2415. Count the Number of Ideal Arrays

Difficulty : Hard

https://leetcode.com/problems/count-the-number-of-ideal-arrays

You are given two integers `n` and `maxValue`, which are used to describe an **ideal** array.

A **0-indexed** integer array `arr` of length `n` is considered **ideal** if the following conditions hold:

- Every `arr[i]` is a value from `1` to `maxValue`, for `0 <= i < n`.
- Every `arr[i]` is divisible by `arr[i - 1]`, for `0 < i < n`.

Return *the number of **distinct** ideal arrays of length* `n`. Since the answer may be very large, return it modulo $10^9 + 7$.

Example 1:

```
Input: n = 2, maxValue = 5
Output: 10
Explanation: The following are the possible ideal arrays:
- Arrays starting with the value 1 (5 arrays): [1,1], [1,2], [1,3], [1,4], [1,5]
- Arrays starting with the value 2 (2 arrays): [2,2], [2,4]
- Arrays starting with the value 3 (1 array): [3,3]
- Arrays starting with the value 4 (1 array): [4,4]
- Arrays starting with the value 5 (1 array): [5,5]
There are a total of 5 + 2 + 1 + 1 + 1 = 10 distinct ideal arrays.
```

Example 2:

```
Input: n = 5, maxValue = 3
Output: 11
Explanation: The following are the possible ideal arrays:
- Arrays starting with the value 1 (9 arrays):
   - With no other distinct values (1 array): [1,1,1,1,1]
   - With 2nd distinct value 2 (4 arrays): [1,1,1,1,2], [1,1,1,2,2], [1,1,2,2,2], [1,2,2,2,2]
   - With 2nd distinct value 3 (4 arrays): [1,1,1,1,3], [1,1,1,3,3], [1,1,3,3,3], [1,3,3,3,3]
- Arrays starting with the value 2 (1 array): [2,2,2,2,2]
- Arrays starting with the value 3 (1 array): [3,3,3,3,3]
There are a total of 9 + 1 + 1 = 11 distinct ideal arrays.
```

Constraints:

- $2 <= n <= 10^4$
- $1 <= maxValue <= 10^4$