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**PSG COLLEGE OF TECHNOLOGY, COIMBATORE DEPARTMENT OF APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES**

# JAVA PROGRAMMING LAB

# PROBLEM SHEET – Strings

1. Write a program to search a string for a specified character or substring.
2. Write a program inputs a line of text and uses String method to determine the total number of occurrences of each letter of the alphabet in the text. Uppercase and lowercase letters should be counted together. Store the totals for each letter in an array, and print the values in tabular format after the totals have been determined.
3. Program to print smallest and biggest possible palindrome word in a given string
4. An anagram is a word or a phrase made by transposing the letters of another word or phrase; for example, "parliament" is an anagram of "partial men," and "software" is an anagram of "swear oft." Write a program that figures out whether one string is an anagram of another string. The program should ignore white space and punctuation.
5. **Adjacent characters**

Given a string, write a program to compute a new string where identical chars that are adjacent in the original string are separated from each other by a "\*"

Input and Output Format:

Refer sample input and output for formatting specifications.

All text in bold corresponds to input and the rest corresponds to output.

Sample Input and Output :

Enter the string

hello

The processed string is hel\*lo

1. The **Circoloco Children Carnival** is the City’s largest and successful event dedicated to children and families. Casper is a smart little boy who loves eating cookies and drinking fresh juices. He visits the carnival with his parents and is going to spend N minutes at the event ground. Each minute he either eats a cookie or drinks fresh juice. Cookies are very sweet and thus Casper’s parents have instructed him to drink fresh juice in the next minute, after eating a cookie.  
     
   You are given whether he ate a cookie or drank fresh juice in each of the N minutes. Your task is to check if Casper followed his parents' instructions. That is, you need to verify whether after each eaten cookie he drinks fresh juice in the next minute.  
     
   Input Format:  
   The first line of the input contains an integer N denoting the number of minutes.  
   The second line of the input contains N space-separated strings S1, S2, ...,SN. The string Si is either "cookie" (if Casper eats a cookie in the i-th minute) or "juice" (otherwise).  
      
   Output Format:  
   Output a single line containing the answer — "Yes"(without quotes) if Casper followed his parents' instructions, and "No"(without quotes) otherwise, both without the quotes.  
   Refer sample input and output for formatting specifications.  
     
   Sample Input1:  
   7  
   cookie juice juice cookie juice cookie juice  
   Sample Output1:  
   Yes  
     
   Sample Input 2:  
   5  
   cookie cookie juice juice juice  
   Sample Output 2:  
   No

1. **SPELL BEE CONTEST**

Given a pair of words (the first is the correct spelling and the second is the contestant’s spelling of the word) determine if the word is spelt correctly.

The degree of correctness is as follows:

* CORRECT if it is an exact match
* ALMOST CORRECT if no more than 2 letters are wrong
* WRONG if 3 or more letters are wrong

Input Format:

Input consists of a pair of words.

Output Format:

Output the contestant’s spelling of the word and the degree of correctness. All letters are upper case. The output is to be formatted exactly like that for the sample output given below.

Assumptions:  
Words contain only upper case letters. The maximum word length is 10.

Sample Input:  
SAMPLE  
SIMPLE  
  
Sample Output:  
SIMPLE IS ALMOST CORRECT

1. **Balls for Challenge**

The Circoloco Children Carnival is the City’s largest and successful event dedicated to children and families. The main focus at the carnival is the workshop arena where kids can participate in educational activities.  
   
Charlie, a little boy accompanied by his Mom visited the fair, where he participated at the "Balls for Challenge" activity.  He was given many balls of white and black colors. During the play, he arranged the balls into two rows both consisting of N number of balls. These two rows of balls are given to you in the form of strings X, Y. Both these string consist of 'W' and 'B', where 'W' denotes a white-colored ball and 'B' a black colored.  
  
Other than these two rows of balls, Charlie has an infinite supply of extra balls of each color. He wants to create another row of N balls, Z in such a way that the sum of Hamming distance between X and Z, and hamming distance between Y and Z is maximized.  
  
Hamming Distance between two strings X and Y is defined as the number of positions where the color of balls in row X differs from the row Y ball at that position. e.g. Hamming distance between "WBB", "BWB" is 2, as, at positions 1 and 2, corresponding colors in the two strings differ. As there can be multiple such arrangements of row Z, Charlie wants you to find the lexicographically smallest arrangement which will maximize the above value.  
  
Input Format:  
The first line of the input will contain a string X denoting the arrangement of balls in the first row.  
The second line of the input will contain the string Y denoting the arrangement of balls in second row.  
  
Output Format:  
Output a single line containing the string of length N denoting the arrangement of colors of the balls belonging to row Z.  
Refer to sample input and output for formatting specifications.  
  
Sample Input 1:  
WBWB  
WBBB  
Sample Output 1:  
BWBW  
  
Sample Input 2:  
BBBW  
BWBB  
Sample Output 2:  
WBWB

1. **Fun with Words**

"Juniors Network" Cartoon Channel is the favorite channel of all the kids in the city. As it is vacation time, the channel had introduced several new segments to engage the kids in a more creative manner. "Fun with Words" is one such activity involving English alphabets, where school kids were invited to participate.  
   
Today on the show, the show host Santra briefed the kids about extinct languages and modern languages in the World. Extinct languages are languages that are no longer in use. Such languages were widely used before and no one could have ever imagined that they will become extinct at some point. On the happy side of things, a language may be extinct, but some of its words may continue to be used in other languages.  
   
Santra now has acquired a dictionary of N words of an extinct language.  She also knows K phrases used in modern languages. For each of the words of the forgotten language, the kids are to determine whether the word is still in use in any of these K modern phrases or not. Help them with the activity by writing a block of code.  
   
Input Format:  
First line of the input contains two space separated positive integers N and K.  
The second line of the input contains N strings denoting a dictionary of the extinct language.  
Each of the next K lines of the input starts with one positive integer L denoting the number of words in the corresponding phrase in modern languages. The integer is followed by L strings (not necessarily distinct) denoting the phrase.  
   
Output Format:  
Output a single line containing N tokens (space-separated): if the ith word of the dictionary exists in at least one phrase in modern languages, then you should output "Yes"(without quotes) as the ith token, otherwise "No"(without quotes).  
Refer sample input and output for formatting specifications.  
  
Sample Input 1:  
3 2  
piygu ezyfo rzotm  
1 piygu  
6 tefwz tefwz piygu ezyfo tefwz piygu  
Sample Output 1:  
Yes Yes No  
  
Sample Input 2:  
2 2  
werft qwefr  
2 fgrhr hrhrh  
3 werft qwerfr rtygre  
Sample Output 2:  
Yes No

10) Write a hangman game that randomly generates a word and prompts the user to guess one letter at a time, as shown in the sample run. Each letter in the word is displayed as an asterisk. When the user makes a correct guess, the actual letter is then displayed. When the user finishes a word, display the number of misses and ask the user whether to continue playing. Create a list to store the words, as follows:

# Use any words you wish

**words = ["write", "that", "program", ...]**

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