Solution Review: Find Minimum Value in List

This review provides a detailed analysis of the different ways to find a minimum value in a list.

We'll cover the following

Solution #1: Sort the list

```
def find_minimum(lst):
    if (len(lst) <= 0):
        return None
    lst.sort()  # sort list
    return lst[0]  # return first element


print(find_minimum([9, 2, 3, 6]))
```

This solution sorts the list in ascending order and returns the first element which is also the minimum. We used the generic Python `.sort()` function here, but in a real interview, you should implement your own sort function if you're going to use this solution.

Also, if the list is empty, `None` is returned.

Time Complexity

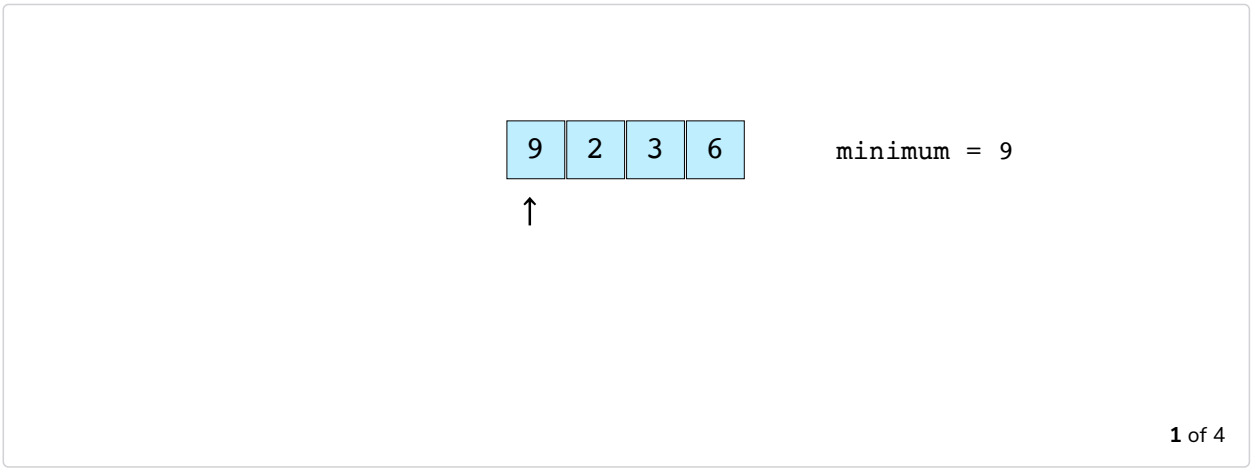
Since most popular sort functions are in $O(nlogn)$, let's assume that the Python sort function is too. Since we only index and return after that, which are constant time operations, this solution takes $O(nlogn)$ time.

