45. Jump Game II

Initial Thoughts

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Medium   👍 3926   👎 176   ♡ Add to List   ⬆ Share

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

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

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

You can assume that you can always reach the last index.

Example 1:

```
Input: nums = [2,3,1,1,4]
Output: 2
Explanation: 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.
```
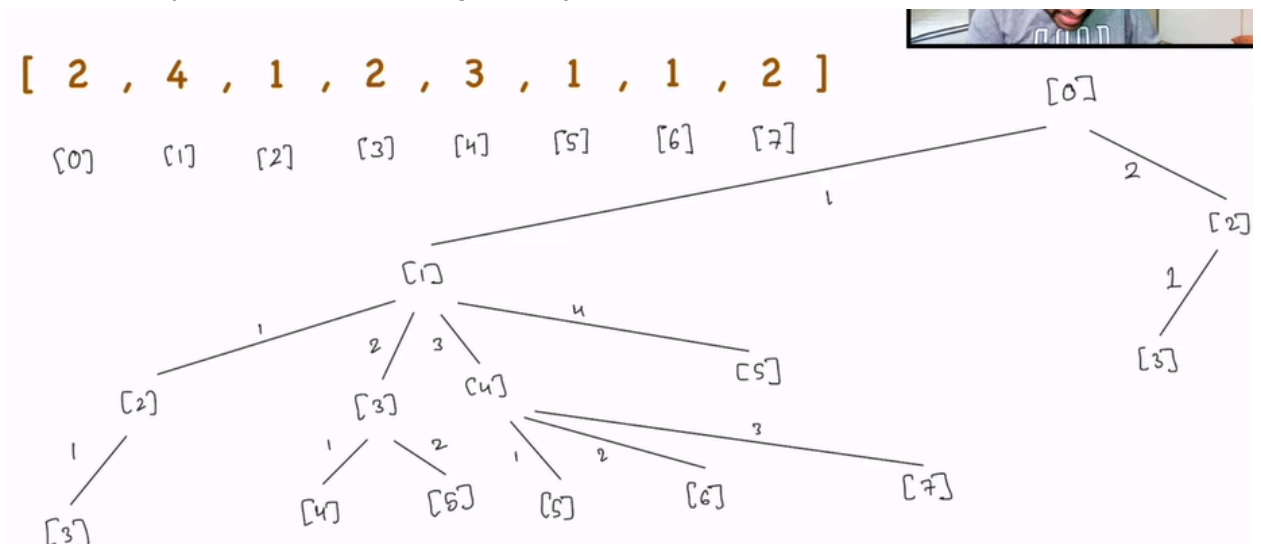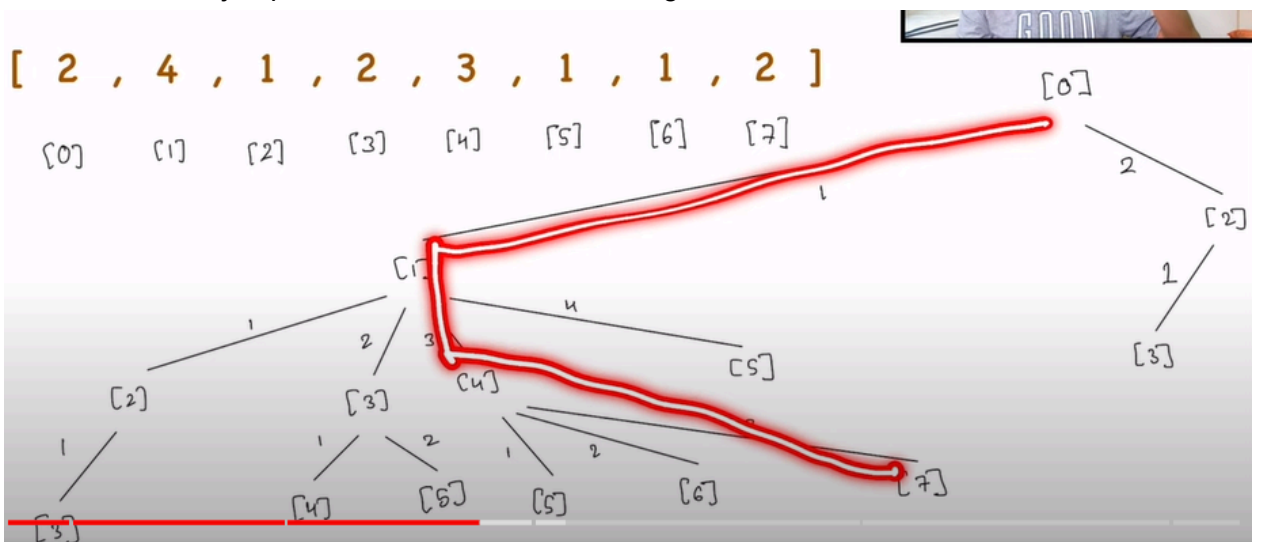
1.

```
Input: nums = [2,3,1,1,4]
Output: 2
```

