

# Problem 60: Permutation Sequence

## Problem Information

**Difficulty:** Hard

**Acceptance Rate:** 51.28%

**Paid Only:** No

**Tags:** Math, Recursion

## Problem Description

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.

**Example 1:**

**Input:**  $n = 3$ ,  $k = 3$  **Output:** `"213"`

**Example 2:**

**Input:**  $n = 4$ ,  $k = 9$  **Output:** `"2314"`

**Example 3:**

**Input:**  $n = 3$ ,  $k = 1$  **Output:** `"123"`

**Constraints:**

$1 \leq n \leq 9$   $1 \leq k \leq n!$

## Code Snippets

### C++:

```
class Solution {  
public:  
    string getPermutation(int n, int k) {  
  
    }  
};
```

### Java:

```
class Solution {  
public String getPermutation(int n, int k) {  
  
}  
}
```

### Python3:

```
class Solution:  
    def getPermutation(self, n: int, k: int) -> str:
```