237. Delete Node in a Linked List

April 7, 2016 | 267.8K views

Average Rating: 2.84 (325 votes)

Write a function to delete a node (except the tail) in a singly linked list, given only access to that node.

Given linked list -- head = [4,5,1,9], which looks like following:

Example 1:

```
Input: head = [4,5,1,9], node = 5
Output: [4,1,9]
Explanation: You are given the second node with value 5, the linked list should becom
```

Example 2:

```
Input: head = [4,5,1,9], node = 1
Output: [4,5,9]
Explanation: You are given the third node with value 1, the linked list should become
```

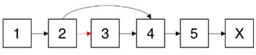
Note:

- The linked list will have at least two elements.
- All of the nodes' values will be unique.
- The given node will not be the tail and it will always be a valid node of the linked list.
- Do not return anything from your function.

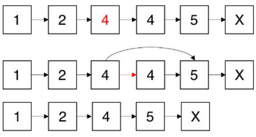
Solution

Approach: Swap with Next Node [Accepted]

The usual way of deleting a node `node` from a linked list is to modify the `next` pointer of the node *before* it, to point to the node *after* it.



Since we do not have access to the node *before* the one we want to delete, we cannot modify the `next` pointer of that node in any way. Instead, we have to replace the value of the node we want to delete with the value in the node after it, and then delete the node after it.



Because we know that the node we want to delete is not the tail of the list, we can guarantee that this approach is possible.

Java

```
public void deleteNode(ListNode node) {
    node.val = node.next.val;
    node.next = node.next.next;
}
```

Complexity Analysis

Time and space complexity are both $O(1)$.

Analysis written by: @noran

Rate this article:

Previous Next

Comments: 135 Sort By

Type comment here... (Markdown is supported)

Preview Post

leetcodefan ★ 1942 January 7, 2019 5:45 AM
What? Are you kidding me?
123 Share Reply
SHOW 3 REPLIES

nozay ★ 208 March 7, 2019 10:10 PM
The question is confusing, because it looks like `head` would be provided as an input when it is not.
My first thought was "wow, this seems broken" followed by "wow, so many dislikes".

```
class Solution:
```

Read More
204 Share Reply
SHOW 4 REPLIES

g13237743308 ★ 231 December 18, 2018 8:13 AM Report
Why we need to solve such a stupid question?
231 Share Reply
SHOW 6 REPLIES

samiei ★ 58 February 22, 2019 9:16 PM
This question is just a brain teaser. The problems asks to delete a node (an object) yet it just shifts values (a variable). You are not deleting a node, you are changing the representation of values. Either change the question description or remove this because it adds no value to linkedlist knowledge.
58 Share Reply
SHOW 4 REPLIES

CSPaneah ★ 81 March 22, 2019 9:48 AM
Is this a valid question? The input should be two: the head and the value, but there is only node. Am I missing or something?
78 Share Reply
SHOW 3 REPLIES

echushe ★ 40 February 11, 2018 7:26 PM Report
It seems many people forget to delete the next node in C and C++!
It leaks!
40 Share Reply
SHOW 5 REPLIES

terrible_whiteboard ★ 633 May 19, 2020 6:12 PM
I made a video if anyone is having trouble understanding the solution (clickable link)
https://youtu.be/3XGaTq-bRiU

Read More
20 Share Reply
SHOW 1 REPLY

jojozhuang ★ 23 February 9, 2019 9:51 PM
The limitation for this question is, you can not delete the last node.
19 Share Reply
SHOW 3 REPLIES

Yurii-Predborskyi ★ 105 April 16, 2018 3:29 PM
This is pretty sad. Instead of deleting a node we're changing node content and updating its link to the next item. The problem, however, is not in the solution (which doesn't even work for the tail - you simply can't delete tail). The problem comes from with "linked list" definition (at least, in javascript). For a real linked list you need three things in each node:

Read More
18 Share Reply
SHOW 2 REPLIES

liashuk ★ 7 February 17, 2018 4:09 PM Report
What about a test scenario when only one node is present?
7 Share Reply
SHOW 2 REPLIES