CharacterArrays

Ex.No.: **Date:**

PrintingTokens

ProblemStatement:

Givenasentence,s,printeachwordofthesentenceinanewline.

InputFormat
Thefirstandonlylinecontainsasentence,s.

Constraints
1≤len(s)≤1000

OutputFormat
Printeachwordofthesentenceinanewline.

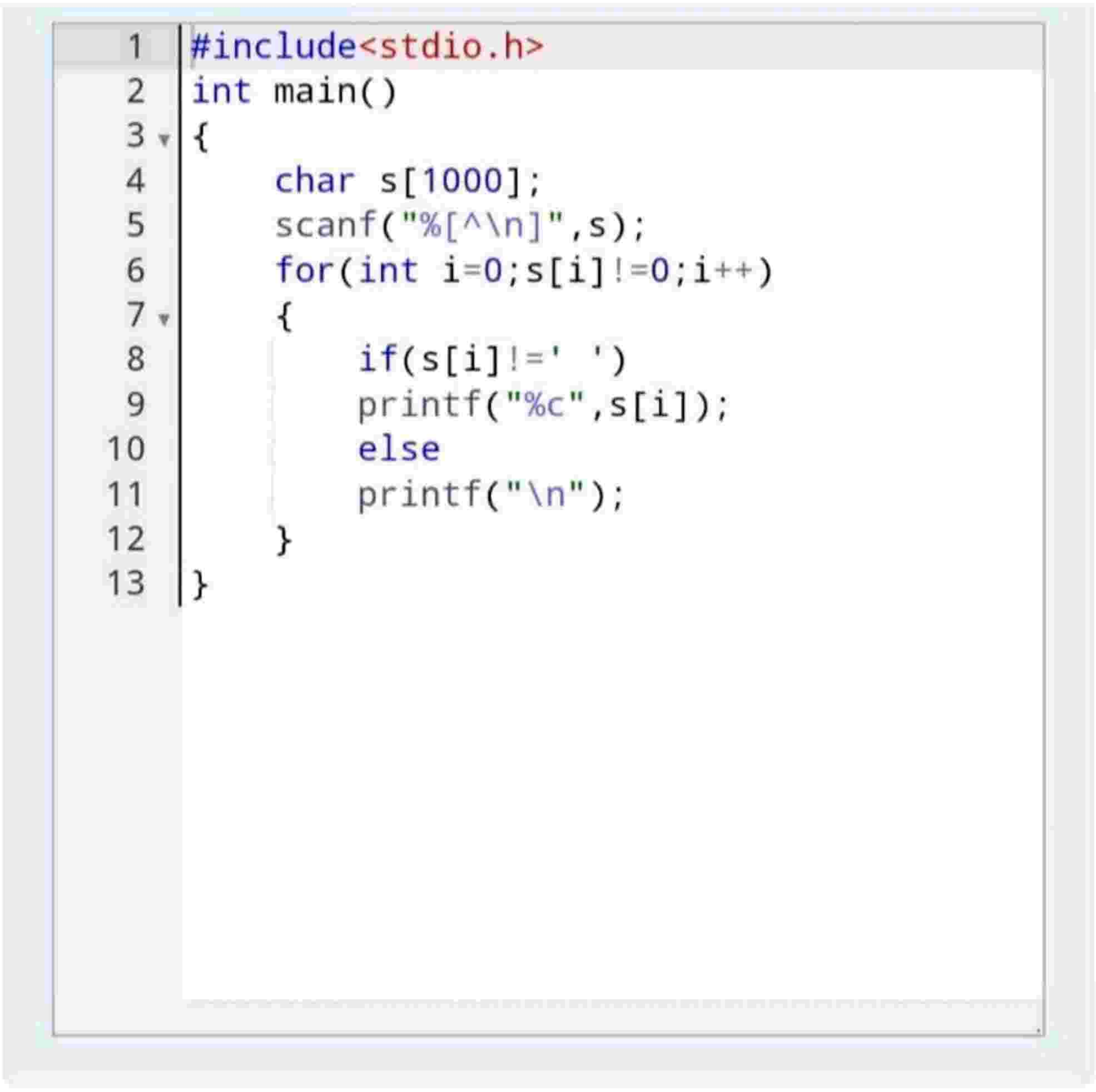
SampleInput
ThisisC

SampleOutput
```
This
is
C
```

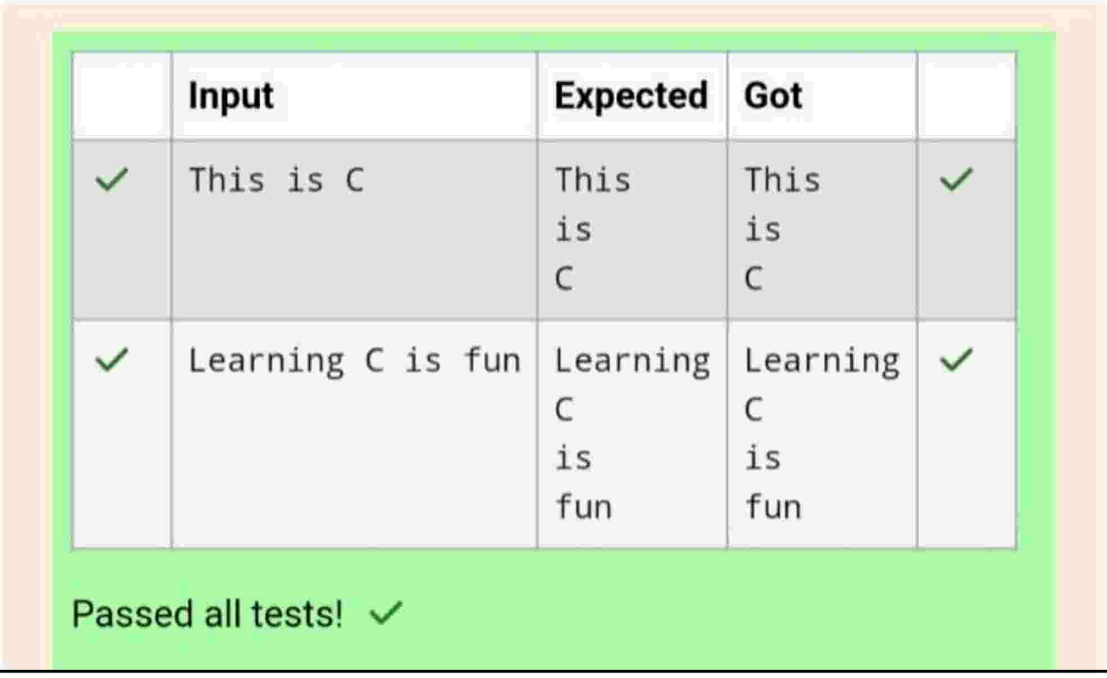
Explanation
Inthegivenstring,therearethreewords["This","is","C"].Wehavetoprinteachofthese words in a new line.

Hint
Here, once you have taken the sentence as input, weneed to iterate through the input, andkeep printing each character one after the other unless you encounter a space. When a spaceisencountered,youknowthatatokeniscompleteandspaceindicatesthestartof the next token afterthis. So, whenever there isa space, you need to move to a new line, so that youcanstartprintingthenexttoken.

Program:



```c
#include<stdio.h>
int main()
{
    char s[1000];
    scanf("%[^\n]",s);
    for(int i=0;s[i]!=0;i++)
    {
        if(s[i]!=' ')
        printf("%c",s[i]);
        else
        printf("\n");
    }
}
```



	Input	Expected	Got	
✓	This is C	This is C	This is C	✓
✓	Learning C is fun	Learning C is fun	Learning C is fun	✓

Passed all tests! ✓

Ex.No.: **Date:**

DigitFrequency

ProblemStatement:

Givenastring,s,consistingofalphabetsanddigits,findthefrequencyofeachdigitinthe given string.

InputFormat
Thefirstlinecontainsastring,numwhichisthegivennumber.

Constraints
1≤len(num)≤1000
AlltheelementsofnumaremadeofEnglishalphabetsanddigits.

