Caesar cipher

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Problem:

- **We will be deciphering encrypted messages in this problem.**
- **The idea of the algorithm is simple. Each letter of the original text is substituted by another, by the following rule:**

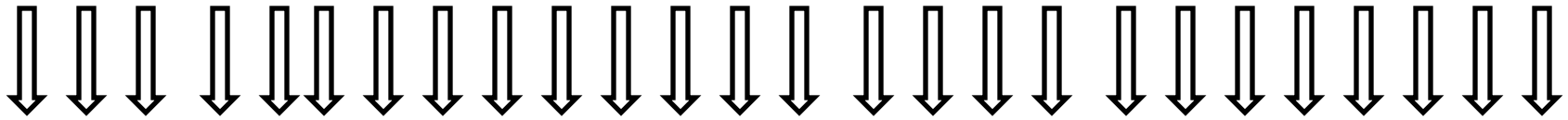
  *** find the letter (which should be encrypted) in the alphabet;**

  *** move |K| positions further (down the alphabet);**

  *** take the new letter from here;**

  *** if "shifting" encountered the end of the algorithm, continue from its start.**

- For example, if |K = 3| (shift value used by Caesar himself), then |A| becomes |D|, |B| becomes |E|, |W| becomes |Z| and |Z| becomes |C| and so on
- according to the following table:
- A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



- D E F G H I J K L M N O P Q R S T U V W X Y Z A B C

Input

The input is : number of lines , shift value and an encrypted text

for example:

2 3

HYHQ BRX EUXWXV.
L ORYH BRX .

***letters must be UPPERCASE**

output

The output is an decrypted(original) text

HYHQ BRX EUXWXV. ⟹ EVEN YOU BRUTUS.

L ORYH BRX . ⟹ I LOVE YOU.

***the output is also in upper case and in single line**
***each text is terminated with .**

process

We handle each character of the text separately as following :-

1-check if the character is equal to *space*

If so then it left without being shifted

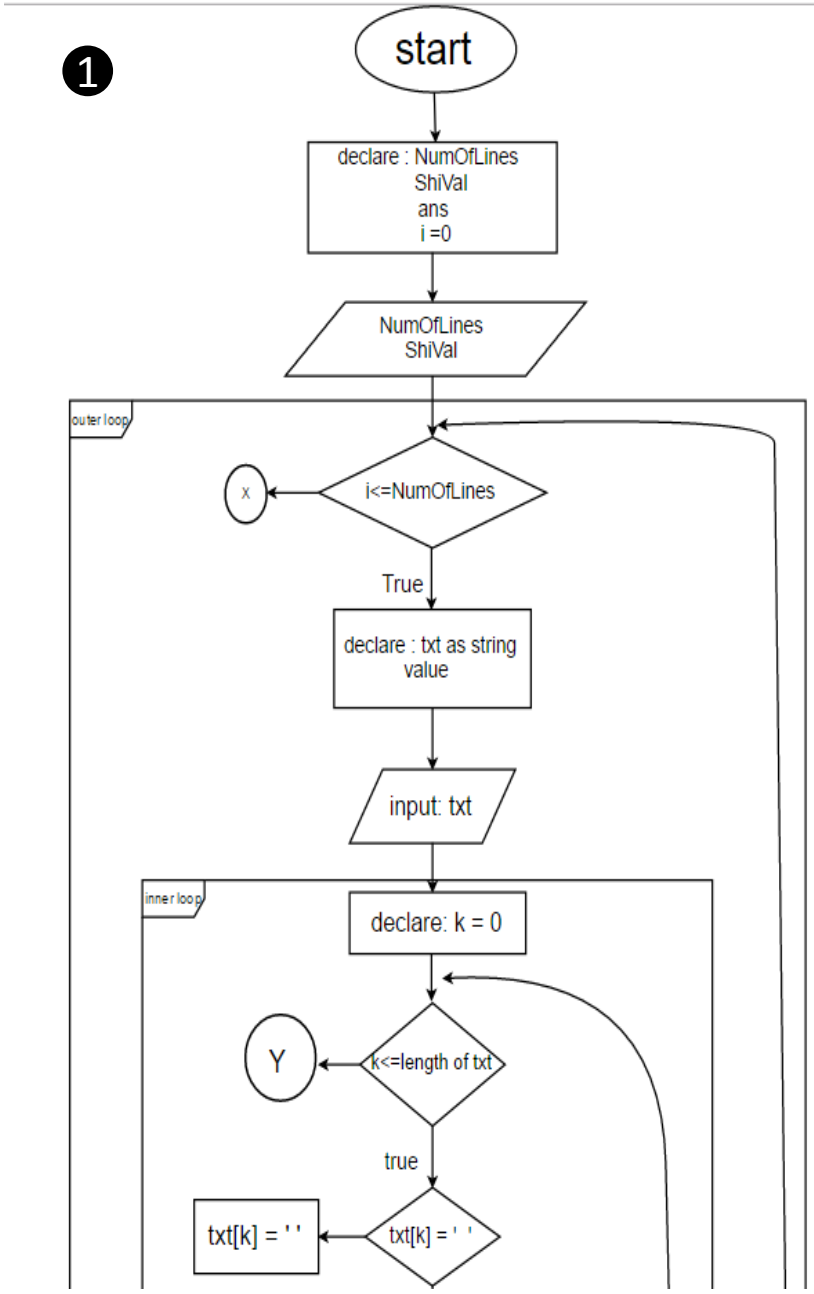
2-check if the character is equal to *dot*
if so then it left without being shifted

