

3645. Maximum Total from Optimal Activation Order

Solved ●

Medium

Topics



Hint

You are given two integer arrays `value` and `limit`, both of length `n`.

Initially, all elements are **inactive**. You may activate them in any order.

- To activate an inactive element at index `i`, the number of **currently** active elements must be **strictly less** than `limit[i]`.
- When you activate the element at index `i`, it adds `value[i]` to the **total** activation value (i.e., the sum of `value[i]` for all elements that have undergone activation operations).
- After each activation, if the number of **currently** active elements becomes `x`, then **all** elements `j` with `limit[j] <= x` become **permanently** inactive, even if they are already active.

Return the **maximum total** you can obtain by choosing the activation order optimally.

Example 1:

Input: `value = [3,5,8]`, `limit = [2,1,3]`

Output: 16

Explanation:

One optimal activation order is:

Step	Activated <code>i</code>	<code>value[i]</code>	Active Before <code>i</code>	Active After <code>i</code>	Becomes Inactive <code>j</code>	Inactive Elements	Total
1	1	5	0	1	<code>j = 1</code> as <code>limit[1] = 1</code>	[1]	5
2	0	3	0	1	-	[1]	8
3	2	8	1	2	<code>j = 0</code> as <code>limit[0] = 2</code>	[0, 1]	16

Thus, the maximum possible total is 16.

Example 2:

Input: `value = [4,2,6]`, `limit = [1,1,1]`

Output: 6

Explanation:

One optimal activation order is:

Step	Activated <code>i</code>	<code>value[i]</code>	Active Before <code>i</code>	Active After <code>i</code>	Becomes Inactive <code>j</code>	Inactive Elements	Total
1	2	6	0	1	<code>j = 0, 1, 2</code> as <code>limit[j] = 1</code>	[0, 1, 2]	6

Thus, the maximum possible total is 6.

Example 3:

Input: `value = [4,1,5,2]`, `limit = [3,3,2,3]`

Output: 12

Explanation:

One optimal activation order is:

Step	Activated _i	<code>value[i]</code>	Active Before _i	Active After _i	Becomes Inactive _j	Inactive Elements	Total
1	2	5	0	1	-	[]	5
2	0	4	1	2	<code>j = 2</code> as <code>limit[2] = 2</code>	[2]	9
3	1	1	1	2	-	[2]	10
4	3	2	2	3	<code>j = 0, 1, 3</code> as <code>limit[j] = 3</code>	[0, 1, 2, 3]	12

Thus, the maximum possible total is 12.


Constraints:

- `1 <= n == value.length == limit.length <= 105`
- `1 <= value[i] <= 105`
- `1 <= limit[i] <= n`

Seen this question in a real interview before? 1/5

Yes No

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Topics	▼
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Hint 1	▼
Hint 2	▼
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