

Submissions

Year of More Code Jam

5pt Not attempted  
16/17 users correct (94%)

12pt Not attempted  
9/15 users correct (60%)

Min Perimeter

5pt Not attempted  
17/19 users correct (89%)

15pt Not attempted  
4/13 users correct (31%)

Doubly-sorted Grid

10pt Not attempted  
16/16 users correct (100%)

20pt Not attempted  
4/5 users correct (80%)

Wi-fi Towers

3pt Not attempted  
22/22 users correct (100%)

25pt Not attempted  
9/12 users correct (75%)

Marbles

7pt Not attempted  
16/19 users correct (84%)

32pt Not attempted  
2/8 users correct (25%)

Lights

21pt Not attempted  
2/4 users correct (50%)

45pt Not attempted  
1/2 users correct (50%)

Top Scores

ACRush	168
qizichao	87
wata	81
ZhukovDmitry	70
dzhulgakov	69
nika	62
Vitaliy	62
kalinov	55
halyavin	54
bmerry	50

Problem E. Marbles

This contest is open for practice. You can try every problem as many times as you like, though we won't keep track of which problems you solve. Read the Quick-Start Guide to get started.

Small input  
7 points

Solve E-small

Large input  
32 points

Solve E-large

Problem

You have  $2n$  marbles on a square grid. The marbles are colored in  $n$  different colors such that there are exactly 2 marbles of each color. The marbles are placed at the coordinates  $(1,0)$ ,  $(2,0)$ , ...,  $(2n, 0)$ .

Your task is to draw a path for each color that joins the two marbles of that color. Each path should be composed of vertical or horizontal line segments between grid points. No two paths can intersect or touch each other. No path may cross the  $y=0$  line. Each path can only touch the  $y=0$  line at the position of the two marbles it is connecting, so the first and last line segment of each path must be vertical.

Given an arrangement of marbles, return the minimum height of a solution, or return -1 if no solution exists. The height is defined as the difference between the highest and lowest Y-coordinates of the paths used.

An example:

red red blue yellow blue yellow

One solution would be:

+---+ +-----+  
| | | | |  
red red blue yellow blue yellow  
| | | | |  
+-----+

The minimum height is 2 in this case.

Input

The first line of input gives the number of cases,  $T$ .  $T$  test cases follow. The first line of each case contains  $n$ , the number of different colors for the marbles. The next line contains a string of  $2n$  words separated by spaces which correspond to the colors of the marbles, in order from left to right. Each color is a string of lower case letters ('a' .. 'z') no longer than 10 characters. There will be exactly  $n$  different colors and each color will appear exactly twice.

Output

For each test case, output one line containing "Case # $x$ : ", where  $x$  is the case number (starting from 1), followed by the height of any optimal solution, or -1 if no solution exists.

Limits

$1 \leq T \leq 50$ .

Small dataset

$1 \leq n \leq 20$ .

Large dataset

$1 \leq n \leq 500$ .

Sample

Input	Output
4	Case #1: 2
3	Case #2: -1
red red blue yellow blue yellow	Case #3: 3
3	Case #4: 1
red blue yellow red blue yellow	
3	
red blue yellow blue yellow red	

3  
red red blue blue yellow yellow

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