

# Remove loop in Linked List

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You are given a linked list of **N** nodes. Remove the loop from the linked list, if present.

**Note:** X is the position of the node to which the last node is connected to. If it is 0, then there is no loop.

## Example 1:

**Input:** N = 3

value[] = {1,3,4}

X = 2

**Output:** 1 **Explanation:** The link list looks like 1 -> 3 -> 4

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A loop is present. If you remove it successfully, the answer will be 1.

## Example 2:

**Input:** N = 4

value[] = {1,8,3,4}

X = 0

**Output:** 1 **Explanation:** The Linked list does not contain any loop.

## Your Task:

You don't need to read input or print anything. Your task is to complete the function **removeLoop()** which takes the head of the linked list as input parameter. Simply remove the loop in the list (if present) without disconnecting any nodes from the list. The driver code will print **\*\*1** **\*\***if your code is correct.

**Expected time complexity :** O(n)

**\*\*Expected auxiliary space : \*\***O(1)

## Constraints:

$1 \leq N \leq 104$

```
def removeLoop(self, head):  
    # code here  
    # remove the loop without losing any nodes  
    if head == None:  
        return  
    if head.next == head:  
        head.next = None
```

```

        return None
    slow = head
    fast = head
    while slow and fast:
        slow = slow.next
        fast = fast.next
        if fast == None:
            break
        fast = fast.next
        if slow == fast:
            break
    if fast==None:
        return
    else:
        slow = head
        //For circular linked list
        if slow==fast:
            fast = head
            while fast.next!=slow:
                fast = fast.next
            fast.next = None
            return
        else:
            # prev = None
            while slow.next!=fast.next:
                slow = slow.next
                prev = fast
                fast = fast.next
            fast.next = None
            return

```