Jump Game II

By lipeng | September 12, 2016 0 Comments

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Given an array of non-negative integers, you are initially positioned at the first index of the array.

Each element in the array represents your maximum jump length at that position.

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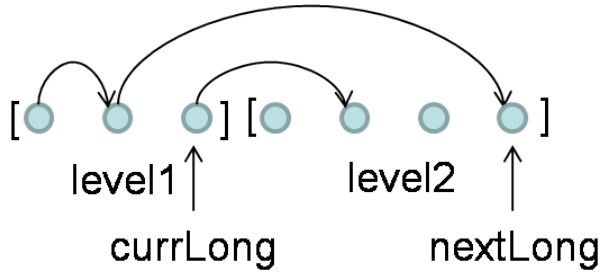
Your goal is to reach the last index in the minimum number of jumps.

For example:
Given array A = `[2,3,1,1,4]`

The minimum number of jumps to reach the last index is `2`. (Jump `1` step from index 0 to 1, then `3` steps to the last index.)

Solution. At first sight, this problem looks like coin change, which has O(n^2) solution. But this exceeds time limit. Then I found this problem can be solved in BFS way. Basically, we can think all elements which we can reach at most 1 step as level 1, all elements which we can reach at most 2 steps as level 2. In level 1, we find the furthest element level 1 can reach, the furthest will be the boundary for level 2.

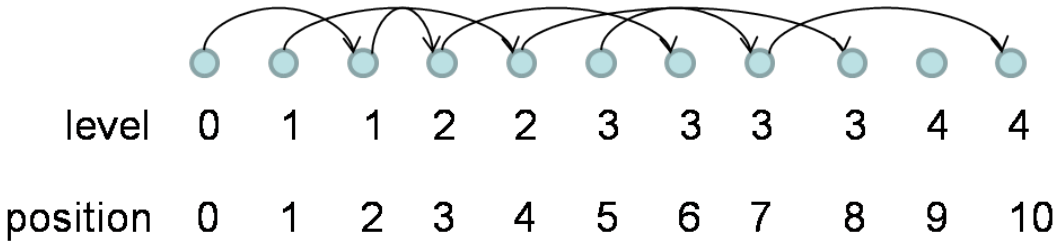


Below is an example for the jump.

Scikit

Simple Linear Regression by Scikit

Archives



elements in level 1 can mostly jump to position 4. In level 2, it can mostly jump to position 8.

```
public static int jump(int[] A) {
    int currLong = 0, nextLong = 0, level = 0;
    for (int i = 0; i < A.length; i++) {
        if (i - 1 == currLong) {
            level++;
            currLong = nextLong;
        }
        nextLong = Math.max(nextLong, A[i] + i);
    }
    return level;
}
```

Check my code on github.

Category: algorithm

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