class Solution {

int res = 0;

public int widthOfBinaryTree(TreeNode root) {

if(root == null ) return res;

search(root,1,0,new ArrayList<Integer>());

return res;

}

public void search(TreeNode root,int id,int depth,List<Integer> lefts){

if(lefts.size()==depth) lefts.add(id);

res = Math.max(res,id - lefts.get(depth)+1);

if(root.left !=null) search(root.left,2\*id,depth+1,lefts);

if(root.right !=null) search(root.right,2\*id+1,depth+1,lefts);

}

}