

Table: Tree

Column Name	Type
id	int
p_id	int

id is the primary key column for this table.

Each row of this table contains information about the id of a node and the id of its parent. The given structure is always a valid tree.

Each node in the tree can be one of three types:

“**Leaf**”: if the node is a leaf node.

“**Root**”: if the node is the root of the tree.

“**Inner**”: If the node is neither a leaf node nor a root node.

Write an SQL query to report the type of each node in the tree.

Return the result table in **any order**.

The query result format is in the following example.

Example 1:**

Input:

Tree table:

id	p_id
1	null
2	1
3	1
4	2
5	2

Output:

id	type
1	Root
2	Inner
3	Leaf
4	Leaf

```
| 5 | Leaf |
+----+-----+
```

Explanation:

Node 1 is the root node because its parent node is null and it has child nodes 2 and 3.

Node 2 is an inner node because it has parent node 1 and child node 4 and 5.

Nodes 3, 4, and 5 are leaf nodes because they have parent nodes and they do not have child nodes.

Example 2:**

Input:

Tree table:

```
+----+-----+
| id | p_id |
+----+-----+
| 1  | null |
+----+-----+
```

Output:

```
+----+-----+
| id | type |
+----+-----+
| 1  | Root |
+----+-----+
```

Explanation: If there is only one node on the tree, you only need to output its root attribute.