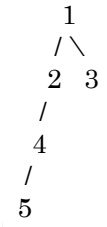
All single child parent in C++

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

using namespace std;

// Definition of a Node in the Binary Tree
struct Node {
    int val;
    Node* left;
    Node* right;

    Node(int item) {
        val = item;
        left = nullptr;
        right = nullptr;
    }
};

// Function to find all nodes with exactly one child
void exactlyOneChild(Node* root, vector<int>& ans) {
    if (root == nullptr || (root->left == nullptr && root->right == nullptr)) {
        return;
    }

    if (root->left == nullptr || root->right == nullptr) {
        ans.push_back(root->val);
    }

    exactlyOneChild(root->left, ans);
    exactlyOneChild(root->right, ans);
}

// Wrapper function for exactlyOneChild
vector<int> exactlyOneChild(Node* root) {
    vector<int> res;
    exactlyOneChild(root, res);
    return res;
}
int main() {
    // Constructing the example binary tree
    Node* root = new Node(1);
    root->left = new Node(2);
    root->right = new Node(3);
    root->left->left = new Node(4);
    root->left->left->left = new Node(5);

    // Finding nodes with exactly one child
    vector<int> ans = exactlyOneChild(root);

    // Printing the result
    cout << "Nodes with exactly one child: ";
    for (int num : ans) {
        cout << num << " ";
    }
    cout << endl;

    return 0;
}
```

Tree Structure:



🔍 Nodes with Exactly One Child

We traverse and look for nodes that have **only one** non-null child:

Node	Left Child	Right Child	Exactly One Child?	Added to ans?
1	2	3	✗ (has both)	✗
2	4	nullptr	✓	✓ → 2
4	5	nullptr	✓	✓ → 4
5	nullptr	nullptr	✗ (no children)	✗
3	nullptr	nullptr	✗ (no children)	✗

✓ Final Output:

Nodes with exactly one child: 2 4

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