Name: Saurav Gujar

Class : TY CS D

Roll No: 14

Topic : Code of Breadth First Search and Depth First Search

Code :

import java.util.\*;

class TreeNode {

int val;

TreeNode left;

TreeNode right;

public TreeNode(int val) {

this.val = val;

this.left = null;

this.right = null;

}

}

public class TreeTraversal {

public static void bfs(TreeNode root) {

if (root == null) return;

Queue<TreeNode> queue = new LinkedList<>();

queue.offer(root);

while (!queue.isEmpty()) {

TreeNode node = queue.poll();

System.out.print(node.val + " ");

if (node.left != null) queue.offer(node.left);

if (node.right != null) queue.offer(node.right);

}

}

public static void dfsPreOrder(TreeNode root) {

if (root == null) return;

System.out.print(root.val + " ");

dfsPreOrder(root.left);

dfsPreOrder(root.right);

}

public static void dfsInOrder(TreeNode root) {

if (root == null) return;

dfsInOrder(root.left);

System.out.print(root.val + " ");

dfsInOrder(root.right);

}

public static void dfsPostOrder(TreeNode root) {

if (root == null) return;

dfsPostOrder(root.left);

dfsPostOrder(root.right);

System.out.print(root.val + " ");

}

public static void main(String[] args) {

TreeNode root = new TreeNode(1);

root.left = new TreeNode(2);

root.right = new TreeNode(3);

root.left.left = new TreeNode(4);

root.left.right = new TreeNode(5);

root.right.left = new TreeNode(6);

root.right.right = new TreeNode(7);

System.out.print("BFS traversal: ");

bfs(root);

System.out.println();

System.out.print("DFS Pre-order traversal: ");

dfsPreOrder(root);

System.out.println();

System.out.print("DFS In-order traversal: ");

dfsInOrder(root);

System.out.println();

System.out.print("DFS Post-order traversal: ");

dfsPostOrder(root);

System.out.println();

}

}