

@LeetCode

The set `[1, 2, 3, ..., n]` contains a total of  $n!$  unique permutations.

By listing and labeling all of the permutations in order, we get the following sequence for  $n = 3$ :

1. `"123"`
2. `"132"`
3. `"213"`
4. `"231"`
5. `"312"`
6. `"321"`

Given  $n$  and  $k$ , return the  $k^{\text{th}}$  permutation sequence.

**Note:**

- Given  $n$  will be between 1 and 9 inclusive.
- Given  $k$  will be between 1 and  $n!$  inclusive.

**Example 1:**

**Input:**  $n = 3, k = 3$

**Output:** `"213"`

**Example 2:**

**Input:**  $n = 4, k = 9$

**Output:** `"2314"`