

# Problem 2300: Successful Pairs of Spells and Potions

## Problem Information

**Difficulty:** Medium

**Acceptance Rate:** 49.26%

**Paid Only:** No

**Tags:** Array, Two Pointers, Binary Search, Sorting

## Problem Description

You are given two positive integer arrays `spells` and `potions`, of length `n` and `m` respectively, where `spells[i]` represents the strength of the `ith` spell and `potions[j]` represents the strength of the `jth` potion.

You are also given an integer `success`. A spell and potion pair is considered \*\*successful\*\* if the \*\*product\*\* of their strengths is \*\*at least\*\* `success`.

Return \_an integer array\_ `pairs` \_of length\_ `n` \_where\_ `pairs[i]` \_is the number of\*\*potions\*\* that will form a successful pair with the \_`ith` \_spell.\_

**Example 1:**

**Input:** spells = [5,1,3], potions = [1,2,3,4,5], success = 7 **Output:** [4,0,3] **Explanation:**  
- 0th spell:  $5 * [1,2,3,4,5] = [5, 10, 15, 20, 25]$ . 4 pairs are successful.  
- 1st spell:  $1 * [1,2,3,4,5] = [1,2,3,4,5]$ . 0 pairs are successful.  
- 2nd spell:  $3 * [1,2,3,4,5] = [3,6,9,12,15]$ . 3 pairs are successful. Thus, [4,0,3] is returned.

**Example 2:**

**Input:** spells = [3,1,2], potions = [8,5,8], success = 16 **Output:** [2,0,2] **Explanation:**  
- 0th spell:  $3 * [8,5,8] = [24, 15, 24]$ . 2 pairs are successful.  
- 1st spell:  $1 * [8,5,8] = [8,5,8]$ . 0 pairs are successful.  
- 2nd spell:  $2 * [8,5,8] = [16, 10, 16]$ . 2 pairs are successful. Thus, [2,0,2] is returned.

**Constraints:**

```
* `n == spells.length` * `m == potions.length` * `1 <= n, m <= 105` * `1 <= spells[i], potions[i] <= 105` * `1 <= success <= 1010`
```

## Code Snippets

### C++:

```
class Solution {  
public:  
    vector<int> successfulPairs(vector<int>& spells, vector<int>& potions, long  
    long success) {  
  
    }  
};
```

### Java:

```
class Solution {  
public int[] successfulPairs(int[] spells, int[] potions, long success) {  
  
}  
}
```

### Python3:

```
class Solution:  
    def successfulPairs(self, spells: List[int], potions: List[int], success:  
        int) -> List[int]:
```