

### **300. Longest Increasing Subsequence**

Given an unsorted array of integers, find the length of longest increasing subsequence.

For example,

Given [10, 9, 2, 5, 3, 7, 101, 18],

The longest increasing subsequence is [2, 3, 7, 101], therefore the length is 4. Note that there may be more than one LIS combination, it is only necessary for you to return the length.

Your algorithm should run in  $O(n^2)$  complexity.

**Follow up:** Could you improve it to  $O(n \log n)$  time complexity?