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 $\text{MEX}(p_1, p_2, \ldots, p_i)$†.

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 ($1 \le t \le 4000$) — the number of test cases.

The only line of each test case contains two integers n and x ($1 \le n \le 2 \cdot 10^5$, $0 \le x \le n$) — 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.

Supported by