Problem 8QUEENS: 8 Queens

In chess it is possible to place eight queens on the board so that no one queen can be taken by any other. Write a program that will determine all such possible arrangements for eight queens given the initial position of one of the queens.

Do not attempt to write a program which evaluates every possible 8 configuration of 8 queens placed on the board. This would require 8^8 evaluations and would bring the system to its knees. There will be a reasonable run time constraint placed on your program.

Input

The first line of the input contains the number of datasets, and it's followed by a blank line. Each dataset will be two numbers separated by a blank. The numbers represent the square on which one of the eight queens must be positioned. A valid square will be represented; it will not be necessary to validate the input.

To standardize our notation, assume that the upper left-most corner of the board is position (1,1). Rows run horizontally and the top row is row 1. Columns are vertical and column 1 is the left-most column. Any reference to a square is by row then column; thus square (4,6) means row 4, column 6.

Each dataset is separated by a blank line.

Output

Output for each dataset will consist of a one-line-per-solution representation.

Each solution will consist of 8 numbers. Each of the 8 numbers will be the ROW coordinate for that solution. The column coordinate will be indicated by the order in which the 8 numbers are printed. That is, the first number represents the ROW in which the queen is positioned in column 1; the second number represents the ROW in which the queen is positioned in column 2, and so on.

The sample input below produces 4 solutions. The full 8×8 representation of each solution is shown below.

```
   SOLUTION 1           SOLUTION 2           SOLUTION 3           SOLUTION 4

1 0 0 0 0 0 0 0      1 0 0 0 0 0 0 0      1 0 0 0 0 0 0 0      1 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0      0 0 0 0 0 0 1 0      0 0 0 0 0 1 0 0      0 0 0 0 1 0 0 0
0 0 0 0 1 0 0 0      0 0 0 1 0 0 0 0      0 0 0 0 0 0 0 1      0 0 0 0 0 0 0 1
0 0 0 0 0 0 0 1      0 0 0 0 0 1 0 0      0 0 1 0 0 0 0 0      0 0 0 0 0 1 0 0
0 1 0 0 0 0 0 0      0 0 0 0 0 0 0 1      0 0 0 0 0 0 1 0      0 0 1 0 0 0 0 0
0 0 0 1 0 0 0 0      0 1 0 0 0 0 0 0      0 0 0 1 0 0 0 0      0 0 0 0 0 0 1 0
0 0 0 0 0 1 0 0      0 0 0 0 1 0 0 0      0 1 0 0 0 0 0 0      0 1 0 0 0 0 0 0
0 0 1 0 0 0 0 0      0 0 1 0 0 0 0 0      0 0 0 0 1 0 0 0      0 0 0 1 0 0 0 0
```

Submit only the one-line, 8 digit representation of each solution as described earlier. Solution #1 below indicates that there is a queen at Row 1, Column 1; Row 5, Column 2; Row 8, Column 3; Row 6, Column 4; Row 3,Column 5; ... Row 4, Column 8.

Print the solutions in lexicographical order.

Print a blank line between datasets.

Sample Input 1

```
1

1 1
```

Sample Output 1

```
1 5 8 6 3 7 2 4
1 6 8 3 7 4 2 5
1 7 4 6 8 2 5 3
1 7 5 8 2 4 6 3
```