1866. Number of Ways to Rearrange Sticks With K Sticks Visible

Description

There are `n` uniquely-sized sticks whose lengths are integers from `1` to `n`. You want to arrange the sticks such that **exactly** `k` sticks are **visible** from the left. A stick is **visible** from the left if there are no **longer** sticks to the **left** of it.

- For example, if the sticks are arranged `[1,3,2,5,4]`, then the sticks with lengths `1`, `3`, and `5` are visible from the left.

Given `n` and `k`, return *the **number** of such arrangements*. Since the answer may be large, return it **modulo** $10^9 + 7$.

Example 1:

```
Input: n = 3, k = 2
Output: 3
Explanation: [1,3,2], [2,3,1], and [2,1,3] are the only arrangements such that exactly 2 sticks are visible.
The visible sticks are underlined.
```

Example 2:

```
Input: n = 5, k = 5
Output: 1
Explanation: [1,2,3,4,5] is the only arrangement such that all 5 sticks are visible.
The visible sticks are underlined.
```

Example 3:

```
Input: n = 20, k = 11
Output: 647427950
Explanation: There are 647427950 (mod 10^9 + 7) ways to rearrange the sticks such that exactly 11 sticks are visible.
```

Constraints:

- `1 <= n <= 1000`
- `1 <= k <= n`