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CNS lab | Experiment 01

Aim: To implement Caesar cipher

Theory: The Caesar cipher is a simple and widely known substitution cipher technique used for encryption. It was named after Julius Caesar, who is historically believed to have used this method to encode his private correspondence. The Caesar cipher is a basic encryption technique where each letter in a message is shifted a fixed number of positions down or up the alphabet.

Code:

```
#include <bits/stdc++.h>

using namespace std;

char shift_char(char c,int shift,char op){
    if(isalpha(c) && op=='e'){
        char base=islower(c) ? 'a' : 'A';
        return char((c - base + shift) % 26 + base);
    }
    else if(isalpha(c) && op=='d'){
        char base=islower(c) ? 'a': 'A';
        return char((c - base - shift + 26) % 26 + base);
    }
    return c;
}

string encrypt_text(string text,int key){
    string encrypted="";
    for(char c:text){
        encrypted+=shift_char(c,key,'e');
    }
    return encrypted;
}

string decrypt_text(string text,int key){
    string decrypted="";
    for(char c:text){
        decrypted+=shift_char(c,key,'d');
    }
    return decrypted;
}
```

```

int main(int argc, char const *argv[])
{
    int choice,key;
    string text;
    cout<<"Enter choice: ";
    cout<<endl<<"1. Encrypt | 2. Decrypt"<<endl;
    cin>>choice;
    cin.get();
    if(choice==1){
        cout<<"enter text: ";
        getline(cin,text);
        cout<<"Enter key: ";
        cin>>key;
        string result=encrypt_text(text,key);
        cout<<"encrypted text: "<<result<<endl;
    }
    else if(choice==2){
        cout<<"enter encrypted text: ";
        getline(cin,text);
        cout<<"Enter key: ";
        cin>>key;
        string result=decrypt_text(text,key);
        cout<<"decrypted text: "<<result<<endl;
    }
    else{
        cout<<"not a valid choice!"<<endl;
    }
    return 0;
}

```

Output:

```

PS C:\Users\shree\Documents\My workspace 2\CNS lab\Exp1> .\caesar_cipher
pher } ; if ($?) { .\caesar_cipher }
Enter choice:
1. Encrypt | 2. Decrypt
1
enter text: meetmeintheparktodaynoon
Enter key: 4
encrypted text: qiixqimrxlitevoxshecrssr
PS C:\Users\shree\Documents\My workspace 2\CNS lab\Exp1> .\caesar_cipher
pher } ; if ($?) { .\caesar_cipher }
Enter choice:
1. Encrypt | 2. Decrypt
2
enter encrypted text: qiixqimrxlitevoxshecrssr
Enter key: 4
decrypted text: meetmeintheparktodaynoon
PS C:\Users\shree\Documents\My workspace 2\CNS lab\Exp1>

```