

853. Car Fleet

Description

There are `n` cars going to the same destination along a one-lane road. The destination is `target` miles away.

You are given two integer array `position` and `speed`, both of length `n`, where `position[i]` is the position of the `ith` car and `speed[i]` is the speed of the `ith` car (in miles per hour).

A car can never pass another car ahead of it, but it can catch up to it and drive bumper to bumper **at the same speed**. The faster car will **slow down** to match the slower car's speed. The distance between these two cars is ignored (i.e., they are assumed to have the same position).

A **car fleet** is some non-empty set of cars driving at the same position and same speed. Note that a single car is also a car fleet.

If a car catches up to a car fleet right at the destination point, it will still be considered as one car fleet.

Return *the number of car fleets that will arrive at the destination*.

Example 1:

Input: target = 12, position = [10,8,0,5,3], speed = [2,4,1,1,3]

Output: 3

Explanation:
The cars starting at 10 (speed 2) and 8 (speed 4) become a fleet, meeting each other at 12.
The car starting at 0 does not catch up to any other car, so it is a fleet by itself.
The cars starting at 5 (speed 1) and 3 (speed 3) become a fleet, meeting each other at 6. The fleet moves at speed 1 until it reaches target.
Note that no other cars meet these fleets before the destination, so the answer is 3.

Example 2:

Input: target = 10, position = [3], speed = [3]

Output: 1

Explanation: There is only one car, hence there is only one fleet.

Example 3:

Input: target = 100, position = [0,2,4], speed = [4,2,1]

Output: 1

Explanation:
The cars starting at 0 (speed 4) and 2 (speed 2) become a fleet, meeting each other at 4. The fleet moves at speed 2.
Then, the fleet (speed 2) and the car starting at 4 (speed 1) become one fleet, meeting each other at 6. The fleet moves at speed 1 until it reaches target.

Constraints:

- `n == position.length == speed.length`
- `1 <= n <= 105`
- `0 < target <= 106`
- `0 <= position[i] < target`
- All the values of `position` are **unique**.
- `0 < speed[i] <= 106`

