

# Review Test Submission: Quiz 7N

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Course	XLS-CS-265-001/2/3/4/5/6-XLIST-201815
Test	Quiz 7N
Started	11/4/18 8:16 PM
Submitted	11/4/18 8:20 PM
Due Date	11/6/18 10:00 AM
Status	Completed
Attempt Score	46 out of 50 points
Time Elapsed	3 minutes out of 20 minutes
Instructions	Where you write code, or output, please use "Formatted Code" style, and a mono-spaced font.
Results Displayed	All Answers, Submitted Answers, Correct Answers

Question 1

4 out of 4 points

With random inputs, on average, insertion into a binary search tree of size  $n$  requires  $\lg(n)$  comparisons

Selected Answer: ☒ True

Answers: ☒ True

☐ False

Question 2

4 out of 4 points

The choice of programming language is very important to the design of a program

Selected Answer: ☒ False

Answers: ☐ True

☒ False

Question 3

8 out of 8 points

Show the result of quicksort on the following array after a single call to `partition()`. Use the left-most element as the pivot.

47 28 3 73 25 27 26 56 84 63 59 38 23 7 98 78

Selected Answer: 47 28 3 73 25 27 26 56 84 63 59 38 23 7 98 78

Answer: \*47\* 28 3 73 25 27 26 56 84 63 59 38 \*23\* 7 98 78

23 28 3 73 \*25\* 27 26 47 56 84 63 59 38 \*23\* 7 98 78

23 23 25 28 \*3\* 73 27 \*26\* 47 56 84 63 59 38 \*7\* 98 78

3 7 23 25 26 \*28\* 73 \*27\* 47 56 84 63 59 \*38\* 98 78

3 7 23 25 26 27 28 38 \*73\* 47 56 84 63 \*59\* 98 78

3 7 23 25 26 27 28 38 47 56 59 \*84\* 63 73 98 \*78\*

3 7 23 25 26 27 28 38 47 56 59 63 79 73 84 98

Correct Answer: ☒

7 28 3 25 27 26 38 23 47 63 59 73 56 84 98 78

Any valid partition is fine, just need to see the last line. Here is a full run using the algorithm from the lecture notes.

	last value
47 28 3 73 25 27 26 56 84 63 59 38 23 7 98 78	0
47 28 3 73 25 27 26 56 84 63 59 38 23 7 98 78	1
47 28 3 73 25 27 26 56 84 63 59 38 23 7 98 78	2
47 28 3 73 25 27 26 56 84 63 59 38 23 7 98 78	2
47 28 3 25 73 27 26 56 84 63 59 38 23 7 98 78	3
47 28 3 25 73 27 26 56 84 63 59 38 23 7 98 78	3
47 28 3 25 27 73 26 56 84 63 59 38 23 7 98 78	4
47 28 3 25 27 73 26 56 84 63 59 38 23 7 98 78	4
47 28 3 25 27 26 73 56 84 63 59 38 23 7 98 78	5
47 28 3 25 27 26 73 56 84 63 59 38 23 7 98 78	5
47 28 3 25 27 26 73 56 84 63 59 38 23 7 98 78	5
47 28 3 25 27 26 73 56 84 63 59 38 23 7 98 78	5
47 28 3 25 27 26 73 56 84 63 59 38 23 7 98 78	5
47 28 3 25 27 26 73 56 84 63 59 38 23 7 98 78	5
47 28 3 25 27 26 38 56 84 63 59 73 23 7 98 78	6
47 28 3 25 27 26 38 56 84 63 59 73 23 7 98 78	6
47 28 3 25 27 26 38 23 84 63 59 73 56 7 98 78	7
47 28 3 25 27 26 38 23 84 63 59 73 56 7 98 78	7
47 28 3 25 27 26 38 23 7 63 59 73 56 84 98 78	8
47 28 3 25 27 26 38 23 7 63 59 73 56 84 98 78	8
47 28 3 25 27 26 38 23 7 63 59 73 56 84 98 78	8
47 28 3 25 27 26 38 23 7 63 59 73 56 84 98 78	8
7 28 3 25 27 26 38 23 47 63 59 73 56 84 98 78	8
7 28 3 25 27 26 38 23 47 63 59 73 56 84 98 78	

Question 4

7 out of 7 points

Suppose binary search on a sorted array of some size needed at most  $k$  comparisons. How many comparisons would be needed to search a sorted array of double that size?

Selected Answer:  $k+1$

Correct Answer:

Evaluation Method	Correct Answer	Case Sensitivity
Pattern Match	$\backslash s^*1\backslash s^*\backslash +\backslash s^*k\backslash s^*\backslash +\backslash s^*k\backslash s^*\backslash +\backslash s^*1\backslash s^*$	

Question 5

4 out of 4 points

Good choice of data structures early will guide the algorithms

Selected Answer: True

Answers: True  
False

Question 6

0 out of 4 points

Elements in a binary search tree can be accessed in constant time

Selected Answer: True

Answers: True  
 False

Question 7

4 out of 4 points

A properly maintained hash table with  $n$  elements has  $\Theta(\lg n)$  lookup time.

Selected Answer: ☒ False  
Answers: ☐ True  
☒ False

Question 8

7 out of 7 points

What is the average run time of quicksort on a random vector of size  $n$ ?

Selected Answer: ☒  $n \log n$   
Correct Answer:

Evaluation Method	Correct Answer	Case Sensitivity
<input checked="" type="checkbox"/> Pattern Match	<code>n\s*\*?\s*([Ll][Oo]?</code> <code>[Gg]\s\s*n.* [Ll][Oo]?</code> <code>[Gg]\s*\(\s*n\s*\).*)</code>	

Question 9

4 out of 4 points

All binary search trees with  $n$  elements have a height bound by  $\lg(n)$

Selected Answer: ☒ False  
Answers: ☐ True  
☒ False

Question 10

4 out of 4 points

A Binary Search Tree with  $n$  elements has, worst case,  $\Theta(n)$  lookup time

Selected Answer: ☒ True  
Answers: ☒ True  
☐ False

Sunday, December 2, 2018 10:45:54 PM EST

← OK