

2408. Number of People Aware of a Secret

Difficulty : Medium

<https://leetcode.com/problems/number-of-people-aware-of-a-secret>

On day 1, one person discovers a secret.

You are given an integer `delay`, which means that each person will **share** the secret with a new person **every day**, starting from `delay` days after discovering the secret. You are also given an integer `forget`, which means that each person will **forget** the secret `forget` days after discovering it. A person **cannot** share the secret on the same day they forgot it, or on any day afterwards.

Given an integer `n`, return *the number of people who know the secret at the end of day n*. Since the answer may be very large, return it **modulo** $10^9 + 7$.

Example 1:

Input: `n = 6, delay = 2, forget = 4`

Output: 5

Explanation:

Day 1: Suppose the first person is named A. (1 person)

Day 2: A is the only person who knows the secret. (1 person)

Day 3: A shares the secret with a new person, B. (2 people)

Day 4: A shares the secret with a new person, C. (3 people)

Day 5: A forgets the secret, and B shares the secret with a new person, D. (3 people)

Day 6: B shares the secret with E, and C shares the secret with F. (5 people)

Example 2:

Input: `n = 4, delay = 1, forget = 3`

Output: 6

Explanation:

Day 1: The first person is named A. (1 person)

Day 2: A shares the secret with B. (2 people)

Day 3: A and B share the secret with 2 new people, C and D. (4 people)

Day 4: A forgets the secret. B, C, and D share the secret with 3 new people. (6 people)

Constraints:

- $2 \leq n \leq 1000$
- $1 \leq \text{delay} < \text{forget} \leq n$