Problem I
Lexicographical Order

Time limit: 1 second
Memory limit: 256 megabytes

Problem Description

The number of permutations of $\{1, \ldots, n\}$ is $n!$, and a permutation of $\{1, \ldots, n\}$ can be written as an n-tuple $(p_1, \ldots, p_n)$ where $\{1, \ldots, n\} = \{p_1, \ldots, p_n\}$. Permutation $(p_1, \ldots, p_n)$ is smaller than permutation $(q_1, \ldots, q_n)$ in lexicographical order if and only if there exists $i \in \{1, \ldots, n\}$ such that $p_i < q_i$ and $p_j = q_j$ for $j < i$.

Write a program to compute the i-th smallest permutation of $\{1, \ldots, n\}$.

Input Format

The first line of the input contains an integer t ($t \leq 10^4$) indicating the number of test cases. Each test case is a line containing two integers n and i where $0 < n \leq 64$ and $0 < i \leq \min(2^{64} - 1, n!)$.

Output Format

For each test case, output the n-tuple representing the i-th smallest permutation of $\{1, \ldots, n\}$ in lexicographical order.

Sample Input

```
3
5 1
4 2
3 6
```

Sample Output

```
(1,2,3,4,5)
(1,2,4,3)
(3,2,1)
```