OutputFormat
Print ten space-separated integers in a single line denoting the frequency of each digit from 0 to 9.

Sample Input 0
a11472o5t6

SampleOutput0
0210111100

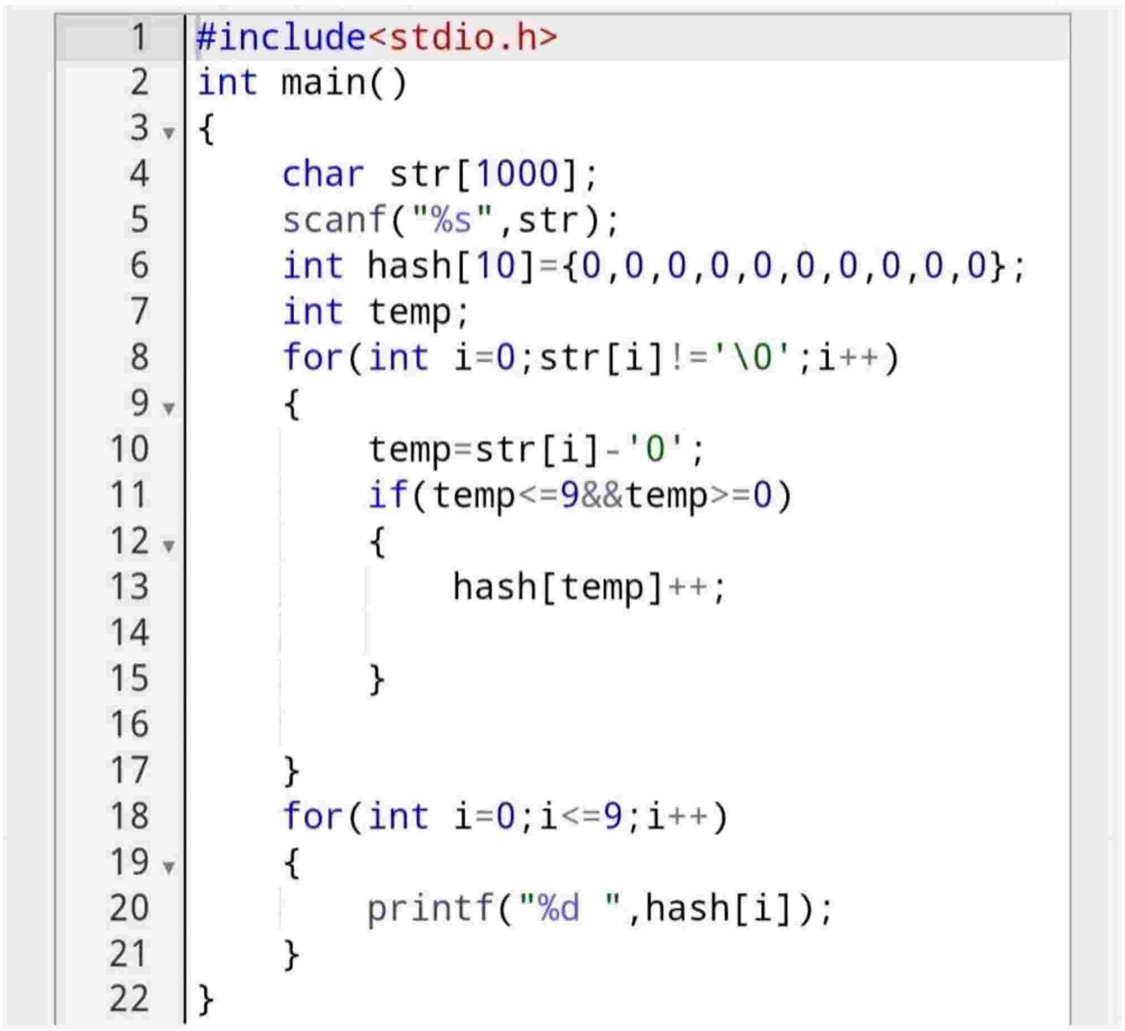
Explanation0
Inthegivenstring:

- 1 occurstwotimes.
- 2,4,5,6and7occuronetimeeach.
- Theremainingdigits0,3,8and9don'toccuratall.

