

Elements in Range in C++

```
#include <iostream>
using namespace std;
class ElementsInRange
{
public:
    struct Node
    {
        int key;
        Node *left;
        Node *right;

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

    static void elementsInRangeK1K2(Node *root, int
k1, int k2)
    {
        if (root == nullptr)
        {
            return;
        }

        if (root->key >= k1 && root->key <= k2)
        {
            cout << root->key << " ";
        }

        if (root->key > k1)
        {
            elementsInRangeK1K2(root->left, k1, k2);
        }

        if (root->key < k2)
        {
            elementsInRangeK1K2(root->right, k1, k2);
        }
    }
};

int main()
{
    ElementsInRange::Node *root = new
ElementsInRange::Node(6);
    root->left = new ElementsInRange::Node(3);
    root->right = new ElementsInRange::Node(8);
    root->right->left = new ElementsInRange::Node(7);
    root->right->right = new
ElementsInRange::Node(9);

    cout << "Elements in range [5, 8]: ";
    ElementsInRange::elementsInRangeK1K2(root, 5,
8);
    cout << endl;
    return 0;
}
```

BST Structure:

```

      6
     /\
    3  8
     /\
    7  9

```

🔍 Traversal Logic:

The function recursively traverses only relevant subtrees:

- If root->key >= k1, check left subtree.
- If root->key <= k2, check right subtree.
- If key is within range, print it.

📄 Dry Run Table:

| Function Call | root->key | Action Taken | Output |
|---------------------------------|-----------|--|--------|
| elementsInRangeK1K2(6, 5, 8) | 6 | In range → print 6, go left and right | 6 |
| └─ elementsInRangeK1K2(3, 5, 8) | 3 | Not in range, go right skipped | - |
| └─ elementsInRangeK1K2(8, 5, 8) | 8 | In range → print 8, go left | 8 |
| └─ elementsInRangeK1K2(7, 5, 8) | 7 | In range → print 7 | 7 |

🖨️ Final Output:

Elements in range [5, 8]: 6 8 7

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