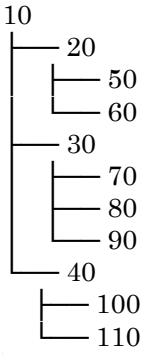
Is Symmetric in C++

```
#include <iostream>
#include <vector>
#include <stack>

using namespace std;

// Node class definition
class Node {
public:
    int data;
    vector<Node*> children;

    Node(int val) {
        data = val;
    }
};

// Function to construct the tree from the given array
Node* construct(vector<int>& arr) {
    Node* root = nullptr;
    stack<Node*> st;

    for (int i = 0; i < arr.size(); ++i) {
        if (arr[i] == -1) {
            st.pop();
        } else {
            Node* t = new Node(arr[i]);

            if (!st.empty()) {
                st.top()->children.push_back(t);
            } else {
                root = t;
            }

            st.push(t);
        }
    }

    return root;
}

// Function to check if two trees are mirrors of each other
bool areMirror(Node* n1, Node* n2) {
    if (n1->children.size() != n2->children.size()) {
        return false;
    }

    for (int i = 0; i < n1->children.size(); ++i) {
        int j = n1->children.size() - 1 - i;
        Node* c1 = n1->children[i];
        Node* c2 = n2->children[j];
```

Tree Structure from Input



Tabular Dry Run of are Mirror (node1, node2)

Step	node1->data	node2->data	Children Count Match	Comparing Child Pair	Recursive Call	Result
1	10	10	✅ Yes (3 children)	Compare 20 & 40	areMirror(20, 40)	proceeds
2	20	40	✅ Yes (2 children)	Compare 50 & 110	areMirror(50, 110)	✅ true
3	50	110	✅ Yes (0 children)	-	leaf nodes	✅ true
4	20	40	-	Compare 60 & 100	areMirror(60, 100)	✅ true
5	60	100	✅ Yes (0 children)	-	leaf nodes	✅ true
6	20 & 40	done	All children matched	-	return to previous	✅ true
7	10	10	-	Compare 30 & 30 (middle node)	areMirror(30, 30)	proceeds
8	30	30	✅ Yes (3 children)	Compare 70 & 90	areMirror(70, 90)	✅ true
9	70	90	✅ Yes (0	-	leaf nodes	✅ true

```
        if (!areMirror(c1, c2)) {
            return false;
        }
    }

    return true;
}

// Function to check if a tree is
symmetric
bool IsSymmetric(Node* node) {
    return areMirror(node, node);
}

// Main function
int main() {
    vector<int> arr = {10, 20, 50, -1,
60, -1, -1, 30, 70, -1, 80, -1, 90, -1,
-1, 40, 100, -1, 110, -1, -1, -1};

    Node* root = construct(arr);
    bool sym = IsSymmetric(root);
    cout << boolalpha << sym <<
endl;

    return 0;
}
```

			children)			
10	30	30	-	Compare 80 & 80	areMirror(80, 80)	✅ true
11	80	80	✅ Yes (0 children)	-	leaf nodes	✅ true
12	30	30	-	Compare 90 & 70	areMirror(90, 70)	✅ true
13	90	70	✅ Yes (0 children)	-	leaf nodes	✅ true
14	30 & 30	done	All children matched	-	return to previous	✅ true
15	10	10	-	Compare 40 & 20	already compared in step 1	✅ true
16	10 & 10	done	All pairs matched	-	final result	✅ true

✅ **Final Result:**

true

true