

Solution 1

```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 package main
4
5 type BinaryTree struct {
6     Value int
7
8     Left  *BinaryTree
9     Right *BinaryTree
10    Parent *BinaryTree
11 }
12
13 // O(n) time | O(1) space
14 func (tree *BinaryTree) IterativeInOrderTraversal(callback func(int)) {
15     var previous, next *BinaryTree
16     current := tree
17     for current != nil {
18         if previous == nil || previous == current.Parent {
19             if current.Left != nil {
20                 next = current.Left
21             } else {
22                 callback(current.Value)
23                 if current.Right != nil {
24                     next = current.Right
25                 } else {
26                     next = current.Parent
27                 }
28             }
29         } else if previous == current.Left {
30             callback(current.Value)
31             if current.Right != nil {
32                 next = current.Right
33             } else {
34                 next = current.Parent
35             }
36         } else {
37             next = current.Parent
38         }
39         previous, current = current, next
40     }
41 }
42
```

