

## Assignment #4 – Questions

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- 1 Show the binary search tree built by adding numbers in this specific order, the graph is empty to start with (50, 20, 100, 10, 130, 30, 21).

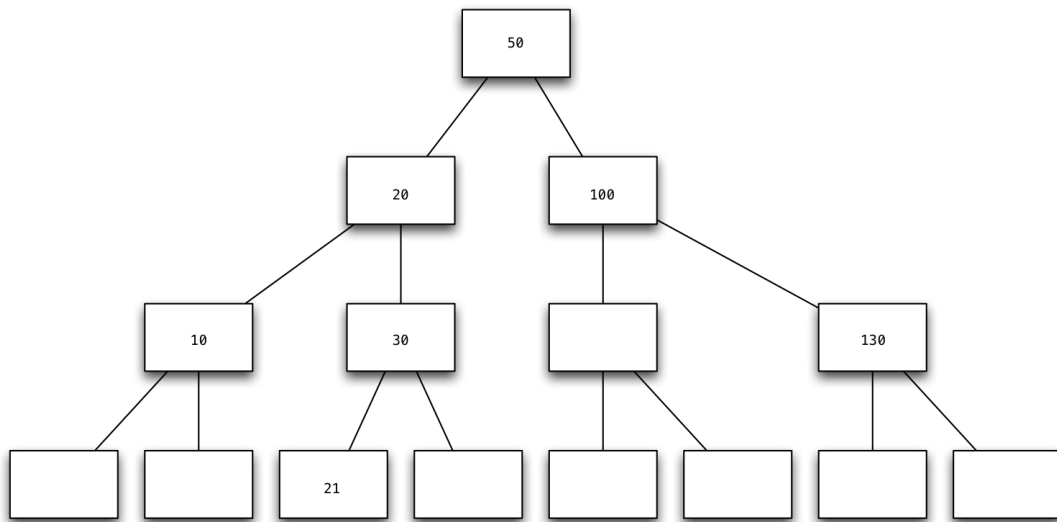


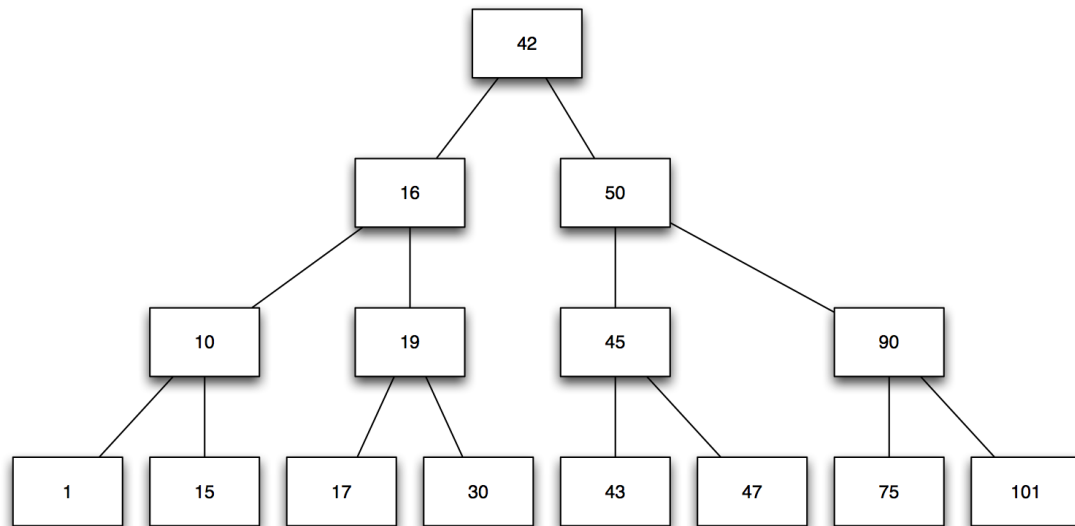
Figure 1: Question 1 BST

- 2 The trouble with binary search trees is that they can become unbalanced depending on the order you insert values in. Give an order for inserting the values 1 through 7 such that the resulting tree is a full binary search tree.

There are many possible orders that satisfy a balanced tree, however what they all have in common is that each depth of the binary tree must be assigned in order. One such possible ordering is given:

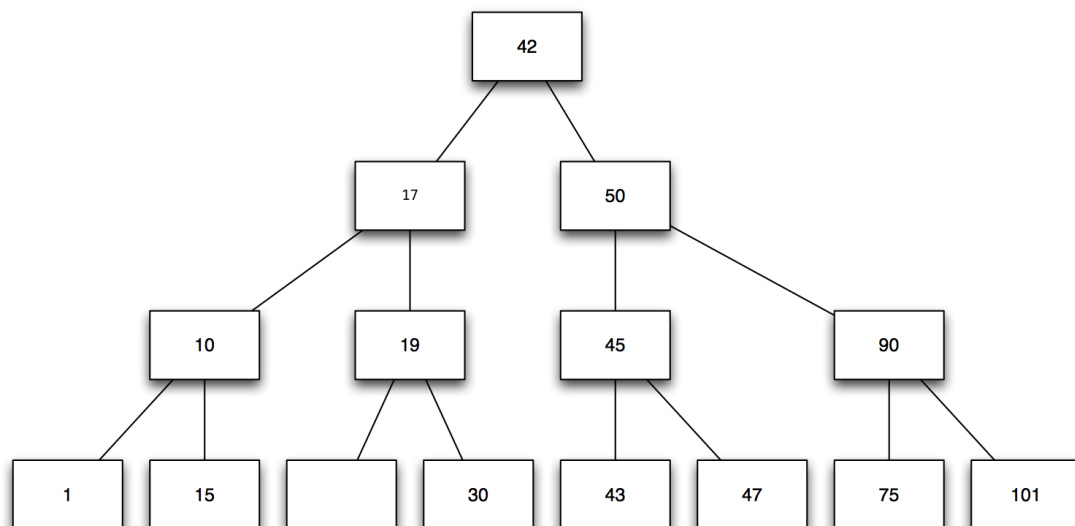
4, 2, 6, 3, 5, 1, 7

### 3 Part A and B



**Figure 2:** *Provided BST # 3*

3.1 Show the tree after removing the value 16.



**Figure 3:** *Question 3a BST*

3.2 Using the tree produced by Part A, show the tree after removing the value 17.

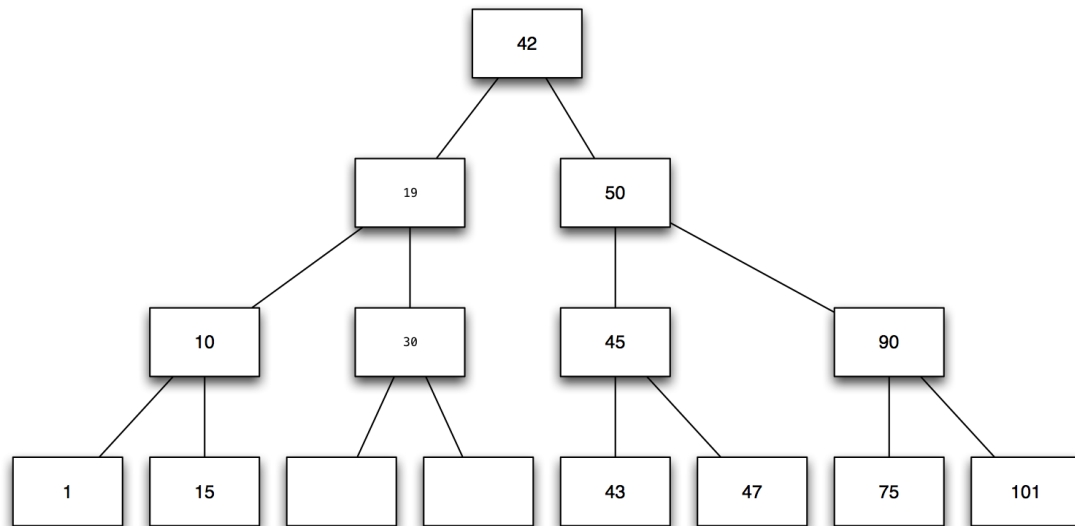


Figure 4: Question 3b BST

4 Show the decision tree that the computer should build after adding a Zergling and a question to differentiate it, "Does it eat space marines?", to the tree.

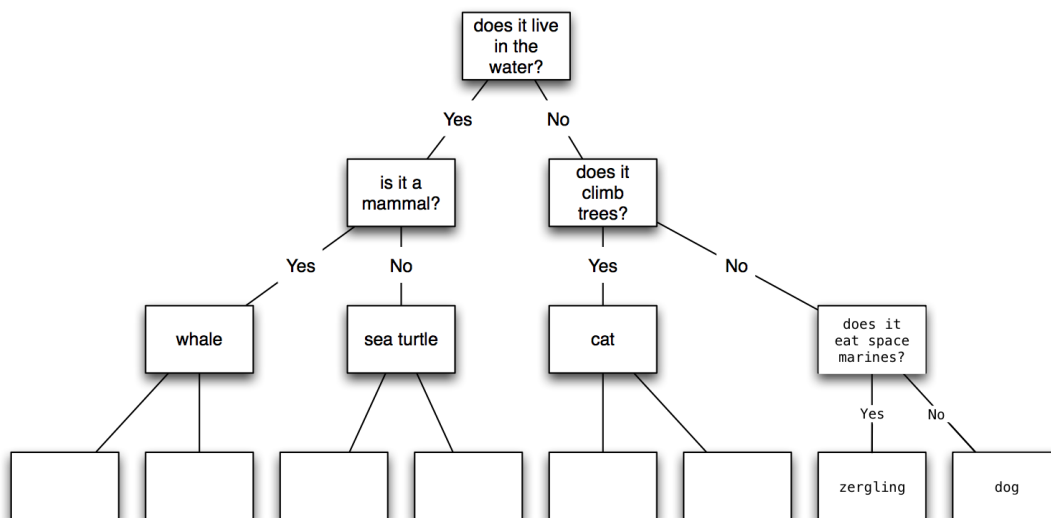


Figure 5: Question 4 BST