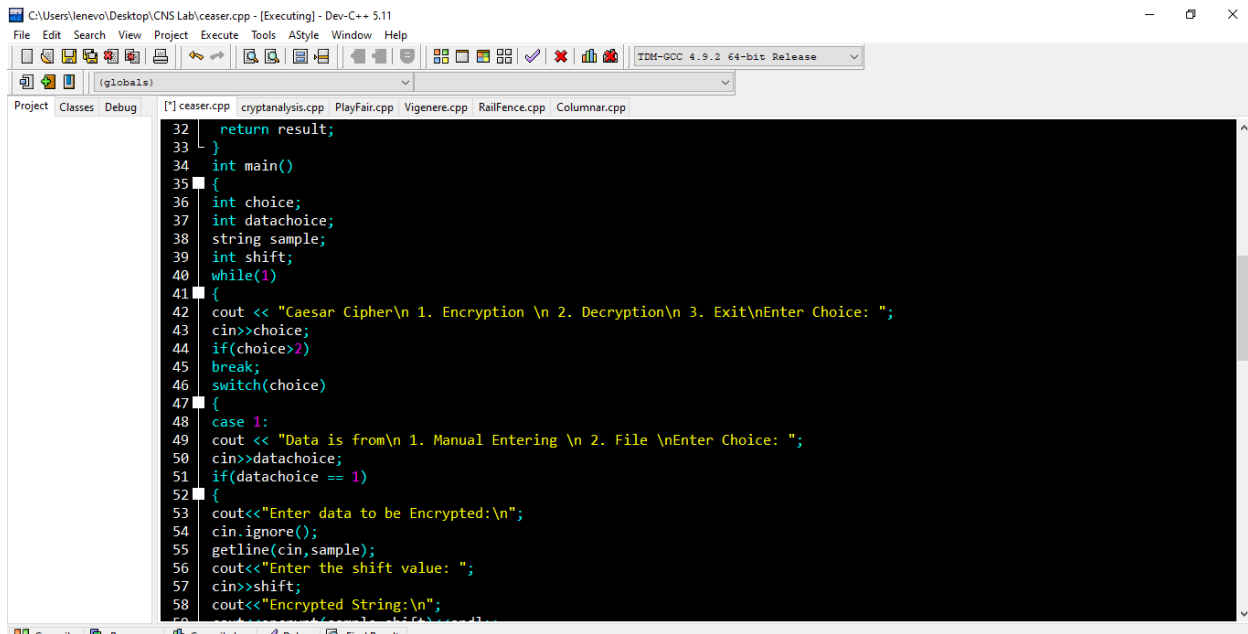
Code :

Link: <https://github.com/gayatrig21/Cryptology-practicals/tree/Assignment-1>

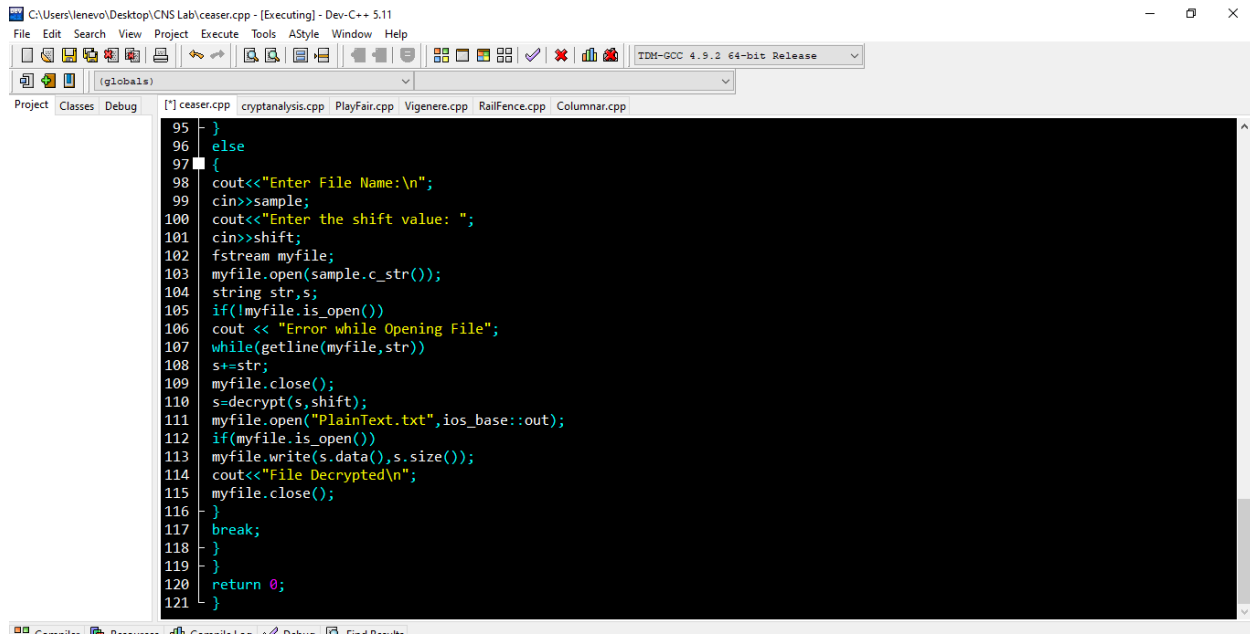
Screenshots:



```
1 #include<bits/stdc++.h>
2 #include<string.h>
3 #include<fstream>
4 using namespace std;
5 string encrypt(string text, int s)
6 {
7     string result = "";
8     for (int i=0;i<text.length();i++)
9     {
10        if(text[i] == ' ' || text[i] == '\n')
11            continue;
12        else if (isupper(text[i]))
13            result += char(int(text[i]+s-65)%26 +65);
14        else
15            result += toupper(char(int(text[i]+s-97)%26 +97));
16    }
17    return result;
18 }
19 string decrypt(string cipher,int s)
20 {
21     string result = "";
22     for(int i=0;i<cipher.size();i++)
23     {
24        if(cipher[i] == ' ' || cipher[i] == '\n')
25            continue;
26        else if (isupper(cipher[i]))
27            result += char(int(cipher[i]-s-65)%26 +65);
28        else
29            result += tolower(char(int(cipher[i]-s-97)%26 +97));
30    }
31    return result;
32 }
```

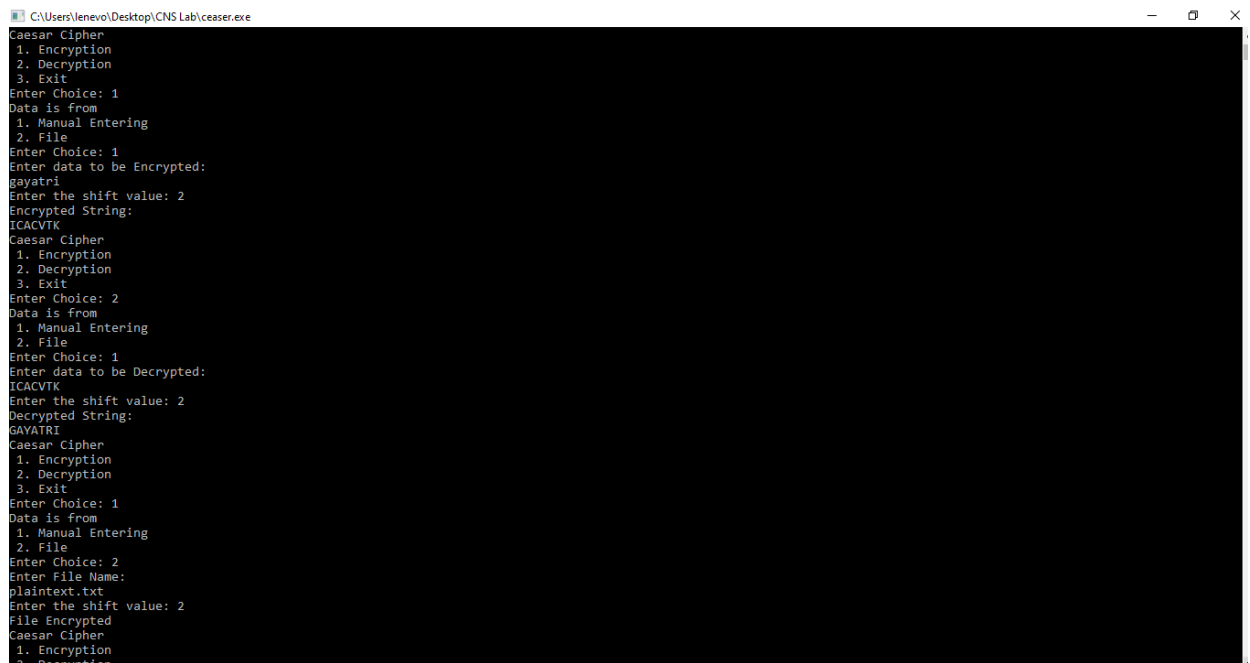


```
32 return result;
33 }
34 int main()
35 {
36     int choice;
37     int datachoice;
38     string sample;
39     int shift;
40     while(1)
41     {
42         cout << "Caesar Cipher\n 1. Encryption \n 2. Decryption\n 3. Exit\nEnter Choice: ";
43         cin>>choice;
