Solution 1

```
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using System;

public class Program {
  // O(n) time | O(1) space
  public static void IterativeInOrderTraversal(BinaryTree tree, Action<BinaryTree> callback) {
    BinaryTree previousNode = null;
    BinaryTree currentNode = tree;
    while (currentNode != null) {
      BinaryTree nextNode;
      if (previousNode == null || previousNode == currentNode.parent) {
        if (currentNode.left != null) {
          nextNode = currentNode.left;
        } else {
          callback(currentNode);
          nextNode = currentNode.right !=
            null ? currentNode.right : currentNode.parent;
        }
      } else if (previousNode == currentNode.left) {
        callback(currentNode);
        nextNode = currentNode.right !=
          null ? currentNode.right : currentNode.parent;
      } else {
        nextNode = currentNode.parent;
      }
      previousNode = currentNode;
      currentNode = nextNode;
    }
  }

  public class BinaryTree {
    public int value;
    public BinaryTree left;
    public BinaryTree right;
    public BinaryTree parent;

    public BinaryTree(int value) {
      this.value = value;
    }

    public BinaryTree(int value, BinaryTree parent) {
      this.value = value;
      this.parent = parent;
    }
  }
}

```