6891. Robot Collisions

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User Accepted:	1
User Tried:	9
Total Accepted:	1
Total Submissions:	17
Difficulty:	Hard

There are `n` **1-indexed** robots, each having a position on a line, health, and movement direction.

You are given **0-indexed** integer arrays `positions`, `healths`, and a string `directions` (`directions[i]` is either **'L'** for **left** or **'R'** for **right**). All integers in `positions` are **unique**.

All robots start moving on the line **simultaneously** at the **same speed** in their given directions. If two robots ever share the same position while moving, they will **collide**.

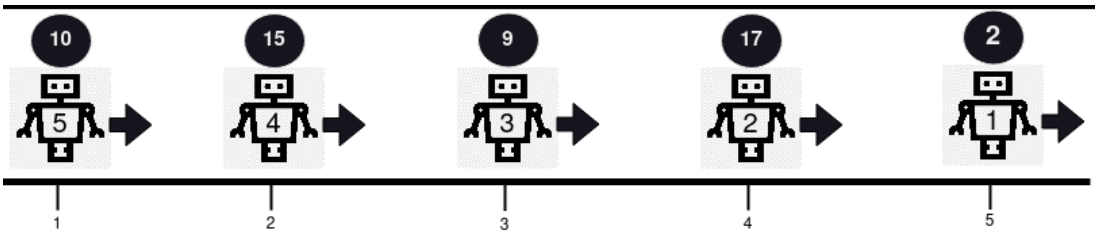
If two robots collide, the robot with **lower health** is **removed** from the line, and the health of the other robot **decreases by one**. The surviving robot continues in the **same** direction it was going. If both robots have the **same** health, they are both removed from the line.

Your task is to determine the **health** of the robots that survive the collisions, in the same **order** that the robots were given, i.e. final heath of robot 1 (if survived), final health of robot 2 (if survived), and so on. If there are no survivors, return an empty array.

Return *an array containing the health of the remaining robots (in the order they were given in the input), after no further collisions can occur.*

Note: The positions may be unsorted.

Example 1:

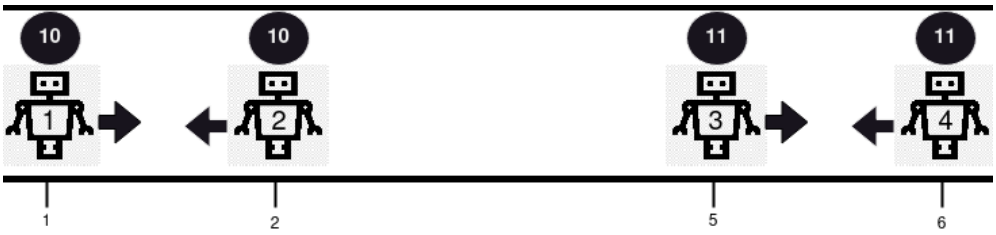



```
Input: positions = [5,4,3,2,1], healths = [2,17,9,15,10], directions = "RRRRR"
Output: [2,17,9,15,10]
Explanation: No collision occurs in this example, since all robots are moving in the same direction. So, the health of the rob
```

Example 2:


```
Input: positions = [3,5,2,6], healths = [10,10,15,12], directions = "RLRL"
Output: [14]
Explanation: There are 2 collisions in this example. Firstly, robot 1 and robot 2 will collide, and since both have the same h
```

Example 3:



```
Input: positions = [1,2,5,6], healths = [10,10,11,11], directions = "RLRL"
Output: []
Explanation: Robot 1 and robot 2 will collide and since both have the same health, they are both removed. Robot 3 and 4 will c
```

Constraints:

- 1 <= positions.length == healths.length == directions.length == n <= 10^5
- 1 <= positions[i], healths[i] <= 10^9
- directions[i] == 'L' or directions[i] == 'R'
- All values in positions are distinct

JavaScript

```javascript
const survivedRobotsHealths = (p, h, d) => {
    let m = {}, res = Array(p.length).fill(0);
    p.map((x, i) => m[x] = d[i] == 'R' ? [h[i], i] : [-h[i], i]);
    let a = [];
    for (const k in m) a.push(m[k])
    let v = asteroidCollision(a);
    for (const [x, i] of v) res[i] = Math.abs(x);
    return res.filter(x => x != 0);
};

const asteroidCollision = (a) => {
    let st = [];
    for (const [x, i] of a) {
        st.push([x, i]);
        let l, li, sl, sli;
        if (st.length >= 1) [l, li] = st[st.length - 1];
        if (st.length >= 2) [sl, sli] = st[st.length - 2];
        while (st.length >= 2 && l < 0 && sl > 0) {
            st.pop();
            st.pop();
            let add, idx;
            if (-l > sl) {
                add = -(-l - 1);
                idx = li;
            } else if (-l < sl) {
                add = sl - 1;
                idx = sli;
            }
            if (add) st.push([add, idx]);
            if (st.length >= 1) [l, li] = st[st.length - 1];
            if (st.length >= 2) [sl, sli] = st[st.length - 2];
        }
    }
    return st;
};
```

Custom Testcase | Use Example Testcases

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