Problem 1175: Prime Arrangements

Problem Information

Difficulty: Easy
Acceptance Rate: 60.54%
Paid Only: No
Tags: Math

Problem Description

Return the number of permutations of 1 to `n` so that prime numbers are at prime indices (1-indexed.)

(Recall that an integer is prime if and only if it is greater than 1, and cannot be written as a product of two positive integers both smaller than it.)

Since the answer may be large, return the answer **modulo`10^9 + 7`**.

Example 1:

Input: n = 5 **Output:** 12 **Explanation:** For example [1,2,5,4,3] is a valid permutation, but [5,2,3,4,1] is not because the prime number 5 is at index 1.

Example 2:

Input: n = 100 **Output:** 682289015

Constraints:

* `1 <= n <= 100`

Code Snippets

C++:

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


}
};
```

Java:

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


}
}
```

Python3:

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