Program -6B and u given.casercipher in

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#include<ctype.h>

int modInverse(int a,int m)

{

int m0=m,t,q;

int x0=0,x1=1;

if (m==1){

return 0;

}

while(a>1){

q=a/m;

t=m;

m=a%m,a=t;

t=x0;

x0=x1-q\*x0;

x1=t;

}

if (x1<0)

{

x1+=m0;

return x1;

}

}

int main() {

char ciphertext[1000];

printf("Enter the ciphertext: ");

fgets(ciphertext, sizeof(ciphertext), stdin);

int freq[26] = {0};

for (int i = 0; ciphertext[i] != '\0'; i++) {

if (isalpha(ciphertext[i])) {

freq[tolower(ciphertext[i]) - 'a']++;

}

}

int maxFreq = 0, secondMaxFreq = 0;

char mostFreqLetter, secondMostFreqLetter;

for (int i = 0; i < 26; i++) {

if (freq[i] > maxFreq) {

secondMaxFreq = maxFreq;

secondMostFreqLetter = mostFreqLetter;

maxFreq = freq[i];

mostFreqLetter = 'a' + i;

} else if (freq[i] > secondMaxFreq) {

secondMaxFreq = freq[i];

secondMostFreqLetter = 'a' + i;

}

}

int a, b;

a = (mostFreqLetter - 'E' + 26) % 26;

b = (secondMostFreqLetter - 'T' + 26) % 26;

printf("Potential key values: a=%d, b=%d\n", a, b);

printf("Decrypted Text:\n");

for (int i = 0; ciphertext[i] != '\0'; i++) {

if (isalpha(ciphertext[i])) {

char base = isupper(ciphertext[i]) ? 'A' : 'a';

int p = (ciphertext[i] - base - b + 26) % 26;

int decryptedChar = (a \* modInverse(1, 26) \* p) % 26 + base;

printf("%c", decryptedChar);

} else {

printf("%c", ciphertext[i]);

}

}

printf("\n");

return 0;

}

Output:

Enter the ciphertext: QMTTFUBJJFYNTI

Potential key values: a=21, b=19

Decrypted Text:

BREAKINGAFFINECIPHER