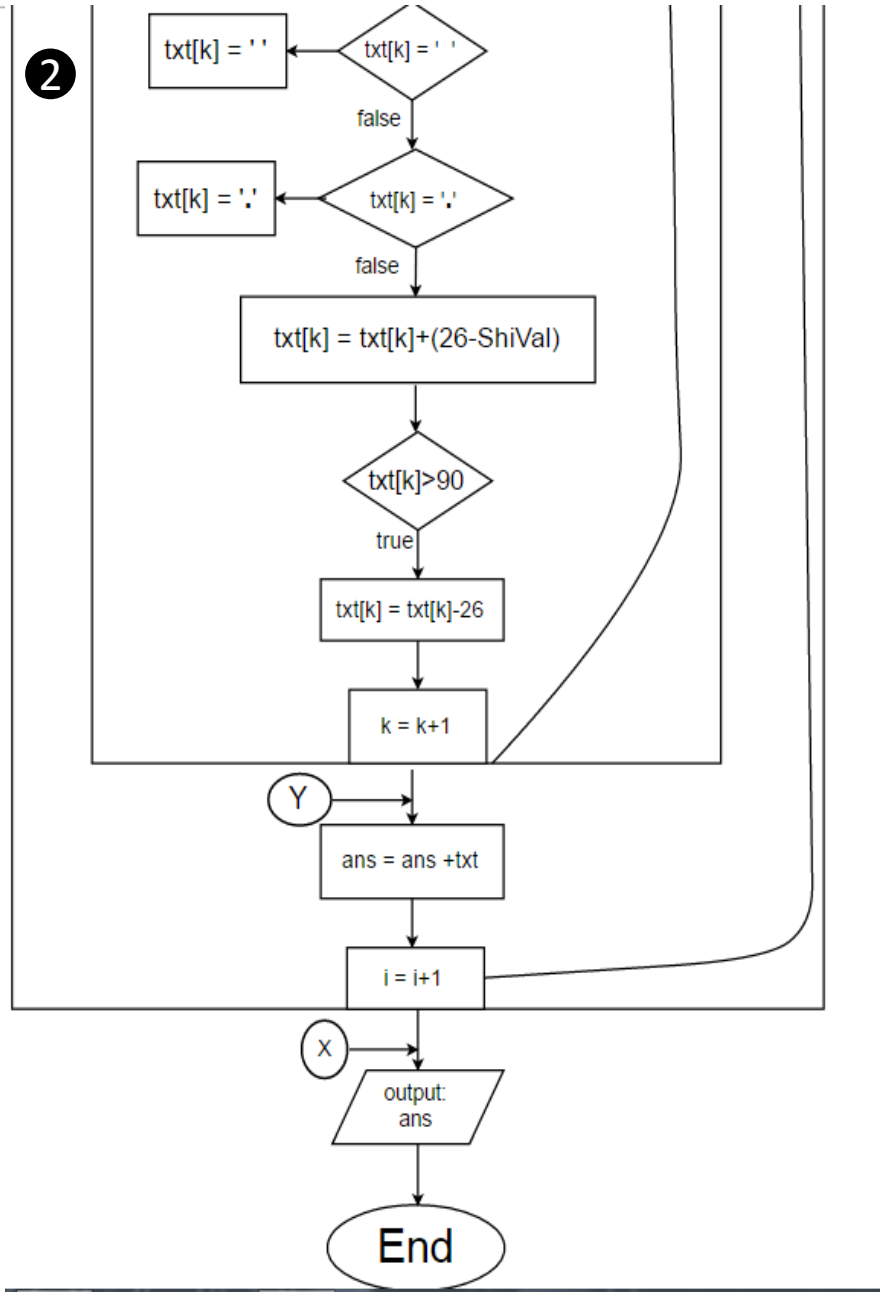
3-else it is a character (A~Z) . Then we apply this step:
character = character +(26-shift value) ##
if the character value > 90 then we subtract 26 from the character's value

