Problem 634: Find the Derangement of An Array

Problem Information

Difficulty: Medium
Acceptance Rate: 41.70%
Paid Only: Yes
Tags: Math, Dynamic Programming, Combinatorics

Problem Description

In combinatorial mathematics, a **derangement** is a permutation of the elements of a set, such that no element appears in its original position.

You are given an integer `n`. There is originally an array consisting of `n` integers from `1` to `n` in ascending order, return _the number of**derangements** it can generate_. Since the answer may be huge, return it **modulo** `109 + 7`.

Example 1:

Input: n = 3 **Output:** 2 **Explanation:** The original array is [1,2,3]. The two derangements are [2,3,1] and [3,1,2].

Example 2:

Input: n = 2 **Output:** 1

Constraints:

* `1 <= n <= 106`

Code Snippets

C++:

```cpp
class Solution {
public:
int findDerangement(int n) {


}
};
```

Java:

```java
class Solution {
public int findDerangement(int n) {


}
}
```

Python3:

```python
class Solution:
def findDerangement(self, n: int) -> int:
```