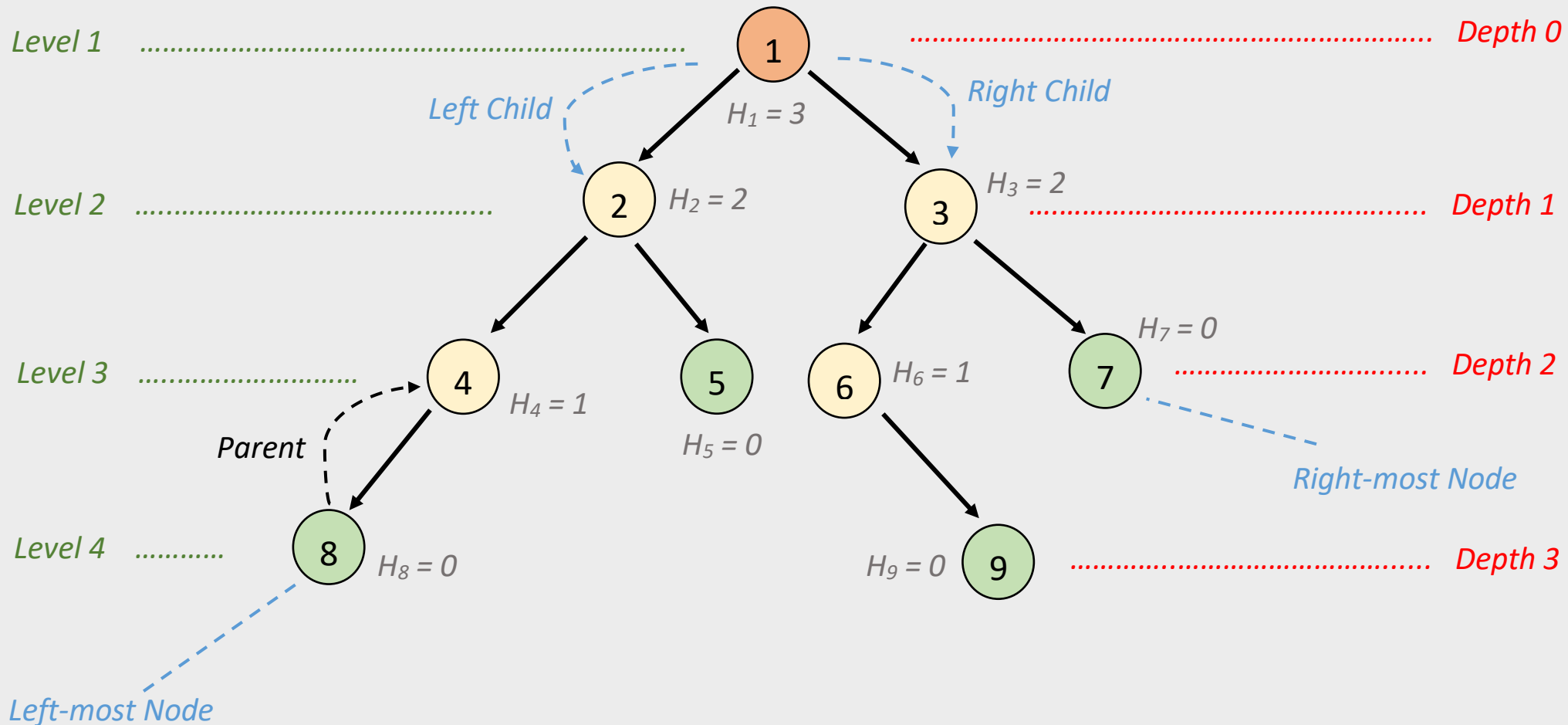# TREE CONCEPTS

Root: *Node with no parents. Only one node in a tree can be root.*
Leaf: *Node with no children.*
Depth: *Length of the path from a node to root.*
Level: *Breadth level of the node. Similar to depth but conventionally starts from 1.*
Height: *Longest downward path to a descendant leaf node. Height of the tree is height of the root.*

Level 1 .... ① **Depth 0**

Left Child $H_1 = 3$ *Right Child*

Level 2 .... ② $H_2 = 2$ ③ $H_3 = 2$ **Depth 1**

Level 3 .... ④ ⑤ ⑥ $H_6 = 1$ ⑦ $H_7 = 0$ **Depth 2**
$H_4 = 1$
Parent $H_5 = 0$
Right-most Node

Level 4 .... ⑧ $H_8 = 0$ $H_9 = 0$ ⑨ **Depth 3**

Left-most Node

H_i : *Height of Node i*

* *Descriptions given in this color are binary tree concepts.*

◯ : Root
◯ : Inner Node
◯ : Leaf Node