



```
printf("hello, world!\n");
```

Practice Mode

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Round 1A 2014

A. Charging Chaos[B. Full Binary Tree](#)[C. Proper Shuffle](#)[Contest Analysis](#)[Questions asked](#)

- Submissions

Charging Chaos

8pt	Not attempted 3389/5678 users correct (60%)
17pt	Not attempted 1703/2910 users correct (59%)

Full Binary Tree

9pt	Not attempted 1853/2731 users correct (68%)
21pt	Not attempted 1531/1764 users correct (87%)

Proper Shuffle

45pt	Not attempted 333/2186 users correct (15%)
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- Top Scores

Kaizero	100
winger	100
Gennady.Korotkevich	100
SnapDragon	100
PavelKunyavskiy	100
exod40	100
ffao	100
rankalee	100
CLDP	100
aquamongoose	100

Problem A. Charging Chaos

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
8 points

[Download A-small-practice.in](#)

 your output file: No file chosen

source file(s): not needed for the practice contest

Large input
17 points

[Download A-large-practice.in](#)

 your output file: No file chosen

source file(s): not needed for the practice contest

Problem

Shota the farmer has a problem. He has just moved into his newly built farmhouse, but it turns out that the outlets haven't been configured correctly for all of his devices. Being a modern farmer, Shota owns a large number of smartphones and laptops, and even owns a tablet for his favorite cow Wagyu to use. In total, he owns **N** different devices.

As these devices have different specifications and are made by a variety of companies, they each require a different electric flow to charge. Similarly, each outlet in the house outputs a specific electric flow. An electric flow can be represented by a string of 0s and 1s of length **L**.

Shota would like to be able to charge all **N** of his devices at the same time. Coincidentally, there are exactly **N** outlets in his new house. In order to configure the electric flow from the outlets, there is a master control panel with **L** switches. The i^{th} switch flips the i^{th} bit of the electric flow from each outlet in the house. For example, if the electric flow from the outlets is:

```
Outlet 0: 10
Outlet 1: 01
Outlet 2: 11
```

Then flipping the second switch will reconfigure the electric flow to:

```
Outlet 0: 11
Outlet 1: 00
Outlet 2: 10
```

If Shota has a smartphone that needs flow "11" to charge, a tablet that needs flow "10" to charge, and a laptop that needs flow "00" to charge, then flipping the second switch will make him very happy!

Misaki has been hired by Shota to help him solve this problem. She has measured the electric flows from the outlets in the house, and noticed that they are all different. Decide if

it is possible for Shota to charge all of his devices at the same time, and if it is possible, figure out the minimum number of switches that needs to be flipped, because the switches are big and heavy and Misaki doesn't want to flip more than what she needs to.

Input

The first line of the input gives the number of test cases, T . T test cases follow. Each test case consists of three lines. The first line contains two space-separated integers N and L . The second line contains N space-separated strings of length L , representing the initial electric flow from the outlets. The third line also contains N space-separated strings of length L , representing the electric flow required by Shota's devices.

Output

For each test case, output one line containing "Case # x : y ", where x is the case number (starting from 1) and y is the minimum number of switches to be flipped in order for Shota to charge all his devices. If it is impossible, y should be the string "NOT POSSIBLE" (without the quotes). Please note that our judge is not case-sensitive, but it is strict in other ways: so although "not possible" will be judged correct, any misspelling will be judged wrong. We suggest copying/pasting the string NOT POSSIBLE into your code.

Limits

$1 \leq T \leq 100$.

No two outlets will be producing the same electric flow, initially.

No two devices will require the same electric flow.

Small dataset

$1 \leq N \leq 10$.

$2 \leq L \leq 10$.

Large dataset

$1 \leq N \leq 150$.

$10 \leq L \leq 40$.

Sample

Input	Output
3	Case #1: 1
3 2	Case #2: NOT POSSIBLE
01 11 10	Case #3: 0
11 00 10	
2 3	
101 111	
010 001	
2 2	
01 10	
10 01	

Explanation

In the first example case, Misaki can flip the second switch once. The electric flow from the outlets becomes:

```
Outlet 0: 00
Outlet 1: 10
Outlet 2: 11
```

Then Shota can use the outlet 0 to charge device 1, the outlet 1 to charge device 2, outlet 2 to charge device 0. This is also a solution that requires the minimum amount number of switches to be flipped.

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