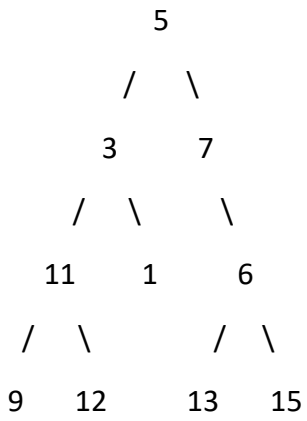
Top View Of Binary Tree GFG

Given below is a binary tree. The task is to print the top view of binary tree. Top view of a binary tree is the set of nodes visible when the tree is viewed from the top.

Example:



Output: Top of Binary Tree: 9, 11, 3, 5, 7, 6, 15

Approach 1: Function to print Top View of a binary tree using a iterative approach.

- The iterative approach uses level-order traversal (BFS) to traverse the tree.
- It maintains a map to store nodes at each horizontal distance from the root.
- While traversing, it checks if a horizontal distance has been encountered before, and if not, it adds the node at that distance to the map.
- This way, it ensures that the leftmost node at each horizontal distance is stored in the map, representing the top view.
- Finally, it extracts and prints the nodes from the map in order of increasing horizontal distance.

Time Complexity:

- **The time complexity is O(N), where N is the number of nodes in the tree, as each node is visited once during level-order traversal.**

Space Complexity:

- **The space complexity is O(N) in the worst case, primarily due to the queue used for level-order traversal and the map used to store top view nodes.**