

Problem 7: criss cross applesauce demitasse candyfloss

6 Points

Problem ID: `cross`

Rank: 2

Introduction

Big Ben is knitting a new quilt as a present for for his grandma, [Humongous Holly](#), but he needs your help with its design. Maybe he can do something with [noughts and crosses](#), since she's such a devout fan of such notable folks as [Ursus Christ](#) and [Paular Beardós](#)...

Problem Statement

Construct an $N \times M$ grid consisting of the numbers 0, 1, 2, 3, and 4 such that any cross that fits completely inside the grid will contain each number exactly once.

The cross looks like:

	*	
*	*	*
	*	

It is guaranteed the grid is possible to construct.

Input Format

The first line of the input contains a single integer T denoting the number of test cases that follow.

Each test case contains two space-separated integers N M representing the number of rows and columns in the grid that is to be constructed, respectively.

Output Format

For each test case, output a 2D $N \times M$ grid representing your constructed grid. For each test case, output N rows, each containing M space separated integers in the range $[0, 4]$.

Constraints

$$1 \leq T \leq 10$$

$$3 \leq M, N \leq 1000$$

It is guaranteed the grid is possible to construct.

Sample Test Cases

Main Sample Input

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```
2
3 3
3 4
```

Main Sample Output

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```
0 0 0
1 2 3
4 4 4
1 0 1 0
1 2 3 4
4 4 0 0
```

Note that this is one of many possible correct outputs. If there are multiple solutions, you may output any of them.

Sample Explanations

For test case #1, the output forms the grid:

0	0	0
1	2	3
4	4	4

There is one cross that can be formed entirely within the grid (centered on the 2), and it contains all of the numbers from 0 to 4. No other crosses fit completely inside the grid, so the numbers in the 4 corners are irrelevant.

For test case #2, the output would form the grid:

1	0	1	0
1	2	3	4
4	4	0	0

There are two crosses that can be formed entirely within the grid (centered on the 2 and 3), and both crosses contain all the numbers from 0 to 4.