

Our Solution(s)

Run Code

Your Solutions

Run Code

Solution 1

```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 #include <vector>
4 using namespace std;
5
6 class LinkedList {
7 public:
8     int value;
9     LinkedList *next;
10
11     LinkedList(int value);
12 };
13
14 // O(n) time | O(1) space
15 LinkedList *findLoop(LinkedList *head) {
16     LinkedList *first = head->next;
17     LinkedList *second = head->next->next;
18     while (first != second) {
19         first = first->next;
20         second = second->next->next;
21     }
22     first = head;
23     while (first != second) {
24         first = first->next;
25         second = second->next;
26     }
27     return first;
28 }
29
```

Solution 1   Solution 2   Solution 3

```
1 #include <vector>
2 using namespace std;
3
4 class LinkedList {
5 public:
6     int value;
7     LinkedList *next;
8
9     LinkedList(int value);
10 };
11
12 LinkedList *findLoop(LinkedList *head) {
13     // Write your code here.
14     return NULL;
15 }
16
```

Our Tests

```
1 // Test Case 1: No Loop
2 // Input: head = 1, 2, 3, 4, 5
3 // Output: null
4
5 // Test Case 2: Loop
6 // Input: head = 1, 2, 3, 4, 5
7 // Output: 3
8
9 // Test Case 3: Loop
10 // Input: head = 1, 2, 3, 4, 5
11 // Output: 3
12
```

Custom Output

Submit Code

```
1 // Custom Output
2 // Input: head = 1, 2, 3, 4, 5
3 // Output: 3
4
```

Run or submit code when you're ready.