4- then repeat from step 1 to 3 till we reach the end of the text

5- then repeat from step 1 to 4 for each line

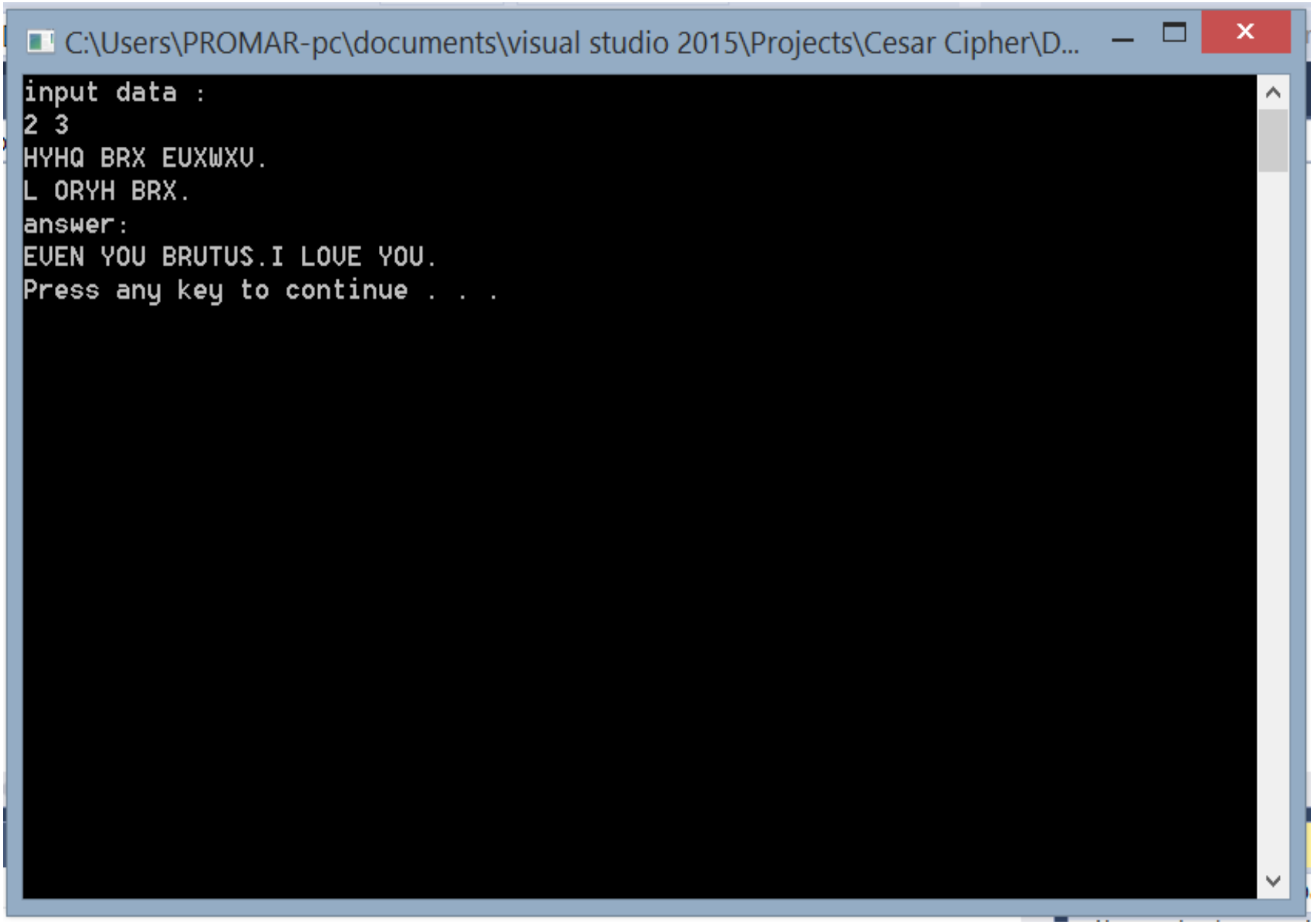
**** Formula ## related to ASCII codes***


