

CSC108H Winter 2018 Worksheet: Sorting Algorithms

1. The list [4, 2, 5, 6, 7, 3, 1] is shown below after each pass of a sorting algorithm:

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

Which sorting algorithm is being executed?

- (a) bubble sort
- (b) selection sort
- (c) insertion sort

2. The list [4, 2, 5, 6, 7, 3, 1] is shown below after each pass of a sorting algorithm:

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

Which sorting algorithm is being executed?

- (a) bubble sort
- (b) selection sort
- (c) insertion sort

3. The list [4, 2, 5, 6, 7, 3, 1] is shown below after each pass of a sorting algorithm:

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

Which sorting algorithm is being executed?

- (a) bubble sort
- (b) selection sort
- (c) insertion sort

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4. List [8, 2, 8, 7, 3, 1, 2] is being sorted using bubble sort. Fill in the blanks to show the list after each pass.

After the 1st pass: [2, 8, 7, 3, 1, 2, 8]

After the 2nd pass: [2, 7, 3, 1, 2, 8, 8]

After the 3rd pass: [2, 3, 1, 2, 7, 8, 8]

After the 4th pass: [2, 1, 2, 3, 7, 8, 8]

After the 5th pass: [1, 2, 2, 3, 7, 8, 8]

After the 6th pass: [1, 2, 2, 3, 7, 8, 8]

[1, 2, 2, 3, 7, 8, 8]

5. List [1, 5, 8, 7, 6, 1, 7] is being sorted using selection sort. Fill in the blanks to show the list after each pass.

After the 1st pass: [1, 5, 8, 7, 6, 1, 7]

After the 2nd pass: [1, 1, 8, 7, 6, 5, 7]

After the 3rd pass: [1, 1, 5, 7, 6, 8, 7]

After the 4th pass: [1, 1, 5, 6, 7, 8, 7]

After the 5th pass: [1, 1, 5, 6, 7, 8, 7]

After the 6th pass: [1, 1, 5, 6, 7, 7, 8]

After the 7th pass: [1, 1, 5, 6, 7, 7, 8]

Warning: This selection sort is not the same as Marzieh's version.

This one selects the MINIMUM and puts it at the front of the list.

Marzieh's version selects the MAXIMUM and puts it at the tail of the list

I'm not sure which is Nick's version.

6. List [6, 8, 2, 1, 1, 9, 4] is being sorted using insertion sort. Fill in the blanks to show the list after each pass.

After the 1st pass: [6, 8, 2, 1, 1, 9, 4]

After the 2nd pass: [6, 8, 2, 1, 1, 9, 4]

After the 3rd pass: [2, 6, 8, 1, 1, 9, 4]

After the 4th pass: [1, 2, 6, 8, 1, 9, 4]

After the 5th pass: [1, 1, 2, 6, 8, 9, 4]

After the 6th pass: [1, 1, 2, 6, 8, 9, 4]

After the 7th pass: [1, 1, 2, 4, 6, 8, 9]