

Solution 1

```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 class Program {
4     class LinkedList {
5         var value: Int
6         var next: LinkedList?
7
8         init(value: Int) {
9             self.value = value
10            next = nil
11        }
12    }
13
14    // O(n) time | O(1) space
15    func findLoop(head: LinkedList) -> LinkedList? {
16        var firstPointer = head.next
17        var secondPointer = head.next?.next
18
19        while firstPointer != secondPointer {
20            firstPointer = firstPointer?.next
21            secondPointer = secondPointer?.next?.next
22        }
23
24        firstPointer = head
25
26        while firstPointer != secondPointer {
27            firstPointer = firstPointer?.next
28            secondPointer = secondPointer?.next
29        }
30
31        return firstPointer
32    }
33 }
34
```

