

Description

Submissions

Python

A die simulator generates a random number from 1 to 6 for each roll. You introduced a constraint to the generator such that it cannot roll the number i more than $\text{rollMax}[i]$ (**1-indexed**) consecutive times.

Given an array of integers rollMax and an integer n , return the number of distinct sequences that can be obtained with exact n rolls. Since the answer may be too large, return it modulo $10^9 + 7$.

Two sequences are considered different if at least one element differs from each other.

Example 1:

Input: $n = 2$, $\text{rollMax} = [1,1,2,2,2,3]$

Output: 34

Explanation: There will be 2 rolls of die, if there are no constraints on the die, there are $6 * 6 = 36$ possible combinations. In this case, looking at rollMax array, the numbers 1 and 2 appear at most once consecutively, therefore sequences (1,1) and (2,2) cannot occur, so the final answer is $36 - 2 = 34$.

Example 2:

Input: $n = 2$, $\text{rollMax} = [1,1,1,1,1,1]$

Output: 30

Example 3:

Input: $n = 3$, $\text{rollMax} = [1,1,1,2,2,3]$

Output: 181

Constraints:

- $1 \leq n \leq 5000$
- $\text{rollMax.length} == 6$
- $1 \leq \text{rollMax}[i] \leq 15$

```

1  class Solution:
2  def dieSimulator(self, n: int, rollMax: List[int]) -> int:
3
4      MOD = 10**9 + 7
5
6      dp = [[0] * 6 for _ in range(n + 1)]
7
8      dp[0][0] = 1
9
10     for i in range(1, n + 1):
11         for j in range(6):
12             for k in range(1, rollMax[j] + 1):
13                 dp[i][j] += dp[i - k][j - k]
14
15     return dp[n][0] % MOD

```