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IS

Practical No. 3

```
#include <iostream>
using namespace std;
void getKeyMatrix(string key, int keyMatrix[][3])
{
    int k = 0;
    for (int i = 0; i < 3; i++)
    {
        for (int j = 0; j < 3; j++)
        {
            keyMatrix[i][j] = (key[k]) % 65;
            k++;
        }
    }
}

void encrypt(int cipherMatrix[][1],
             int keyMatrix[][3],
             int messageVector[][1])
{
    int x, i, j;
    for (i = 0; i < 3; i++)
    {
        for (j = 0; j < 1; j++)
        {
            cipherMatrix[i][j] = 0;

            for (x = 0; x < 3; x++)
            {
                cipherMatrix[i][j] +=
                    keyMatrix[i][x] * messageVector[x][j];
            }
            cipherMatrix[i][j] = cipherMatrix[i][j] % 26;
        }
    }
}

void HillCipher(string message, string key)
{
    int keyMatrix[3][3];
    getKeyMatrix(key, keyMatrix);
    int messageVector[3][1];
    for (int i = 0; i < 3; i++)
        messageVector[i][0] = (message[i]) % 65;
```

```

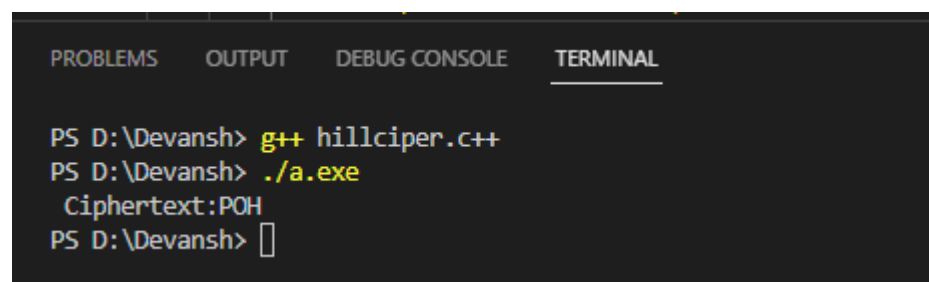
    int cipherMatrix[3][1];
    encrypt(cipherMatrix, keyMatrix, messageVector);
    string CipherText;
    for (int i = 0; i < 3; i++)
        CipherText += cipherMatrix[i][0] + 65;
    cout << " Ciphertext:" << CipherText;
}
int main()
{
    string message = "ACT";

    // Get the key
    string key = "GYBNQKURP";

    HillCipher(message, key);

    return 0;
}

```



```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

PS D:\Devansh> g++ hillciper.cpp
PS D:\Devansh> ./a.exe
Ciphertext:POH
PS D:\Devansh> 

```