1
start
declare : NumOfLines
ShiVal
ans
i =0
NumOfLines
ShiVal
outer loop
x
i<=NumOfLines
True
declare : txt as string
value
input: txt
inner loop
declare: k = 0
Y
k<=length of txt
true
txt[k] = ' '
txt[k] = ' '


2
txt[k] = ' '
txt[k] = ' '
false
txt[k] = '.'
txt[k] = '.'
false
txt[k] = txt[k]+(26-ShiVal)
txt[k]>90
true
txt[k] = txt[k]-26
k = k+1
Y
ans = ans +txt
i = i+1
X
output:
ans
End

```
Strat;
Define: NumOfLines as numric value
        ShiVal as numric value
        ans as string value
        ;
Input : NumOfLines
        ShiVal
        ;
Repeat: from i = 0 to NumOfLines{
        define txt as string value;
        Input txt;
        Repeat:from k=0 to length of txt{
          if(txt[k] = ' ')then
            txt[k] = ' ';
          elseif(txt[k]= '.')then
            txt[k] ='.';
          else
            txt[k]= txt[k]+(26-ShiVal)
              if(txt[k]>90)then
                txt[k]= txt[k]-26;

          k=k+1;
        }
          ans = ans+txt;

  i = i+1;
}
Output: ans;
End;
```

```cpp
#include<iostream>
#include<string>
using namespace std;
int main() {
    short NumOfLines;  short ShiVal; string ans = "";   // DEFINENING NUMBER OF LINES , SHIFITING VALUE AND EMPTY STRING (ANS)
    cout << "Input number of lines then the shift value then encrypted text to be decrypted : " << endl;
    cin >> NumOfLines >> ShiVal;     //prompt the user to input number of lines and the shift value
    for (short i = 0; i <= NumOfLines; i++) {   // lines loop
        string txt;
        getline(cin, txt);
        for (short k = 0; k <= txt.length(); k++) {    //characters loop
            if (txt[k] == ' ') {      // if space is found then it's  left without being decrypted
                txt[k] = ' ';
            }
            else if (txt[k] == '.') {   // if dot is found then it's  left without being decrypted
                txt[k] = '.';
                break;           //terminate when dot is found
            }
            else {
                txt[k] = txt[k] + (26 - ShiVal);   /* it can be also txt[k] - shival ...but replace
                                                      the condition txt[k]> 90 with txt[k]<65 */
                if (txt[k] > 90) {
                    txt[k] = txt[k] - 26;
                }
            }

        }

        ans = ans + txt;   // adding the answer on single line

    }
    cout << "answer: \n" << ans << endl; //print the acculumated result
    system("pause");
}
```


C:\Users\PROMAR-pc\documents\visual studio 2015\Projects\Cesar Cipher\D...
input data :
2 3
HYHQ BRX EUXWXU.
L ORYH BRX.
answer:
EVEN YOU BRUTUS.I LOVE YOU.
Press any key to continue . . .

Thank You