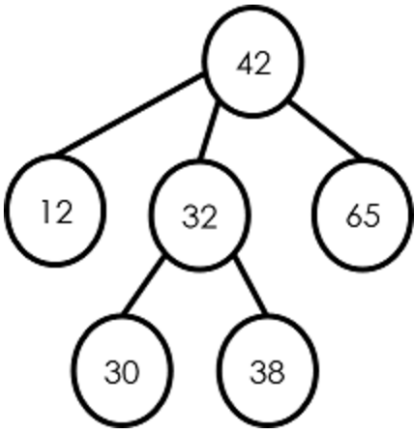
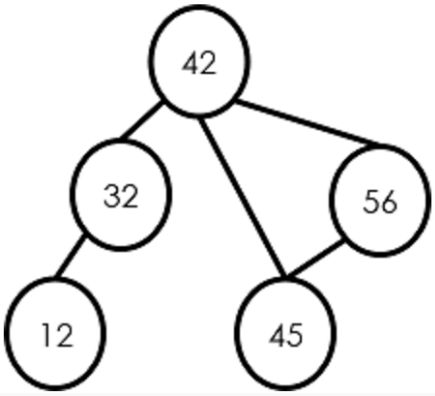
Week 4 Content and Programming Assignment Quiz

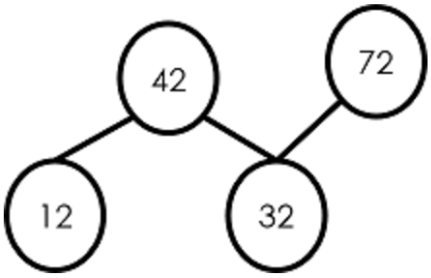
10 questions

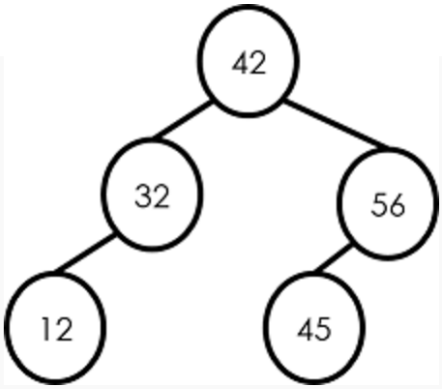
1.

Which of the following structures are trees? Select all that apply.



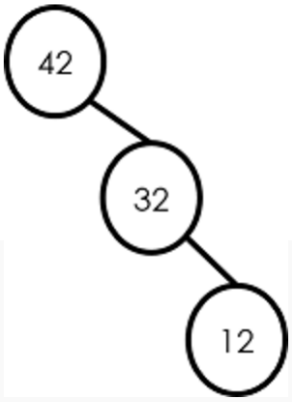


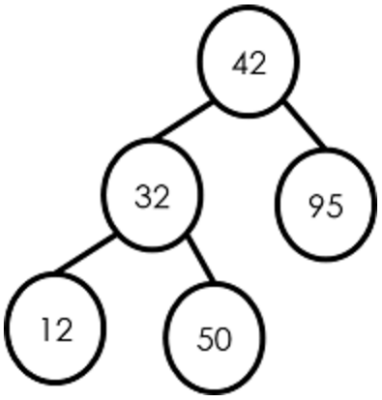


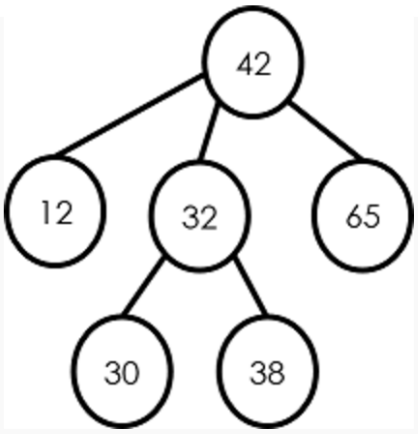


2.

Which of the following are Binary Search Trees? Select all that apply.

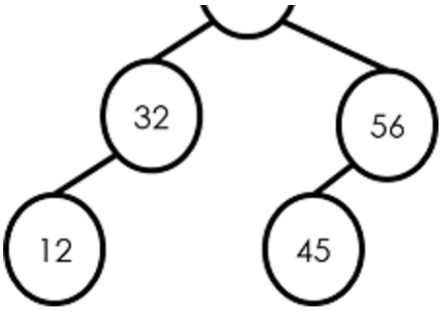






3.

Which of the following statements are true about the following binary search tree? Select all that apply.



Assume that no nodes have been deleted from this tree.

- [x] A different insertion order with the same values could give a different tree structure.
- [x] 32 must have been inserted before 12
- [x] 42 must have been inserted first.
- [ ] 32 must have been inserted before 45
- [ ] There is only one insertion order that could have produced this tree.

4.

Which of the following statements are true about the running time of binary search trees? Assume that when we use big-O notation we mean the tightest big-O bound. Select all that apply.

- [x] The tightest possible worst case time to find an element in an *arbitrary* BST is O(n)
- [ ] The tightest possible worst case time to find an element in an *arbitrary* BST is O(log(n))
- [x] The tightest possible worst case time to find an element in a *balanced* BST is O(log(n))
- [x] Inserting sorted data into an unbalanced BST leads to the worst case BST structure (i.e. a structure where finding an element will take the longest).
- [ ] The tightest possible worst case time to find an element in a *balanced* BST is O(n)

5.

From your benchmarking of the DictionaryLL and DictionaryBST structures you implemented, which structure is the better choice?

- ( ) They are about the same
- ( ) DictionaryLL
- (•) DictionaryBST

6.

In your benchmarking of the DictionaryBST structure, you probably found that the time to find words did not significantly increase as the Dictionary got larger. Which of the following is the most likely reason for this behavior?

- ( ) The running time to find an element in a balanced BST is O(1) so we would not expect the running time to get larger as the dictionary got bigger.
- (•) log(n) is sufficiently small and grows sufficiently slowly that other factors (e.g. memory use) had a bigger effect on the running time than the size to find the word in the dictionary.
- ( ) We were measuring the best case performance of the dictionary, which does not change as the dictionary size grows.

7.

Did you do the optional extension in the programming assignment to take case into account when spell checking/doing auto complete.

- ( ) Yes, and I got it working
- ( ) Yes, but I didn't quite finish it/didn't quite get it completely working
- (•) No

8.

How much time did you spend on the programming assignment this week?

- ( ) 1 hour

- [ ] <1 hour
- [ ] 1-2 hours
- [ ] 2-3 hours
- [x] 3-4 hours
- [ ] 4-5 hours
- [ ] > 5 hours

9.

How difficult was the programming assignment for this week?

- [ ] Very Easy
- [ ] Easy
- [x] Somewhat Easy
- [ ] Somewhat Difficult
- [ ] Difficult
- [ ] Very Difficult

10.

How much did you enjoy the programming assignment for this week?

- [x] I really enjoyed the assignment this week.
- [ ] I enjoyed the assignment this week.
- [ ] I'm neutral about the assignment this week.
- [ ] I did not enjoy the assignment this week.
- [ ] I really did not enjoy the assignment this week.

Submit Quiz