Hint:

- Declareanarray,freqofsize10andinitializeitwithzeros,whichwillbeusedtocount the frequencies of each of the digit occurring.
- Givenastring,s,iteratethrougheachofthecharacterinthestring.Checkifthecurrent character is a number or not.
- Ifthecurrentcharacterisanumber,increasethefrequencyofthatpositioninthefreq array by 1.
- Oncedonewiththeiterationoverthestring,s,inanewlineprintallthe10frequencies starting from 0 to 9, separated by spaces.

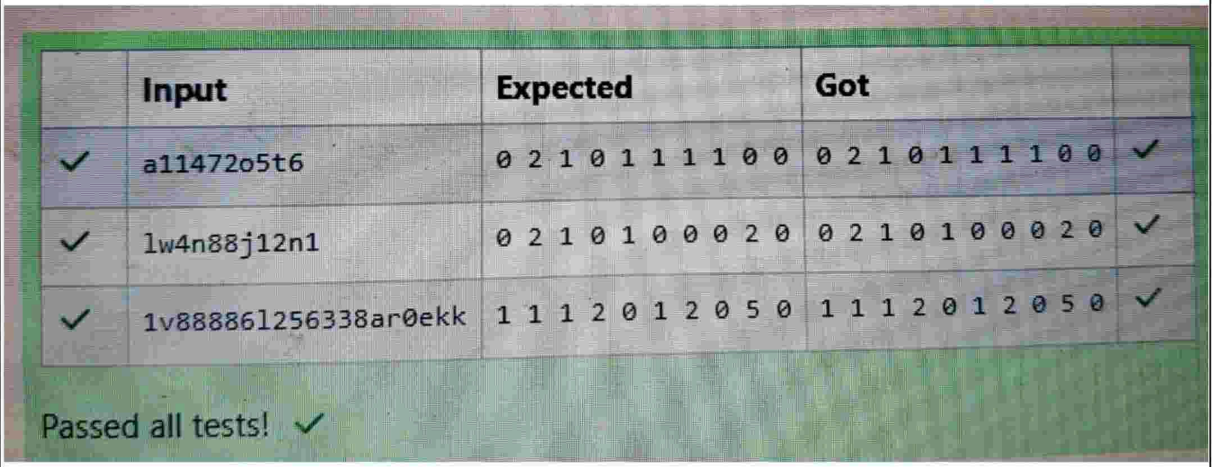
Program:



```
#include<stdio.h>
int main()
{
    char str[1000];
    scanf("%s",str);
    int hash[10]={0,0,0,0,0,0,0,0,0,0};
    int temp;
    for(int i=0;str[i]!='\0';i++)
    {
        temp=str[i]-'0';
        if(temp<=9&&temp>=0)
        {
            hash[temp]++;

        }

    }
    for(int i=0;i<=9;i++)
    {
        printf("%d ",hash[i]);
    }
}
```



	Input	Expected	Got	
✓	a11472o5t6	0 2 1 0 1 1 1 1 0 0	0 2 1 0 1 1 1 1 0 0	✓
✓	lw4n88j12n1	0 2 1 0 1 0 0 0 2 0	0 2 1 0 1 0 0 0 2 0	✓
✓	1v88886l256338ar0ekk	1 1 1 2 0 1 2 0 5 0	1 1 1 2 0 1 2 0 5 0	✓

Passed all tests! ✓

Ex.No.: **Date:**

MonkTakesaWalk

ProblemStatement:

Today, Monk went for a walk in a garden. There are many trees in the garden and each treehasanEnglishalphabetonit.WhileMonkwaswalking,henoticedthatalltreeswith vowelsonitarenotingoodstate.Hedecidedtotakecareofthem.So,heaskedyoutotell him the count of such trees in the garden.

Note:The followinglettersarevowels:'A','E','I','O','U','a','e','i','o'and'u'.

InputFormat:
ThefirstlineconsistsofanintegerTdenotingthenumberoftestcases.
Eachtestcaseconsistsofonlyonestring,eachcharacterofstringdenotingthealphabet (may be lowercase or uppercase) on a tree in the garden.

