Data Structure HW5

Problem 1: Find Most Allure Element for Each Inquiries

You are provided with a 2D integer array ***elements*** with ***m*** data where ***elements[i] = [$cost_i$, $allure_i$]*** represents the **cost** and **allure** of an element respectively.

You are also given a **0-indexed** integer array ***inquiries***. The length of ***inquiries*** is ***n***. For each ***inquiries[j]***, you need to find out the **maximum allure** of an element whose **cost** is **less than or equal** to ***inquiries[j]***. If there is no such element, then the response to this inquiry is ***0***.

Return an array ***responses*** of the same length as ***inquiries*** where ***responses[j]*** is the response to the j^{th} inquiry.

Example 1:

Input: m = 5, n = 6, elements = [[1, 2], [3, 2], [2, 4], [5, 6], [3, 5]], inquiries = [1, 2, 3, 4, 5, 6]

```
5 6
1 2
3 2
2 4
5 6
3 5
1 2 3 4 5 6
```

Output: [2, 4, 5, 5, 6, 6]

```
2 4 5 5 6 6
```

Explanation:

- For inquiries[0]=1, [1, 2] is the only element which has cost <= 1. Hence, the response for this inquiry is 2.
- For inquiries[1]=2, the elements which can be considered are [1, 2] and [2, 4]. The maximum allure among them is 4.
- For inquiries[2]=3 and inquiries[3]=4, the elements which can be considered are [1, 2], [3, 2], [2, 4], and [3, 5]. The maximum allure among them is 5.

- For inquiries[4]=5 and inquiries[5]=6, all elements can be considered. Hence, the response for them is the maximum allure of all elements, i.e., 6.

Example 2:

Input: m = 4, n = 1, elements = [[1, 2], [1, 2], [1, 3], [1, 4]], inquiries = [1]

```
4 1
1 2
1 2
1 3
1 4
1
```

Output: [4]

```
4
```

Explanation:

The cost of every element is equal to 1, so we choose the element with the maximum allure 4. Note that multiple elements can have the same cost and/or allure.

Example 3:

Input: m = 1, n = 1, elements = [[10, 1000]], inquiries = [5]

```
1 1
10 1000
5
```

Output: [0]

```
0
```

Explanation:

No element has a cost less than or equal to 5, so no element can be chosen. Hence, the answer to the inquiries is 0.

Constraints:

- 1 <= elements.length, inquiries.length <= 10^5

- elements[i].length == 2
- $1 <= cost_i, allure_i, inquiries[j] <= 10^9$