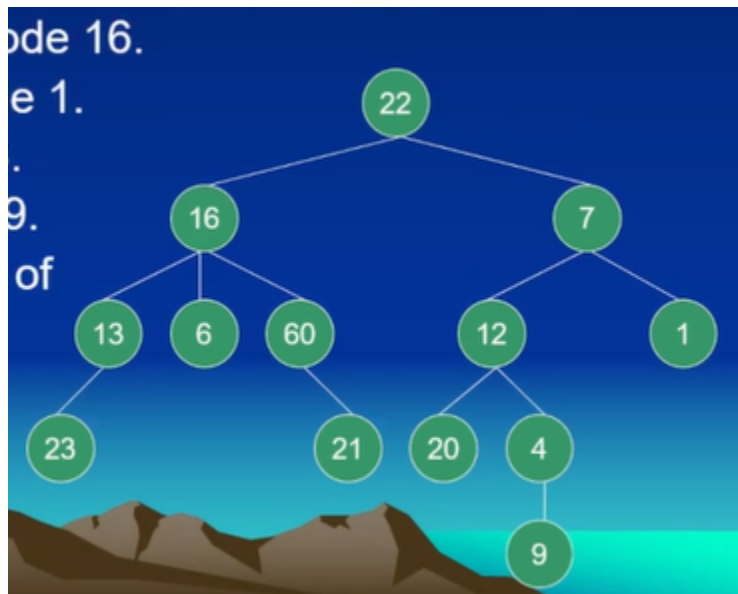


Short Quiz



6. Children of node 16

- The Children of node 16 are Nodes 13, 6, 60.

7. Parent of node 1

- The parent 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 13, 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 have 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 have 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 $\log_{\text{sub } n} M$ 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 $2^h + n^h$.