

## Write a Java program to Check if a binary tree is binary search tree or not

```
class Node
```

```
{
```

```
    int data;
```

```
    Node left, right;
```

```
    public Node(int item)
```

```
    {
```

```
        data = item;
```

```
        left = right = null;
```

```
    }
```

```
}
```

```
public class BinaryTree
```

```
{
```

```
    Node root;
```

```
    boolean isBST() {
```

```
        return isBSTUtil(root, Integer.MIN_VALUE,
```

```
                           Integer.MAX_VALUE);
```

```
    }
```

```
    boolean isBSTUtil(Node node, int min, int max)
```

```

{
    if (node == null)
        return true;

    if (node.data < min || node.data > max)
        return false;

    return (isBSTUtil(node.left, min, node.data-1) &&
            isBSTUtil(node.right, node.data+1, max));
}

public static void main(String args[])
{
    BinaryTree tree = new BinaryTree();
    tree.root = new Node(7);
    tree.root.left = new Node(2);
    tree.root.right = new Node(5);
    tree.root.left.left = new Node(1);
    tree.root.left.right = new Node(3);
    if (tree.isBST())
        System.out.println("IS BST");
    else
        System.out.println("Not a BST");
}
}

```

Node= 4,2,5,1,3 IS BST

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```
9      data = item;
10     left = right = null;
11 }
12 }
13
14 public class BinaryTree
15 {
16     Node root;
17     boolean isBST() {
18         return isBSTUtil(root, Integer.MIN_VALUE,
19                             Integer.MAX_VALUE);
20     }
21
22     boolean isBSTUtil(Node node, int min, int max)
23     {
24         if (node == null)
25             return true;
26
27         if (node.data < min || node.data > max)
28             return false;
29         return (isBSTUtil(node.left, min, node.data-1) &&
30                 isBSTUtil(node.right, node.data+1, max));
31     }
32
33     public static void main(String args[])
34     {
35         BinaryTree tree = new BinaryTree();
36         tree.root = new Node(4);
37         tree.root.left = new Node(2);
38         tree.root.right = new Node(5);
39         tree.root.left.left = new Node(1);
40         tree.root.left.right = new Node(3);
41
42         if (tree.isBST())
43             System.out.println("IS BST");
44         else
45             System.out.println("Not a BST");
46     }
47 }
48 }
```

Execute Mode, Version, Inputs & Arguments

JDK 11.0.4

Stdin Inputs

Interactive

CommandLine Arguments

Execute

Result

CPU Time: 0.12 sec(s), Memory: 32392 kilobyte(s) compiled and executed in 0.775 sec(s)

IS BST

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Node= 7,2,5,1,3 IS NOT BST

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```
9      data = item;
10     left = right = null;
11 }
12 }
13
14 public class BinaryTree
15 {
16     Node root;
17     boolean isBST() {
18         return isBSTUtil(root, Integer.MIN_VALUE,
19                             Integer.MAX_VALUE);
20     }
21
22     boolean isBSTUtil(Node node, int min, int max)
23     {
24         if (node == null)
25             return true;
26
27         if (node.data < min || node.data > max)
28             return false;
29         return (isBSTUtil(node.left, min, node.data-1) &&
30                 isBSTUtil(node.right, node.data+1, max));
31     }
32
33     public static void main(String args[])
34     {
35         BinaryTree tree = new BinaryTree();
36         tree.root = new Node(7);
37         tree.root.left = new Node(2);
38         tree.root.right = new Node(5);
39         tree.root.left.left = new Node(1);
40         tree.root.left.right = new Node(3);
41
42         if (tree.isBST())
43             System.out.println("IS BST");
44         else
45             System.out.println("Not a BST");
46     }
47 }
48 }
```

Execute Mode, Version, Inputs & Arguments

JDK 11.0.4

Stdin Inputs

Interactive

CommandLine Arguments

Execute

Result

CPU Time: 0.14 sec(s), Memory: 31512 kilobyte(s) compiled and executed in 0.851 sec(s)

Not a BST

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