1461. Count All Valid Pickup and Delivery Options

Difficulty : Hard

https://leetcode.com/problems/count-all-valid-pickup-and-delivery-options

Given `n` orders, each order consists of a pickup and a delivery service.

Count all valid pickup/delivery possible sequences such that delivery(i) is always after of pickup(i).

Since the answer may be too large, return it modulo 10^9 + 7.

Example 1:

```
Input: n = 1
Output: 1
Explanation: Unique order (P1, D1), Delivery 1 always is after of Pickup 1.
```

Example 2:

```
Input: n = 2
Output: 6
Explanation: All possible orders:
(P1,P2,D1,D2), (P1,P2,D2,D1), (P1,D1,P2,D2), (P2,P1,D1,D2), (P2,P1,D2,D1) and (P2,D2,P1,D1).
This is an invalid order (P1,D2,P2,D1) because Pickup 2 is after of Delivery 2.
```

Example 3:

```
Input: n = 3
Output: 90
```

Constraints:

- `1 <= n <= 500`