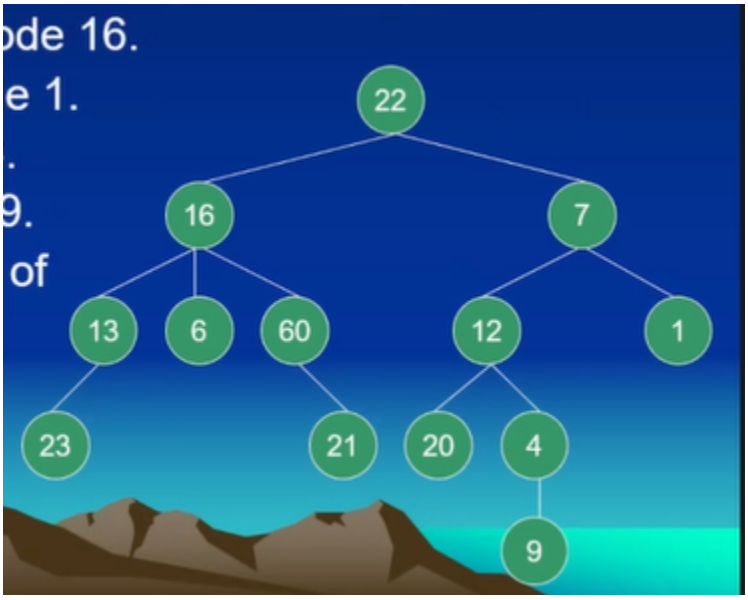
Short Quiz



6. Children of node 16
   - The Children of node 16 are Nodes 13, 6, 60.
7. Parent of node 1
   - The arent of node 1 is Node 7.
8. Sibling of 23
   - Node 23 has no sibling.
9. Ancestor of 9
   - The ancestor/s of 9 are nodes 4, 12, 7, and 22.
10. Descendants of 16.
   - The descendants of 16 are nodes 12, 6, 60, 23, and 21.
11. Leaves
   - The leaves are nodes 23, 21, 20, 9, and 1.
12. Non - Leaves
   - The non-leaves are nodes 22, 16, 7, 12, 60, 12, and 1.
13. Depth of node 4.
   - The depth of node 4 is 5.
14. Degree of the tree
   - The degree of the tree is 3.
15. Height of the tree.

- Nodes 22, 7, 12 have a height of 2, node 16 has a height of 3, nodes 12 and 4 have a height of 1, and Nodes 6, 20, 9, and 1 have height of 0.

16. Weight of the tree.
    - The weight of tree is 5
17. Is the tree a binary tree?
    - No, the tree is not a binary tree, it is an ordered tree with degree of 2 but in the case of the tree there is a parent node that has a degree of 3.
18. Removing 6, is the tree a full binary tree?
    - Yes, it is a full binary tree.
19. Removing 6, is the tree a complete binary tree?
    - No, it is not a complete binary tree.
20. Is a full binary tree complete?
    - No, since a full binary tree has to have a node that has no degree which is not considered a complete binary tree as it has to have an equal depth and all internal nodes java degree k.
21. Is a complete binary tree full?
    - No, as mentioned above, the nodes of a complete binary tree should have an equal depth and all internal nodes java degree k.
22. How many leaves does a complete n-ary tree of a height h have?
    - The leaves of a complete n-ary tree is n-ary tree raised to the height or n^h.
23. What is the height of a complete n-ary tree with m leaves?
    - The height of complete n-ary tree is log sub n M or $\log_n M$
24. What is the number of internal nodes of a complete n-ary tree of height h?
    - It has a node of 2 raised h then subtracted by 1 or 2^h-1.
25. What is the total number of nodes a complete n-ary tree of height h have?
    - The total number of nodes of a complete n-ary tree is $(2^h-1) + n^h$.