184 325

274. H-Index

Notes

Description (/problems/h-index/description/) Hints (/problems/h-index/hints/) Submissions (/problems/h-index/submissions/)

(/problems/h-index/discuss) > Java bucket sort O(n) solution with detail explanation

Share Subscribe Report

Java bucket sort O(n) solution with detail explanation

12.9K VIEWS

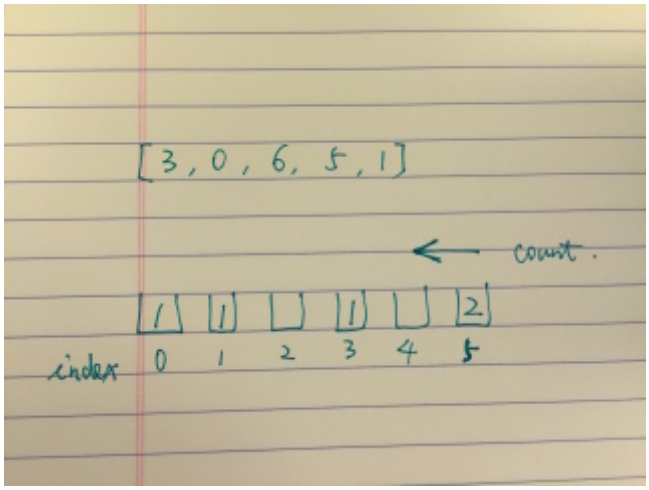
162

Last Edit: 11 hours ago

(/yfcheng) yfcheng (/yfcheng) ★ 1886

This type of problems always throw me off, but it just takes some getting used to. The idea behind it is some bucket sort mechanisms. First, you may ask why bucket sort. Well, the h-index is defined as the number of papers with reference greater than the number. So assume `n` is the total number of papers, if we have `n+1` buckets, number from 0 to n, then for any paper with reference corresponding to the index of the bucket, we increment the count for that bucket. The only exception is that for any paper with larger number of reference than `n`, we put in the `n`-th bucket.

Then we iterate from the back to the front of the buckets, whenever the total count exceeds the index of the bucket, meaning that we have the index number of papers that have reference greater than or equal to the index. Which will be our h-index result. The reason to scan from the end of the array is that we are looking for the greatest h-index. For example, given array `[3,0,6,5,1]`, we have 6 buckets to contain how many papers have the corresponding index. Hope to image and explanation help.



```
public int hIndex(int[] citations) {
    int n = citations.length;
    int[] buckets = new int[n+1];
    for(int c : citations) {
        if(c >= n) {
            buckets[n]++;
        } else {
            buckets[c]++;
        }
    }
    int count = 0;
    for(int i = n; i >= 0; i--) {
        count += buckets[i];
        if(count >= i) {
            return i;
        }
    }
    return 0;
}
```

Notes

Comments: 11

Sort By

Type comment here... (Markdown is supported)

Preview | Post

xinyufeng16 (/xinyufeng16) ★ 21 Sep 23, 2016, 9:57 PM

I give you 99 points, one less point means that you might get proud of 100 points.

20 Share Reply

wjixiaopeng (/wjixiaopeng) ★ 114 Sep 1, 2016, 8:12 AM

活学活用，举一反三，👍

5 Share Reply

vonzcy (/vonzcy) ★ 7 May 6, 2017, 2:28 AM

Is this a bucket sort? It is a counting sort!!!

3 Share Reply

liu971 (/liu971) ★ 4 Oct 13, 2016, 11:27 AM

why we don’t check the N - h mentioned in the problem?

2 Share Reply

alagram (/alagram) ★ 6 Feb 16, 2017, 12:38 PM

Nice `O(n)` solution. I reproduced in python :-)

```
class Solution(object):
    def hIndex(self, citations):
        n = len(citations)
```

Read More

1 Share Reply

NicoleIsGreat (/nicoleisgreat) ★ 1 Feb 25, 2018, 2:47 AM

大神给你双击666 不过这好像是counting sort啊

0 Share Reply

bu.will.9 (/buwill9) ★ 184 Apr 18, 2017, 9:56 PM

Such a fabulous solution! Newbee!

0 Share Reply

fei38 (/fei38) ★ 1 Mar 30, 2017, 4:32 PM

Thanks a lot for the explanation and excellent solution!

0 Share Reply

rekozh (/rekozh) ★ 2 Oct 16, 2016, 2:51 PM

厉害厉害，受教了大神！！！

0 Share Reply

cychung (/cychung) ★ 14 Dec 23, 2017, 3:56 PM

謝謝大神教導
紫薯紫薯紫薯紫薯

-2 Share Reply

< 1 2 >