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**CharacterArrays**

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| **Ex.No.:** | **Date:** |
|  | **Strings** |
| **ProblemStatement:**  InputFormat  You are given two strings, a and b, separated by a new line. Each string will consist oflower-caseLatincharacters('a'-'z').  OutputFormat  Inthefirstlineprinttwospace-separatedintegers,representingthelengthofaandb respectively.  Inthesecondlineprintthestringproducedbyconcatenatingaandb(a+b).  Inthethirdlineprinttwostringsseparatedbyaspace,a'andb'.a'andb'arethesameas a and b, respectively, except that their first characters are swapped.  Sample Input abcd  ef  Sample Output 4 2  abcdef ebcdaf  Explanation  a="abcd"  b="ef"  |a|=4  |b| =2  a + b = "abcdef" a' = "ebcd"  b'="af" | |

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### Program:

**#include<stdio.h>**

**int main()**

**{**

**char str1[10],str2[10],t;**

**int i=0,j=0;**

**int count1=0,count2=0;**

**scanf("%s", str1);**

**scanf("%s",str2);**

**while(str1[i]!= '\0')**

**{**

**count1++;**

**i++;**

**}**

**while(str2[j]!= '\0')**

**{**

**count2++;**

**j++;**

**}**

**printf("%d %d\n",count1,count2);**

**printf("%s%s\n", str1,str2);**

**t=str1[0];**

**str1[0]=str2[0];**

**str2[0]=t;**

**printf("%s %s", str1,str2);**

**return 0;**

**}**

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| **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. | |

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| **Program:**  **#include<stdio.h>**  **int main()**  **{**  **char s[1000];**  **scanf("%[^\n]s",s);**  **for(int i=0;s[i]!= '\0';i++)**  **{**  **if (s[i]!=' ')**  **printf("%c",s[1]);**  **else**  **printf("\n");**  **}**  **return 0;**  **}** |

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| **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. | |

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| **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]);**  **}**  **return 0;**  **}** |

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| **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) | |

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| **Program:**  **#include<stdio.h>**  **int main()**  **{**  **int t;**  **scanf("%d",&t);**  **while(t--)**  **{**  **char str[100000];**  **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);**  **}**  **return 0;**  **}** |

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