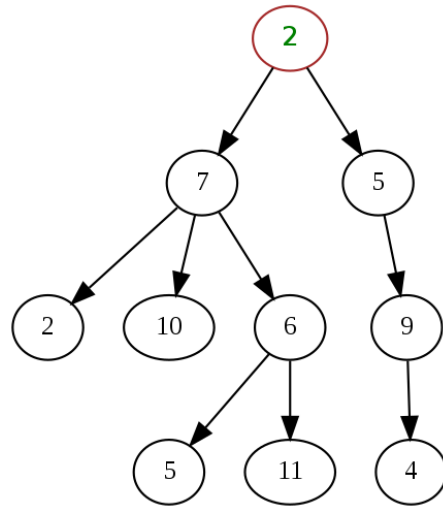


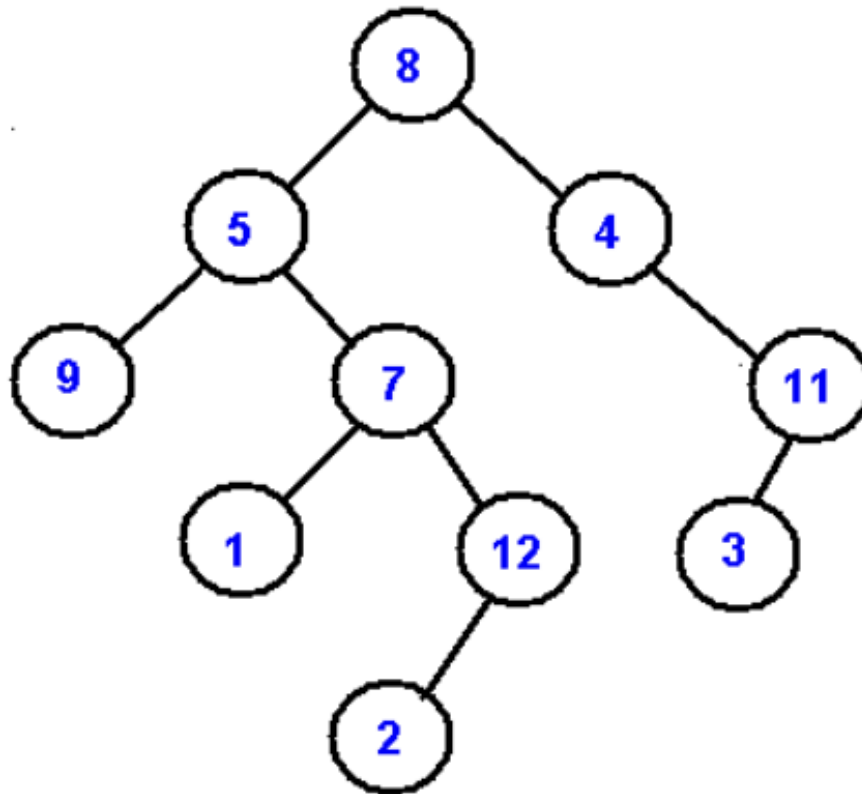
**In-Class Worksheet #15**  
**CS62 - Fall 2024**  
**Alexandra Papoutsaki**

1. Given the tree below fill in the following properties:



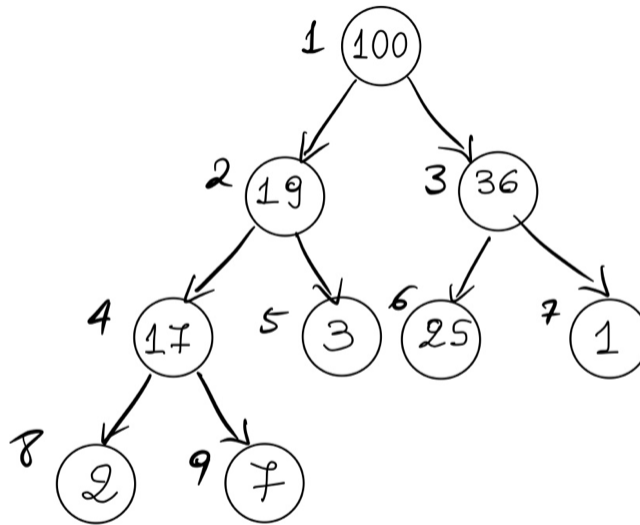
- Which node is the root?
- Which nodes are leaves/external nodes?
- Which nodes are internal nodes?
- Which nodes are siblings of node 10?
- Which node is the parent of node 6?
- Which nodes are the children of node 2 (in red)?
- Which nodes are the ancestors of node 10?
- Which nodes are the descendants of node 7?
- What is the length of the path 2-5-9-4?
- What is the height of node 7?
- What is the height of this tree?
- What is the degree of node 7?
- What is the degree (arity) of this tree?
- What is the level/depth of node 11?

2. Given the tree below:

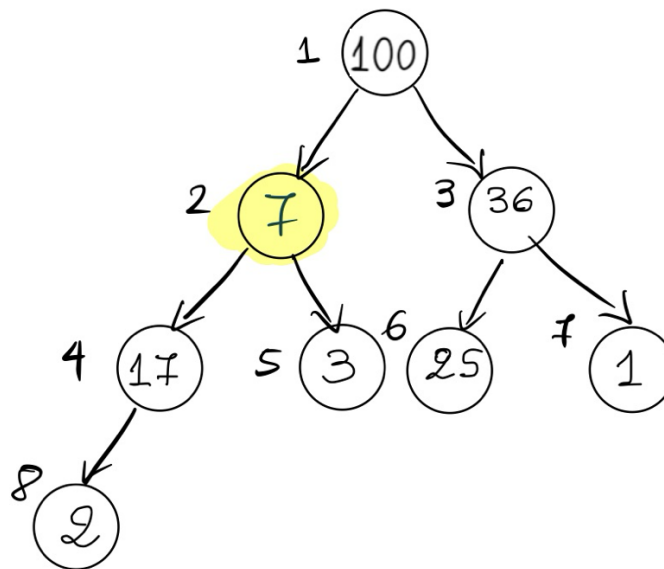


- List the nodes in order of visiting them in a pre-order traversal
- List the nodes in order of visiting them in a in-order traversal
- List the nodes in order of visiting them in a post-order traversal
- List the nodes in order of visiting them in a level-order traversal

3. Insert the node 47 in this binary heap.



4. Sink the node 7 in this binary heap.



5. Delete max in this binary heap and return it.

