

### Problem 1: [Find K-th smallest element in BST](#)

class Node:

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

```
    self.value = value
```

```
    self.left = None
```

```
    self.right = None
```

```
def kth_smallest(root, k):
```

```
    stack = []
```

```
    count = 0
```

```
    curr = root
```

```
    while True:
```

```
        if curr:
```

```
            stack.append(curr)
```

```
            curr = curr.left
```

```
        elif stack:
```

```
            curr = stack.pop()
```

```
            count += 1
```

```
            if count == k:
```

```
                return curr.value
```

```
            curr = curr.right
```

```
        else:
```

```
            break
```

```
root = Node(5)
```

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

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

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

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

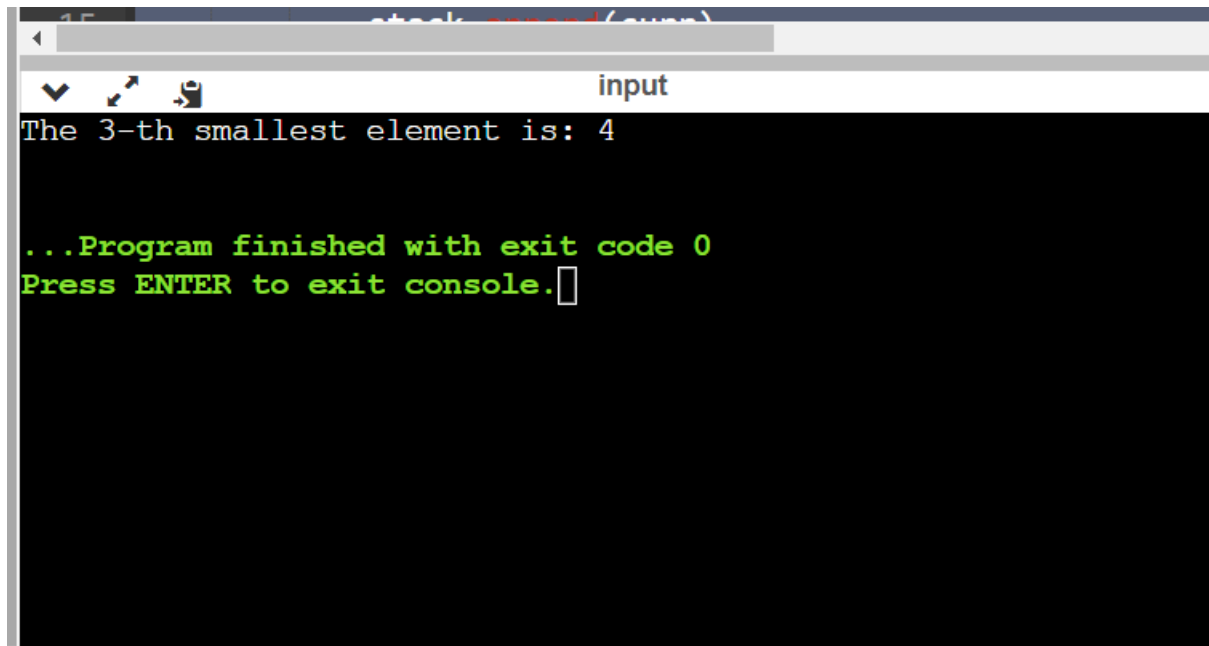
```
root.right.left = Node(6)
```

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

```
k = 3
```

```
result = kth_smallest(root, k)
```

```
print(f"The {k}-th smallest element is: {result}")
```

A screenshot of a terminal window. The title bar shows a file icon, a magnifying glass, and the text "input". The terminal content displays the output of a Python program: "The 3-th smallest element is: 4". Below this, in green text, it says "...Program finished with exit code 0" and "Press ENTER to exit console." with a cursor at the end of the line.

```
15 stackoverflow.com  
The 3-th smallest element is: 4  
...Program finished with exit code 0  
Press ENTER to exit console.
```