OutputFormat:
Foreachtestcase,printthecountinanewline.

Constraints:
1≤T≤10
1≤lengthofstring≤105

SampleInput
2
nBBZLaosnm
JHkIsnZtTL

Sample Output
2
1

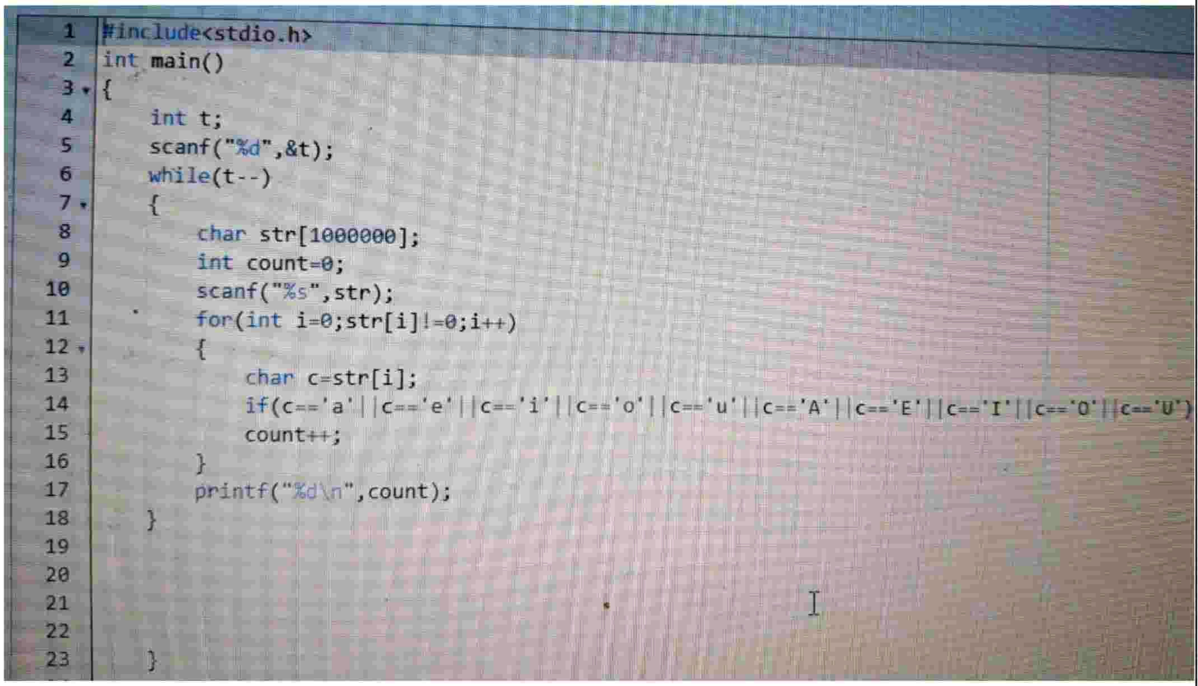
Explanation
Intestcase1,aandoaretheonlyvowels.So,count=2
BriefDescription:GivenastringSyouhavetocountnumberofvowelsinthestring.

Solution1:
Foreachvowel,counthowmanytimesitisappearinginthestringS.Finalanswerwillthe sum of frequencies of all the vowels.

Solution2:
IterateoverallallthecharactersinthestringSanduseacounter(variable)tokeeptrack ofnumberofvowelsinthestringS.Whileiteratingoverthecharacters,ifweencountera vowel, we will increase the counter by 1.

