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Batch : B1
Subject : CNS lab
Topic : Assignment 1

Aim : To encrypt the given plain text using Caesar Cipher and then decrypt it to get plain text again.

Theory :
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, who apparently used it to communicate with his officials.

Code :

```
#include<bits/stdc++.h>
using namespace std;

void encrypt()
{
    string input,output;
    int key = 0;

    cout<<"\n Enter plain text : ";
    cin.clear();
    cin.sync();
    getline(cin,input);

    // Removing all spaces and converting to small letters
    for(int i=0;i<input.size();i++)
    {
        if(input[i]!=' ')
        output += input[i];

        if(input[i]>=65 && input[i]<=90)
        output[i] += 32;
    }
```

```
    cout<<"\n Enter key : ";
    cin>>key;

    for (int i=0;i<output.size();i++)
    {
        int val = output[i] - 'a';
        val = (val + key) % 26;
        char ch = 'a' + val;
        output[i] = ch;
    }
    cout<< "\n Cipher Text is : "<<output<<endl;
}

void decrypt()
{
    string input,output;
    int key;
    cout<<"\n Enter cipher text : ";
    cin.clear();
    cin.sync();

    getline(cin,input);

    // Removing all spaces and converting to small letters
    for(int i=0;i<input.size();i++)
    {
        if(input[i]!=' ')
        output += input[i];

        if(input[i]>=65 && input[i]<=90)
        output[i] += 32;
    }

    cout<<"\n Enter key : ";
    cin>>key;

    for (int i=0;i<output.size();i++)
    {
        int val = output[i] - 'a';
        val = (val - key + 26) % 26;
        char ch = 'a' + val;
        output[i] = ch;
    }
```

```
    cout<< "\n Plain Text is : "<<output<<endl;
}

int main()
{
    int choice = 1;
    cout<<"\n**** Caeser Cipher ****\n";
    cout<<"\n 1. Encrypt\n 2. Decrypt\n\n Enter choice : ";
    cin>>choice;

    if(choice == 1)
    encrypt();
    else if(choice == 2)
    decrypt();
    else
    cout<<"\n Invalid option !";
    return 0;
}
```

Output :

```
D:\WCE_ENGINEERING\BTECH_SEM1\CNS lab>g++ Assignment_1.cpp

D:\WCE_ENGINEERING\BTECH_SEM1\CNS lab>a.exe

**** Caeser Cipher ****

 1. Encrypt
 2. Decrypt

 Enter choice : 1

 Enter plain text : Harshal

 Enter key : 3

 Cipher Text is : kduvkdo

D:\WCE_ENGINEERING\BTECH_SEM1\CNS lab>a.exe

**** Caeser Cipher ****

 1. Encrypt
 2. Decrypt

 Enter choice : 2

 Enter cipher text : kduvkdo

 Enter key : 3

 Plain Text is : harshal

D:\WCE_ENGINEERING\BTECH_SEM1\CNS lab>
```

```
D:\WCE_ENGINEERING\BTECH_SEM1\CNS lab>g++ Assignment_1.cpp

D:\WCE_ENGINEERING\BTECH_SEM1\CNS lab>a.exe

**** Caeser Cipher ****

 1. Encrypt
 2. Decrypt

 Enter choice : 1

 Enter plain text : Walchand

 Enter key : 8

 Cipher Text is : eitkpivl

D:\WCE_ENGINEERING\BTECH_SEM1\CNS lab>a.exe

**** Caeser Cipher ****

 1. Encrypt
 2. Decrypt

 Enter choice : 2

 Enter cipher text : eitkpivl

 Enter key : 8

 Plain Text is : walchand

D:\WCE_ENGINEERING\BTECH_SEM1\CNS lab>
```