3345. Find the Sum of the Power of All Subsequences

Difficulty : Hard

https://leetcode.com/problems/find-the-sum-of-the-power-of-all-subsequences

You are given an integer array `nums` of length `n` and a **positive** integer `k`.

The **power** of an array of integers is defined as the number of subsequences with their sum **equal** to `k`.

Return *the **sum** of **power** of all subsequences of* `nums`.

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

Example 1:

Input: nums = [1,2,3], k = 3

Output: 6

Explanation:

There are 5 subsequences of nums with non-zero power:

- The subsequence [**1**,**2**,**3**] has 2 subsequences with `sum == 3`: [1,2,3] and [1,2,3].
- The subsequence [**1**,2,**3**] has 1 subsequence with `sum == 3`: [1,2,3].
- The subsequence [1,**2**,**3**] has 1 subsequence with `sum == 3`: [1,2,3].
- The subsequence [**1**,**2**,3] has 1 subsequence with `sum == 3`: [1,2,3].
- The subsequence [1,2,**3**] has 1 subsequence with `sum == 3`: [1,2,3].

Hence the answer is `2 + 1 + 1 + 1 + 1 = 6`.

Example 2:

Input: nums = [2,3,3], k = 5

Output: 4

Explanation:

There are 3 subsequences of nums with non-zero power:

- The subsequence [**2**,**3**,**3**] has 2 subsequences with `sum == 5`: [2,3,3] and [2,3,3].
- The subsequence [**2**,3,**3**] has 1 subsequence with `sum == 5`: [2,3,3].
- The subsequence [**2**,**3**,3] has 1 subsequence with `sum == 5`: [2,3,3].

Hence the answer is `2 + 1 + 1 = 4`.

Example 3:

Input: nums = [1,2,3], k = 7

Output: 0

Explanation: There exists no subsequence with sum 7. Hence all subsequences of nums have `power = 0`.

Constraints:

- `1 <= n <= 100`
- `1 <= nums[i] <= ` 10^4
- `1 <= k <= 100`