2338. Count the Number of Ideal Arrays

Description

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 109 + 7.

Example 1:

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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:

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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 2 nd 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 2 nd distinct value 3 (4 arrays): [1,1,1,1,3], [1,1,1,3,3], [1,1,3,3,3,3],
- 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