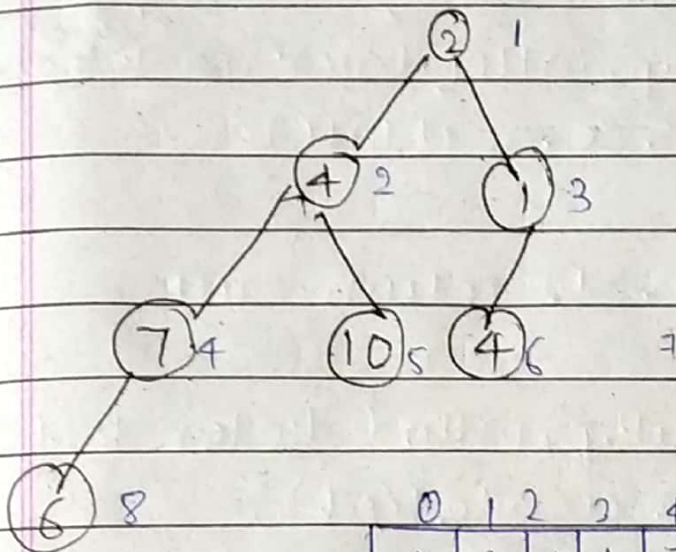# Binary tree

→ A tree with each node having at most 2 children is Binary tree

→ Maximum number of nodes at level i is 2^2.

→ Maximum number of nodes in a tree with height h is $2^h - 1$.

$$\text{left } i \Rightarrow 2 * i$$

$$\text{right } i \Rightarrow 2 * i + 1$$

Implementation of Binary tree.

```java
class binary Tree {
    class Scanner sc = new Scanner(System.in);
    public static void main (String[] args)
    {

        Node root = createTree();
        System.out.println( root.data );

    }


    static Node createTree () {
        Node root = null;
        System.out.println("Enter root node data:");
        int data = sc.nextInt();


        if(data == -1) return null;


        System.out.println ( "Enter left of " + data);
        root.left = createTree();



        System.out.println("Enter right of " + data);
        root.right = createTree();


        return root;
    }

}
class Node () {
    int data;
    Node left, right;
    public Node (int data) {
        this.data = data;
        left = right = null;
    }
```