

70) Permutation Sequence

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

CODE:

```
def getPermutation(n, k):
    import math
    factorials = [1] * n
    digits = [str(i) for i in range(1, n+1)]

    for i in range(2, n):
        factorials[i] = factorials[i-1] * i

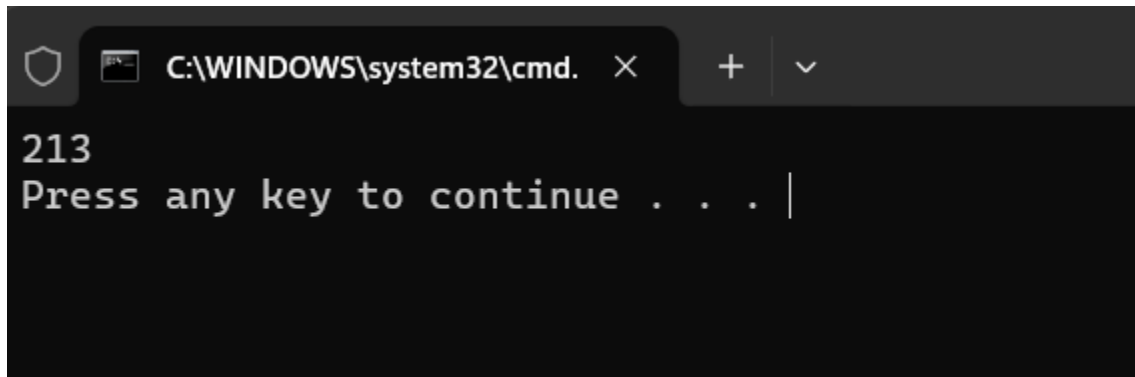
    k -= 1

    result = []
    for i in reversed(range(n)):
        index = k // factorials[i]
        k %= factorials[i]
        result.append(digits.pop(index))

    return ''.join(result)

a=3
k=3
print(getPermutation(a,k))
```

OUTPUT:

A screenshot of a Windows command prompt window. The title bar shows the path 'C:\WINDOWS\system32\cmd.' and standard window controls. The command prompt displays the output '213' on the first line and 'Press any key to continue . . . |' on the second line, with a vertical cursor at the end of the second line.

TIME COMPLEXITY : $O(2^n)$