**Binary Tree Maximum Path Sum**

Given a **non-empty** binary tree, find the maximum path sum.

For this problem, a path is defined as any sequence of nodes from some starting node to any node in the tree along the parent-child connections. The path must contain **at least one node** and does not need to go through the root.

**Example 1:**

**Input:** [1,2,3]

**1**

**/ \**

**2** **3**

**Output:** 6

**Example 2:**

**Input:** [-10,9,20,null,null,15,7]

  -10

   / \

  9  **20**

**/  \**

**15   7**

**Output:** 42