Solution 1

```
1  // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3  using System;
4  public class Program {
5    // O(n) time | O(1) space - where n is the number of nodes in the Linked List
6    public static LinkedList ShiftLinkedList(LinkedList head, int k) {
7      int listLength = 1;
8      LinkedList listTail = head;
9      while (listTail.next != null) {
10       listTail = listTail.next;
11       listLength++;
12     }
13
14     int offset = Math.Abs(k) % listLength;
15     if (offset == 0) return head;
16     int newTailPosition = k > 0 ? listLength - offset : offset;
17     LinkedList newTail = head;
18     for (int i = 1; i < newTailPosition; i++) {
19       newTail = newTail.next;
20     }
21
22     LinkedList newHead = newTail.next;
23     newTail.next = null;
24     listTail.next = head;
25     return newHead;
26   }
27
28   public class LinkedList {
29     public int value;
30     public LinkedList next;
31
32     public LinkedList(int value) {
33       this.value = value;
34       next = null;
35     }
36   }
37 }
38
```