

Problem 12: Write a program to find the **Maximum Width of A BinaryTree**.

class Node:

```
def __init__(self, data):
```

```
    self.data = data
```

```
    self.left = None
```

```
    self.right = None
```

```
def get_tree_width(root):
```

```
    if root is None:
```

```
        return 0
```

```
    max_width = 0
```

```
    queue = []
```

```
    queue.append((root, 1))
```

```
    while len(queue) > 0:
```

```
        count = len(queue)
```

```
        max_width = max(max_width, count)
```

```
        while count > 0:
```

```
            node, index = queue.pop(0)
```

```
            if node.left is not None:
```

```
                queue.append((node.left, 2 * index))
```

```
            if node.right is not None:
```

```
queue.append((node.right, 2 * index + 1))
```

```
count -= 1
```

```
return max_width
```

```
root = Node(1)
```

```
root.left = Node(2)
```

```
root.right = Node(3)
```

```
root.left.left = Node(4)
```

```
root.left.right = Node(5)
```

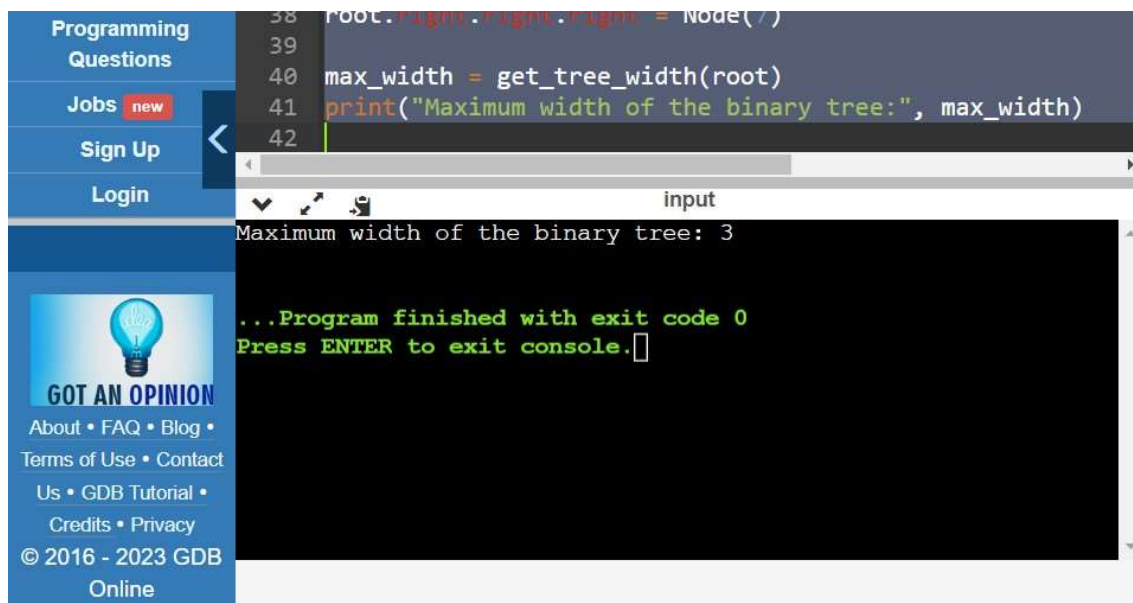
```
root.right.right = Node(8)
```

```
root.right.right.left = Node(6)
```

```
root.right.right.right = Node(7)
```

```
max_width = get_tree_width(root)
```

```
print("Maximum width of the binary tree:", max_width)
```



```
38 root.right.right.right = Node(7)
39
40 max_width = get_tree_width(root)
41 print("Maximum width of the binary tree:", max_width)
42
```

input

Maximum width of the binary tree: 3

...Program finished with exit code 0
Press ENTER to exit console.

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