6040. Maximum Total Beauty of the Gardens

My Submissions (/contest/weekly-contest-288/problems/maximum-total-beauty-of-the-gardens/submissions/) Back to Contest (/contest/weekly-contest-288/)

User Accepted:	0
User Tried:	0
Total Accepted:	0
Total Submissions:	0
Difficulty:	Hard

Alice is a caretaker of `n` gardens and she wants to plant flowers to maximize the total beauty of all her gardens.

You are given a **0-indexed** integer array `flowers` of size `n`, where `flowers[i]` is the number of flowers already planted in the i^{th} garden. Flowers that are already planted **cannot** be removed. You are then given another integer `newFlowers`, which is the **maximum** number of flowers that Alice can additionally plant. You are also given the integers `target`, `full`, and `partial`.

A garden is considered **complete** if it has **at least** `target` flowers. The **total beauty** of the gardens is then determined as the **sum** of the following:

- The number of **complete** gardens multiplied by `full`.
- The **minimum** number of flowers in any of the **incomplete** gardens multiplied by `partial`. If there are no incomplete gardens, then this value will be `0`.

Return *the **maximum** total beauty that Alice can obtain after planting at most* `newFlowers` *flowers.*

Example 1:

```
Input: flowers = [1,3,1,1], newFlowers = 7, target = 6, full = 12, partial = 1
Output: 14
Explanation: Alice can plant
- 2 flowers in the 0th garden
- 3 flowers in the 1st garden
- 1 flower in the 2nd garden
- 1 flower in the 3rd garden
The gardens will then be [3,6,2,2]. She planted a total of 2 + 3 + 1 + 1 = 7 flowers.
There is 1 garden that is complete.
The minimum number of flowers in the incomplete gardens is 2.
Thus, the total beauty is 1 * 12 + 2 * 1 = 12 + 2 = 14.
No other way of planting flowers can obtain a total beauty higher than 14.
```

Example 2:

```
Input: flowers = [2,4,5,3], newFlowers = 10, target = 5, full = 2, partial = 6
Output: 30
Explanation: Alice can plant
- 3 flowers in the 0th garden
- 0 flowers in the 1st garden
- 0 flowers in the 2nd garden
- 2 flowers in the 3rd garden
The gardens will then be [5,4,5,5]. She planted a total of 3 + 0 + 0 + 2 = 5 flowers.
There are 3 gardens that are complete.
The minimum number of flowers in the incomplete gardens is 4.
Thus, the total beauty is 3 * 2 + 4 * 6 = 6 + 24 = 30.
No other way of planting flowers can obtain a total beauty higher than 30.
Note that Alice could make all the gardens complete but in this case, she would obtain a lower total beauty.
```

Constraints:

- `1 <= flowers.length <= 10^5`
- `1 <= flowers[i], target <= 10^5`
- `1 <= newFlowers <= 10^10`
- `1 <= full, partial <= 10^5`

C++

```
class Solution {
public:
    long long maximumBeauty(vector<int>& flowers, long long newFlowers, int target, int full, int partial) {

    }
};
```