

B. St. Chroma

time limit per test: 2 seconds
memory limit per test: 256 megabytes

Given a permutation* p of length n that contains every integer from 0 to $n - 1$ and a strip of n cells, St. Chroma will paint the i -th cell of the strip in the color $\text{MEX}(p_1, p_2, \dots, p_i)^\dagger$.

For example, suppose $p = [1, 0, 3, 2]$. Then, St. Chroma will paint the cells of the strip in the following way: $[0, 2, 2, 4]$.

You have been given two integers n and x . Because St. Chroma loves color x , construct a permutation p such that the number of cells in the strip that are painted color x is **maximized**.

* A permutation of length n is a sequence of n elements that contains every integer from 0 to $n - 1$ exactly once. For example, $[0, 3, 1, 2]$ is a permutation, but $[1, 2, 0, 1]$ isn't since 1 appears twice, and $[1, 3, 2]$ isn't since 0 does not appear at all.

† The MEX of a sequence is defined as the first non-negative integer that does not appear in it. For example, $\text{MEX}(1, 3, 0, 2) = 4$, and $\text{MEX}(3, 1, 2) = 0$.

Input

The first line of the input contains a single integer t ($1 \leq t \leq 4000$) — the number of test cases.

The only line of each test case contains two integers n and x ($1 \leq n \leq 2 \cdot 10^5$, $0 \leq x \leq n$) — the number of cells and the color you want to maximize.

It is guaranteed that the sum of n over all test cases does not exceed $2 \cdot 10^5$.

Output

Output a permutation p of length n such that the number of cells in the strip that are painted color x is **maximized**. If there exist multiple such permutations, output any of them.

Example

input	Copy
7	
4 2	
4 0	
5 0	
1 1	
3 3	
1 0	
4 3	
output	Copy
1 0 3 2	
2 3 1 0	
3 2 4 1 0	
0	
0 2 1	
0	
1 2 0 3	

Note

The first example is explained in the statement. It can be shown that 2 is the maximum amount of cells that can be painted in color 2 . Note that another correct answer would be the permutation $[0, 1, 3, 2]$.

In the second example, the permutation gives the coloring $[0, 0, 0, 4]$, so 3 cells are painted in color 0 , which can be shown to be maximum.

Codeforces Round 1020 (Div. 3)

Contest is running

01:12:19

Contestant



→ Submit?

Language:
GNU G++23 14.2 (64 bit, ms)

Choose file:
No file chosen

→ Last submissions

Submission	Time	Verdict
317038348	Apr/24/2025 18:36	Accepted
317034134	Apr/24/2025 18:30	Wrong answer on test 2
317032598	Apr/24/2025 18:28	Wrong answer on test 2
317030756	Apr/24/2025 18:25	Wrong answer on test 1
317027915	Apr/24/2025 18:21	Wrong answer on test 2
317023238	Apr/24/2025 18:15	Wrong answer on test 1
317018918	Apr/24/2025 18:10	Wrong answer on test 1

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