Binary Tree Nodes

You are given a table, *BST*, containing two columns: *N* and *P,* where *N* represents the value of a node in *Binary Tree*, and *P* is the parent of *N*.

Column	Type
N	Integer
P	Integer

Write a query to find the node type of *Binary Tree* ordered by the value of the node. Output one of the following for each node:

- *Root*: If node is root node.
- *Leaf*: If node is leaf node.
- *Inner*: If node is neither root nor leaf node.

Sample Input

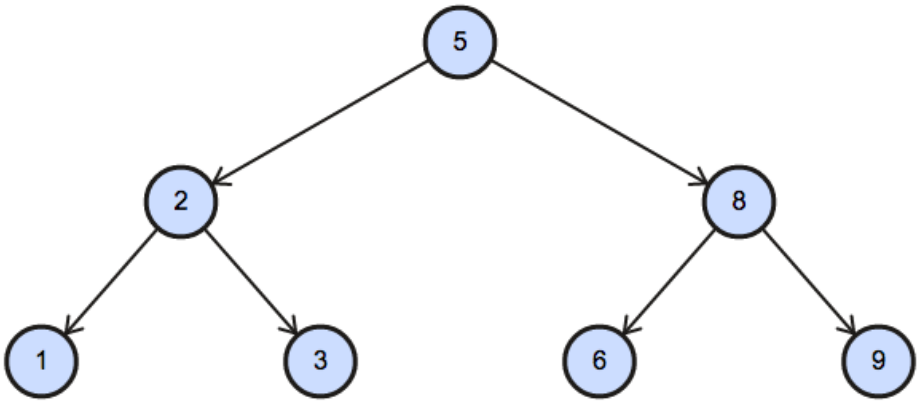
N	P
1	2
3	2
6	8
9	8
2	5
8	5
5	null

Sample Output

```
1 Leaf
2 Inner
3 Leaf
5 Root
6 Leaf
8 Inner
9 Leaf
```

Explanation

The *Binary Tree* below illustrates the sample:



Solution:

```
SELECT
    CASE
        WHEN P IS NULL THEN CONCAT(N, ' Root')
        WHEN N NOT IN (SELECT DISTINCT P FROM BST where P is not null)
THEN CONCAT(N, ' Leaf')
        ELSE CONCAT(N, ' Inner')
    END AS answer
FROM BST order by N ;
```