TimeComplexity:O(N)whereNisthelengthofthestringS.SpaceComplexity:O(N)

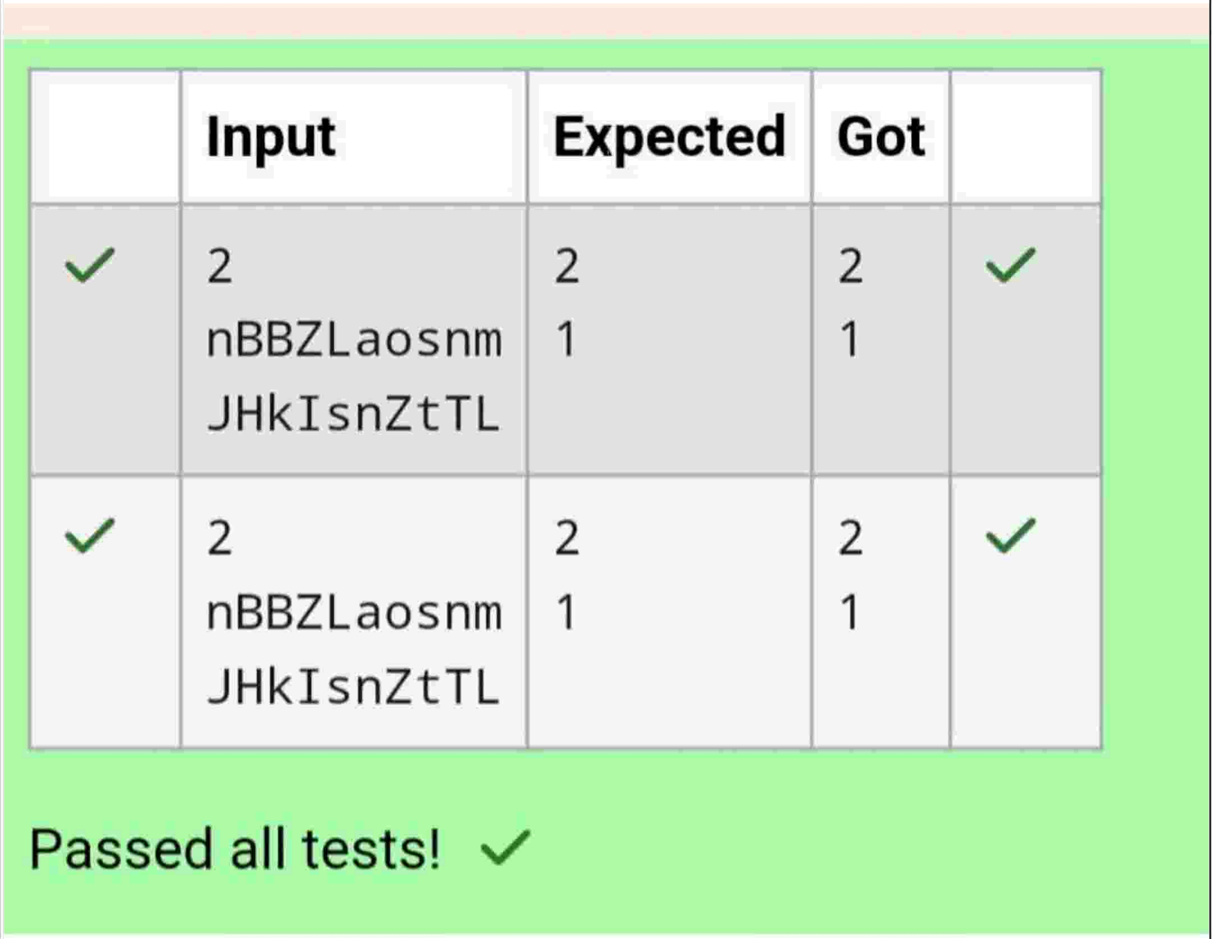
Program:



```c
#include<stdio.h>
int main()
{
    int t;
    scanf("%d",&t);
    while(t--)
    {
        char str[1000000];
        int count=0;
        scanf("%s",str);
        for(int i=0;str[i]!=0;i++)
        {
            char c=str[i];
            if(c=='a'||c=='e'||c=='i'||c=='o'||c=='u'||c=='A'||c=='E'||c=='I'||c=='O'||c=='U')
            count++;
        }
        printf("%d\n",count);
    }




    }
```



	Input	Expected	Got	
✓	2 nBBZLaosnm JHkIsnZtTL	2 1	2 1	✓
✓	2 nBBZLaosnm JHkIsnZtTL	2 1	2 1	✓

Passed all tests! ✓