44         if(choice>2)
45             break;
46         switch(choice)
47         {
48             case 1:
49                 cout << "Data is from\n 1. Manual Entering \n 2. File \nEnter Choice: ";
50                 cin>>datachoice;
51                 if(datachoice == 1)
52                 {
53                     cout<<"Enter data to be Encrypted:\n";
54                     cin.ignore();
55                     getline(cin,sample);
56                     cout<<"Enter the shift value: ";
57                     cin>>shift;
58                     cout<<"Encrypted String:\n";
59                     cout<<encrypt(sample,shift)<<"\n";
60                 }
61                 else
62                 {
63                     cout<<"Enter the file name:\n";
64                     cin>>sample;
65                     ifstream file(sample);
66                     if(!file.is_open())
67                         cout<<"File not found\n";
68                     else
69                     {
70                         string line;
71                         while(getline(file,line))
72                         {
73                             cout<<encrypt(line,shift)<<"\n";
74                         }
75                     }
76                 }
77             case 2:
78                 cout<<"Enter the cipher:\n";
79                 cin>>sample;
80                 cout<<decrypt(sample,shift)<<"\n";
81             case 3:
82                 return 0;
83         }
84     }
85 }
```



```
95 }
96 else
97 {
98     cout<<"Enter File Name:\n";
99     cin>>sample;
100     cout<<"Enter the shift value: ";
101     cin>>shift;
102     fstream myfile;
103     myfile.open(sample.c_str());
104     string str,s;
105     if(!myfile.is_open())
106         cout << "Error while Opening File";
107     while(getline(myfile,str))
108         s+=str;
109     myfile.close();
110     s=decrypt(s,shift);
111     myfile.open("PlainText.txt",ios_base::out);
112     if(myfile.is_open())
113         myfile.write(s.data(),s.size());
114     cout<<"File Decrypted\n";
115     myfile.close();
116 }
117 break;
118 }
119 }
120 return 0;
121 }
```

## Output:



```
Caesar Cipher
1. Encryption
2. Decryption
3. Exit
Enter Choice: 1
Data is from
1. Manual Entering
2. File
Enter Choice: 1
Enter data to be Encrypted:
gayatri
Enter the shift value: 2
Encrypted String:
ICACVTK
Caesar Cipher
1. Encryption
2. Decryption
3. Exit
Enter Choice: 2
Data is from
1. Manual Entering
2. File
Enter Choice: 1
Enter data to be Decrypted:
ICACVTK
Enter the shift value: 2
Decrypted String:
GAYATRI
Caesar Cipher
1. Encryption
2. Decryption
3. Exit
Enter Choice: 1
Data is from
1. Manual Entering
2. File
Enter Choice: 2
Enter File Name:
plaintext.txt
Enter the shift value: 2
File Encrypted
Caesar Cipher
1. Encryption
2. Decryption
```