70. Permutation Sequence

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

Code:

```
import math

def getPermutation(n, k):
    factorials = [1] * (n+1)
    for i in range(2, n+1):
        factorials[i] = factorials[i-1] * i
    digits = list(range(1, n+1))
    result = []
    k -= 1
    for i in range(n, 0, -1):
        index = k // factorials[i-1]
        digit = digits[index]
        result.append(str(digit))
        digits.remove(digit)
        k %= factorials[i-1]

    return ''.join(result)
n = 3
k = 3
print(getPermutation(n, k))
```

Output:

```
213
```

Time Complexity:

- T(n)= O(n)