

5035 Kung Fu Panda Revisited

Master Shifu: So, you are the dragon warrior, hmm?

Po: Umm... I guess so!

Master Shifu: Wrong! You are not the dragon warrior. You would never be the dragon warrior... until you have learnt the secret of the dragon scroll!

Po looking at the scroll: Wow! So how does this work? Do you have a ladder or... any trampoline?

Master Shifu chuckling: Do you think is that so easy that I just hand you the secret to the limitless power?

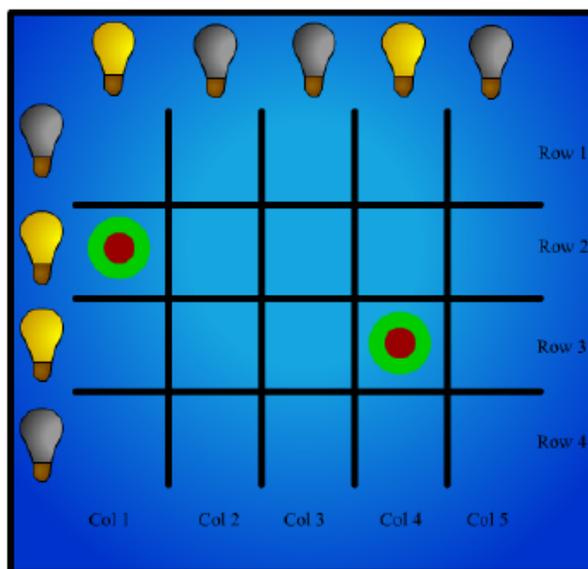
Po: Umm... Ya.. I mean No.. I mean...

Master Shifu: You have to win the ancient sacred game of Su against Viper, Monkey, Mantis, Crane and Tigress, The Furious Five!!!

Po gave a big smile and then what! He fell down-senseless.

How long he was sleeping he did not know. When he woke up he heard a big cheering around. He discovered him on a side of a giant square board. Master Shifu was describing the rule of the game. This board is 50×50 in size, and it is just like a giant uncolored chess board. Each column and each row has a bulb. When one touches a square the corresponding row and column bulb will toggle. That means, if it was ON before touching the square then it will be OFF and vice versa. Initially Master Oogway will lit some lights. You have to touch squares as less as possible and turn all the lights OFF. You can never touch the same cell twice.

For example, in the picture you can see the row 2 and row 3 bulbs are ON and column 1, column 4 bulbs are ON. So Po can finish the game by pressing 2 switches, at (2, 1) and (3, 4). Note that, the board is 500×500 but for space constrained we showed here just a small part of the board.



As the game began The Furious Five finished the game just in few seconds. Po was thinking how to win the game. He has to solve the problem in minimum move to win the tournament. He was thinking and thinking.. Then suddenly he felt his power, his biggest power, the power of hunger. He soon imagined a big Sushi as his prize of this game and guess what, he won the game!

Input

First line of the input denotes the number of test case (not more than 100).

For each test case there are two lines of non negative integers. First integer of the first line denotes number of row light bulbs that are ON. Then the indices of the row of the ON light bulbs follow. Similarly the description of the ON column light bulbs follows in the second line. No row index or column index will appear more than once. Each index will be between 1 to 500 inclusive. The board size will always be 500×500 as stated in the problem description.

You may assume that in all cases number of ON lights in rows will be same as number of ON lights in column.

Output

For each case, print a line with test case.

If the problem is impossible to solve then print ‘Impossible’ in next line. Otherwise print a positive integer (note that in this problem 0 is not considered to be a positive integer), minimum number of touch Po requires. Then you have to print the cell indices. If there are multiple possible minimum solution output the lexicographically smallest one. Index of a cell is denoted by ‘ r, c ’ where r is the row index of the square and c is the column index. One solution **A** is lexicographically smaller than another **solution B** if first s squares in both the solutions are same, and $(s + 1)$ -th square is not same and say $(s + 1)$ -th square of **solution A** is ‘ rA, cA ’ and $(r + 1)$ -th square of **solution B** is ‘ rB, cB ’ and then $(rA < rB$ or $(rA = rB$ and $cA < cB)$).

See the sample input/output for exact formatting.

Explanation of case 3: There is another solution touching 2 squares. ‘1, 2’ ‘2, 1’. But the solution above is lexicographically smaller than this one.

The last test case is the one explained in the problem statement.

Sample Input

```
4
1 20
1 11
1 1
1 20
2 1 2
2 1 2
2 2 3
2 1 4
```

Sample Output

```
Case 1:
1
20, 11
Case 2:
1
1, 20
Case 3:
2
1, 1
2, 2
Case 4:
2
2, 1
3, 4
```