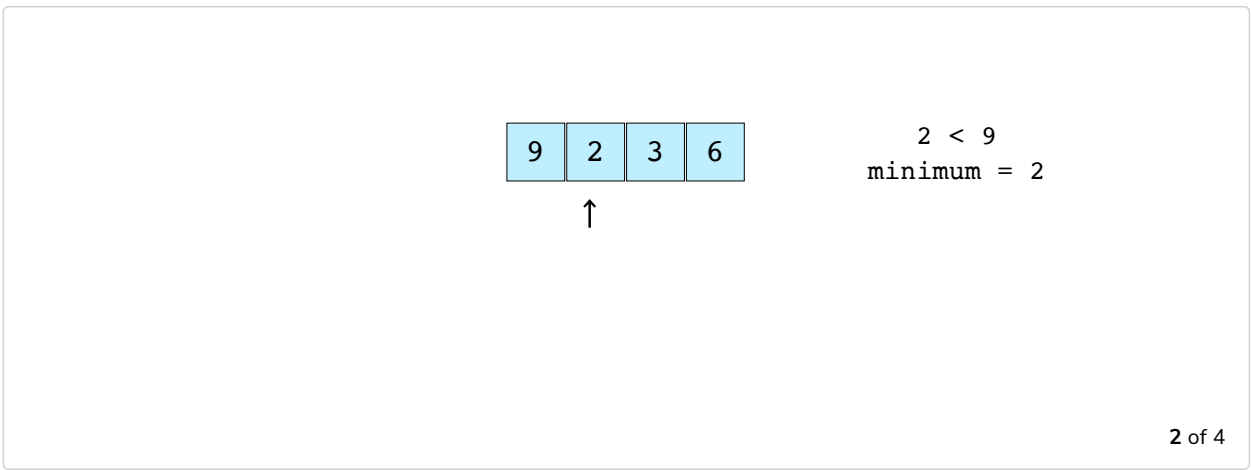
Solution #2: Iterate over the list

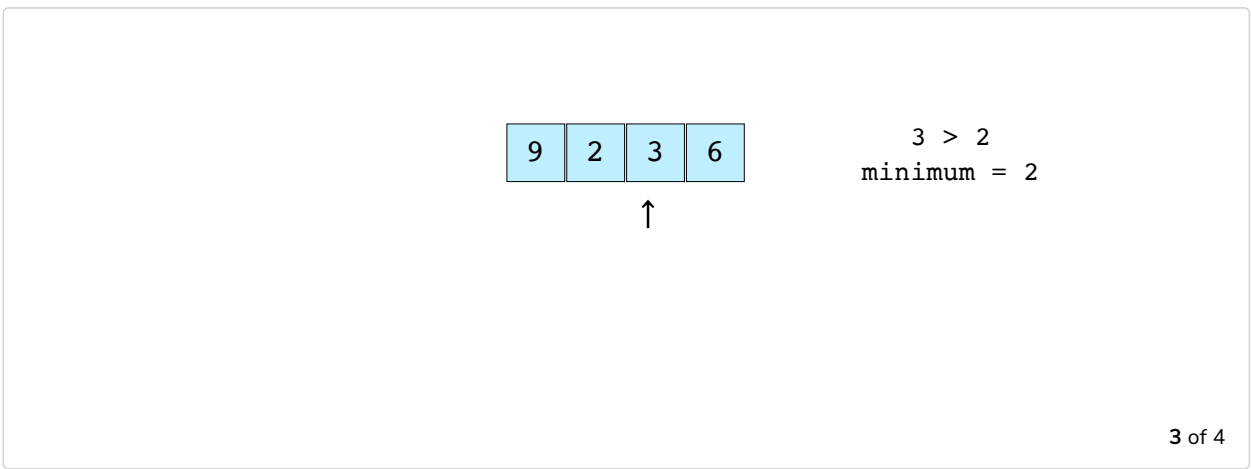
```
def find_minimum(lst):
    if (len(lst) <= 0):
        return None
    minimum = lst[0]
    for ele in lst:
        # update if found a smaller element
        if ele < minimum:
            minimum = ele
    return minimum


print(find_minimum([9, 2, 3, 6]))
```

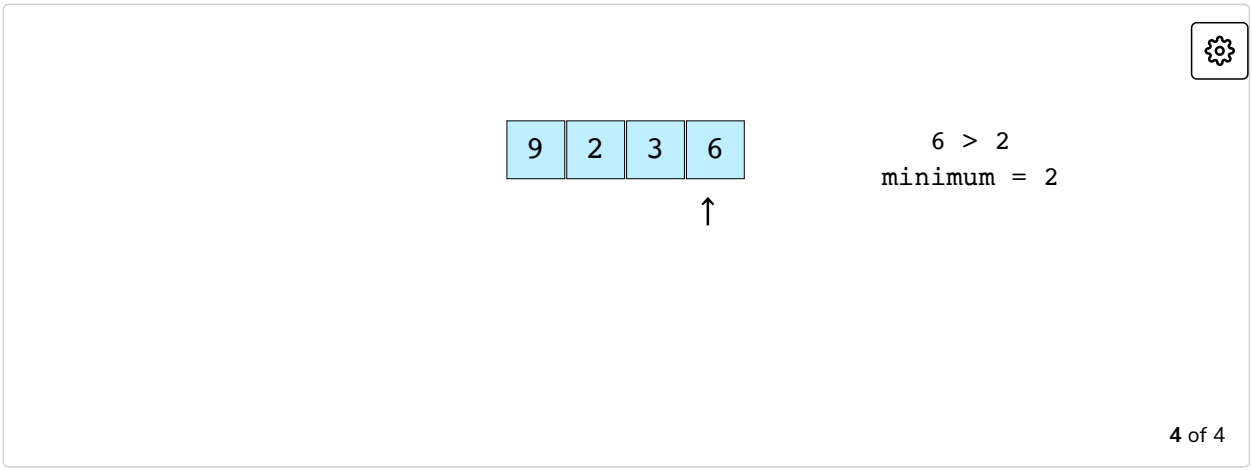
```
13
```

Start with the first element which is **9** in this example and save it as the smallest value. Then, iterate over the rest of the list and whenever an element that is smaller than the number already stored as `minimum` is come across, set `minimum` to that number. By the end of the list, the number stored in `minimum` will be the smallest integer in the whole list.









Also, if the list is empty, `None` is returned.

Time Complexity

Since the entire list is iterated over once, this algorithm is in linear time, $O(n)$.

Back
Challenge 5: Find Minimum Value in List
Next
Challenge 6: First Non-Repeating Inte...
Completed
Report an Issue
Ask a Question (https://discuss.educative.io/tag/solution-review-find-minimum-value-in-list__introduction-to-lists__data-structures-for-coding-interviews-in-python)