2. Can s0lve this using greedy approach…
3. Like we can iterate from back and if from that index..if we jump to goal..then we add increment min index
4. Likewise we can find for each index…how many jumps it requires to reach the goal
5. SO for example here 3 can jump to goal in one jump..and from 2 we can reach goal in 3 jumps or in 2 jumps
6. So we understood the problem statement

Brute Force Method(rrecursive)

1. Here for every index ..we are finding all the jumps it can perform

[2 , 4 , 1 , 2 , 3 , 1 , 1 , 2]

[0] [1] [2] [3] [4] [5] [6] [7]

2. Here ultimately we need to reach our goal [7]
3. Here in total of 3 jumps..we were able to reach our goal from 0 to 7

4. Using this approach..we may exceed our time ..and we face time complexity error
5. Even if we use DP with memoization..we may exceed the time given

Greedy Approach

1. Here in greedy ….we choose the farthest I can go, from our available options
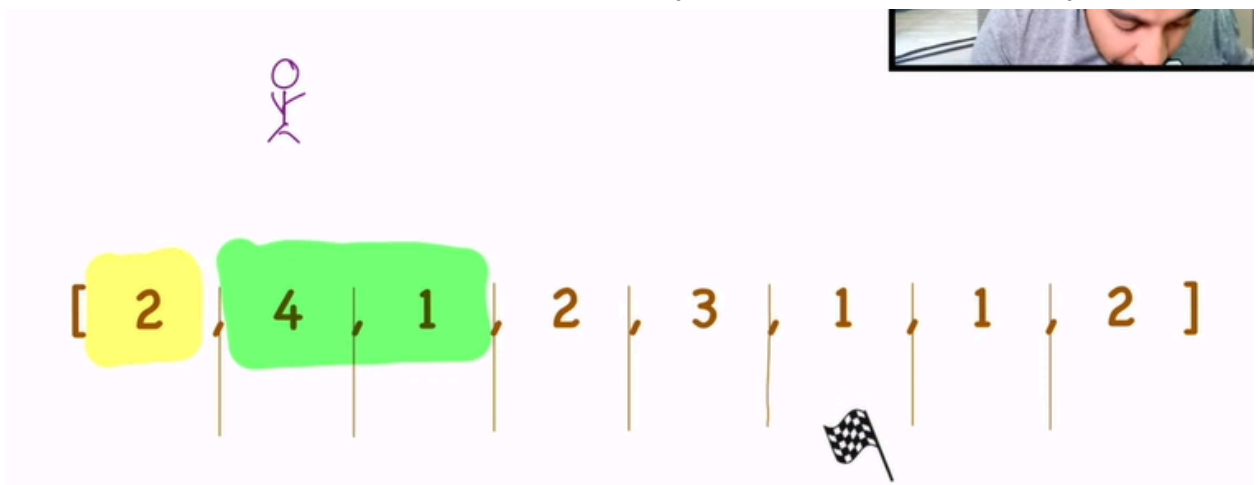
2. So here

3. Index 0(2) has 2 options to jump 4 and 1…so we'll make it as jump1
4. After jump1…we have available jump options of 4 and 1
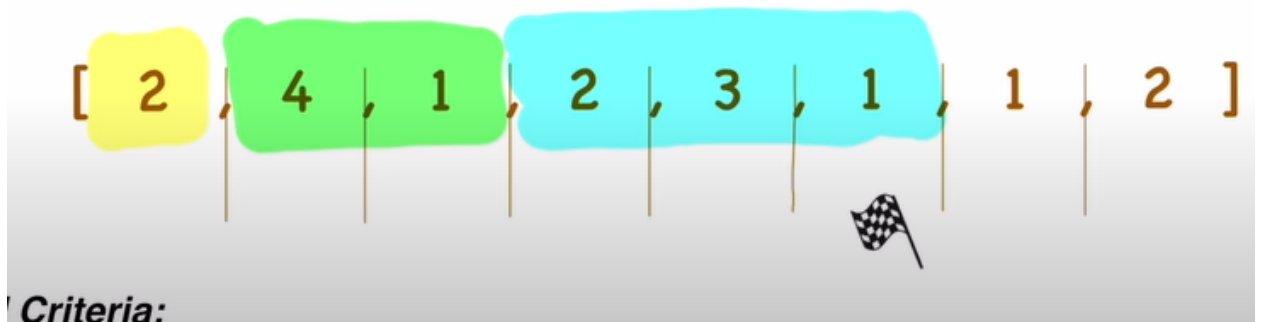

5. Now in 2nd jump…we can either jump 4 jumps or 1 jump
6. From our options available…we have to choose the jumps..with maximum we can jump

7. Now this tells us that..in two jumps we can reach until index 5 which is 1

8. And this gives us the window for jump3

Criteria:

9. Now from our blue window…we choose jumps with..maximum jumps..so we choose 3 and jump