

Rotation

Description

An $n \times m$ table of 2-D integer array is given. Rotate it by 90 degrees clockwise.

Input

Your program is to read from standard input. The input consists of T test cases. The number of test cases T is given in the first line of input. Each test case starts with a line giving two integers n and m ($0 < n, m \leq 10$). Then for the next n lines, m integers k will be given, each k separated by a space ($0 \leq k \leq 9$).

Output

Your program is to write to standard output. For each test case you should print a 2-D integer array of size $m \times n$, where it consists of m lines and n integers per line, each separated by a space.

Sample

Input

```
2
3 5
0 2 4 2 1
2 6 3 4 7
1 6 3 2 8
1 2
9 4
```

Output

```
1 2 0
6 6 2
3 3 4
2 4 2
8 7 1
9
4
```