

# Sorting

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**4/4** points  
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Quiz passed!



1 / 1  
points

1.

What is the running time of selecting the minimum element on each iteration of the selection sort?



$O(n^2)$



$O(\log n)$



$O(n)$



**Correct Response**

Selecting the minimum of  $O(n)$  elements is  $O(n)$ .



$O(1)$



1 / 1  
points

2.

Can we use the merging procedure from the lectures to merge the arrays [1, 3, 2, 5, 4] and [5, 6, 7, 8, 9] in order to receive a sorted array?



No



**Correct Response**

Both arrays must be sorted prior to merging.

☐ Yes

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1 / 1  
points

3.

How many operations are needed to merge two sorted arrays of sizes  $m$  and  $n$  respectively?

- ☐  $O(nm)$
- ☐  $O(m \log n)$
- ☐  $O(1)$
- ☒  $O(n + m)$



**Correct Response**

Merge works in  $O(n + m)$ .

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1 / 1  
points

4.

Can you use Count Sort to sort an array of positive real numbers which are less than 100, such as [0.572, 0.25, 2.34, 3.14159, 2.781828, 42], in  $O(n)$  time?

- ☐ Yes, because the numbers are bounded
- ☒ No



**Correct Response**

Although the numbers in the array are bounded, Count Sort is not applicable, because it can only be applied to integer numbers: real numbers cannot play the role of indices of an array.

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