CNS LAB

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Assignment 4

Aim - Given the plain text, encrypt it using Vigenere Encryption Algorithm

Vigenere Cipher Encryption Algorithm

It uses a simple form of polyalphabetic cipher
In this cipher we add the respective character of a key in the plain text and substitute the character.

Code:

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

int main()
{
    int choice;
    cout << "Choose an option:\n";
    cout << "1. Encryption\n";
    cout << "2. Decryption\n";
    cout << "Enter your choice (1 or 2): ";
    cin >> choice;
    cin.ignore();  // Clear the newline character from the
input buffer

    if (choice == 1)
    {
        // Encryption
        string plainText, key, cipherText;
```

```
        cout << "\nEnter plain text: ";
        getline(cin, plainText);

        cout << "\nEnter key: ";
        getline(cin, key);

        // Removing spaces and converting to lowercase from
plaintext
        string temp = "";
        for (int i = 0; i < plainText.size(); i++)
        {
            if (plainText[i] != ' ')
                temp += plainText[i];
        }
        plainText = temp;

        for (int i = 0; i < plainText.size(); i++)
        {
            if (plainText[i] >= 'A' && plainText[i] <= 'Z')
                plainText[i] += 32; // Convert to lowercase
        }

        // Removing spaces and converting to lowercase from
key
        string temp2 = "";
        for (int i = 0; i < key.size(); i++)
        {
            if (key[i] != ' ')
                temp2 += key[i];
        }
        key = temp2;

        for (int i = 0; i < key.size(); i++)
        {
            if (key[i] >= 'A' && key[i] <= 'Z')
```

```
                key[i] += 32; // Convert to lowercase
        }

        // Encryption
        for (int i = 0; i < plainText.size(); i++)
        {
            int val = plainText[i] - 'a' + key[i %
key.size()] - 'a';
            cipherText += 'a' + (val % 26);
        }

        cout << "\nCipher Text: " << cipherText << endl;
    }
    else if (choice == 2)
    {
        // Decryption
        string cipherText, key;

        cout << "\nEnter cipher text: ";
        getline(cin, cipherText);

        cout << "\nEnter key: ";
        getline(cin, key);

        // Removing spaces and converting to lowercase from
key
        string temp2 = "";
        for (int i = 0; i < key.size(); i++)
        {
            if (key[i] != ' ')
                temp2 += key[i];
        }
        key = temp2;

        for (int i = 0; i < key.size(); i++)
        {
```

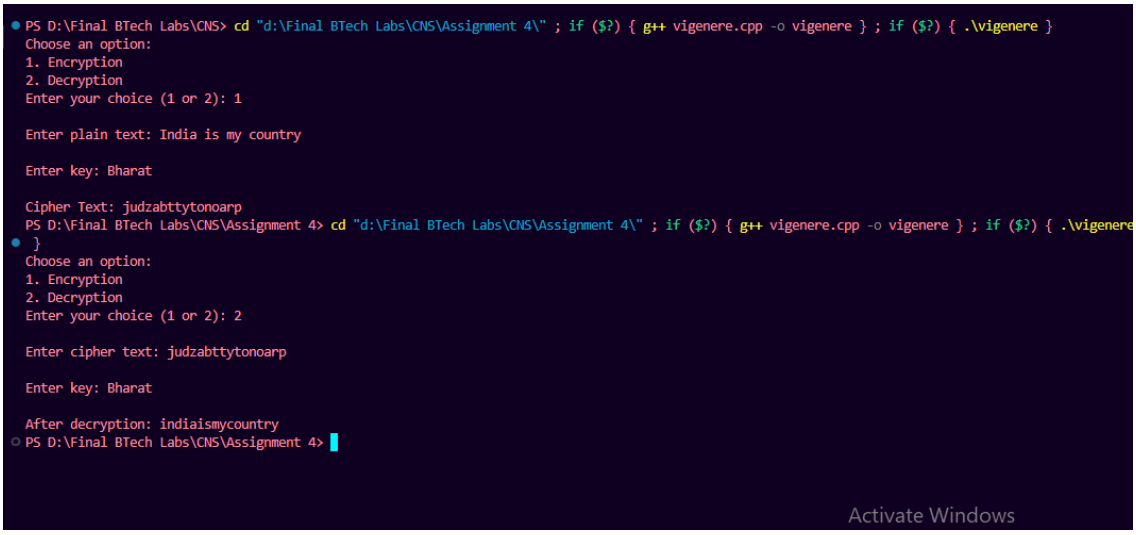
```
            if (key[i] >= 'A' && key[i] <= 'Z')
                key[i] += 32; // Convert to lowercase
        }

        // Decryption
        string decrypted = "";
        for (int i = 0; i < cipherText.size(); i++)
        {
            int val = cipherText[i] - 'a' - (key[i %
key.size()] - 'a') + 26;
            decrypted += 'a' + (val % 26);
        }

        cout << "\nAfter decryption: " << decrypted <<
endl;
    }
    else
    {
        cout << "Invalid choice. Please choose 1 or 2." <<
endl;
    }

    return 0;
}
```

Output:


PS D:\Final BTech Labs\CNS> cd "d:\Final BTech Labs\CNS\Assignment 4\" ; if ($?) { g++ vigenere.cpp -o vigenere } ; if ($?) { .\vigenere }
Choose an option:
1. Encryption
2. Decryption
Enter your choice (1 or 2): 1
Enter plain text: India is my country
Enter key: Bharat
Cipher Text: judzabttytonoarp
PS D:\Final BTech Labs\CNS\Assignment 4> cd "d:\Final BTech Labs\CNS\Assignment 4\" ; if ($?) { g++ vigenere.cpp -o vigenere } ; if ($?) { .\vigenere
}
Choose an option:
1. Encryption
2. Decryption
Enter your choice (1 or 2): 2
Enter cipher text: judzabttytonoarp
Enter key: Bharat
After decryption: indiaismycountry
PS D:\Final BTech Labs\CNS\Assignment 4>
Activate Windows