

Given only a pointer to a node to be deleted in a singly linked list, how do you delete it?

A **simple solution** is to traverse the linked list until you find the node you want to delete. But this solution requires pointer to the head node which contradicts the problem statement.

Fast solution is to copy the data from the next node to the node to be deleted and delete the next node. Something like following.

```
struct node *temp = node_ptr->next;
node_ptr->data = temp->data;
node_ptr->next = temp->next;
free(temp);
```

Program:

```
#include<stdio.h>
#include<assert.h>
#include<stdlib.h>

/* Link list node */
struct node
{
    int data;
    struct node* next;
};

/* Given a reference (pointer to pointer) to the head
of a list and an int, push a new node on the front
of the list. */
void push(struct node** head_ref, int new_data)
{
```

Google™ Custom Search



GeeksforGeeks



53,528 people like [GeeksforGeeks](#).



[Interview Experiences](#)

[Advanced Data Structures](#)

[Dynamic Programming](#)

[Greedy Algorithms](#)

[Backtracking](#)

[Pattern Searching](#)

[Divide & Conquer](#)

[Mathematical Algorithms](#)

[Recursion](#)

```

/* allocate node */
struct node* new_node =
    (struct node*) malloc(sizeof(struct node));

/* put in the data */
new_node->data = new_data;

/* link the old list off the new node */
new_node->next = (*head_ref);

/* move the head to point to the new node */
(*head_ref) = new_node;
}

void printList(struct node *head)
{
    struct node *temp = head;
    while(temp != NULL)
    {
        printf("%d ", temp->data);
        temp = temp->next;
    }
}

void deleteNode(struct node *node_ptr)
{
    struct node *temp = node_ptr->next;
    node_ptr->data = temp->data;
    node_ptr->next = temp->next;
    free(temp);
}

/* Drier program to test above function*/
int main()
{
    /* Start with the empty list */
    struct node* head = NULL;

    /* Use push() to construct below list
    1->12->1->4->1 */
    push(&head, 1);
    push(&head, 4);
    push(&head, 1);
    push(&head, 12);
    push(&head, 1);

    printf("\n Before deleting \n");

```

Deploy Early. Deploy Often.

DevOps from Rackspace:

Automation

[FIND OUT HOW ►](#)



Popular Posts

[All permutations of a given string](#)

[Memory Layout of C Programs](#)

[Understanding "extern" keyword in C](#)

[Median of two sorted arrays](#)

[Tree traversal without recursion and without stack!](#)

[Structure Member Alignment, Padding and Data Packing](#)

[Intersection point of two Linked Lists](#)

[Lowest Common Ancestor in a BST.](#)

[Check if a binary tree is BST or not](#)

[Sorted Linked List to Balanced BST](#)

```

printList(head);

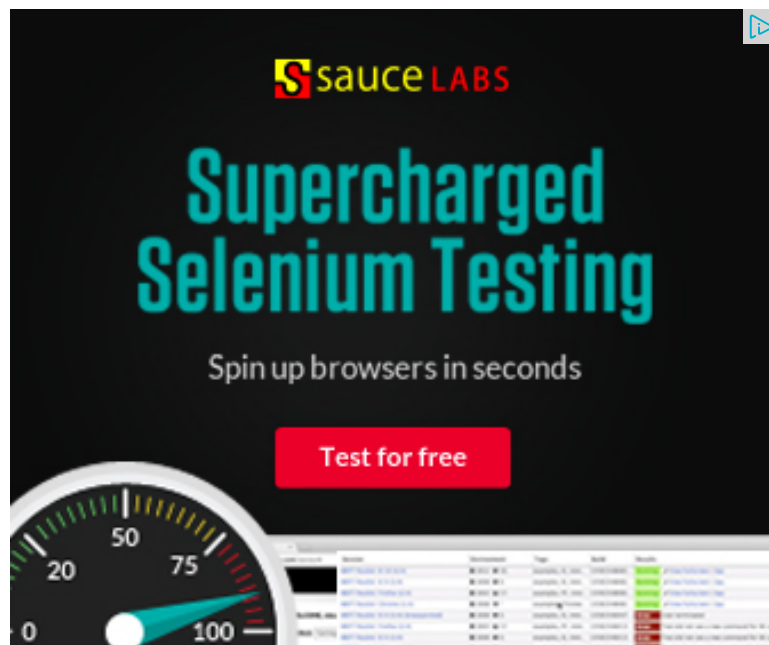
/* I m deleting the head itself.
   You can check for more cases */
deleteNode(head);

printf("\n After deleting \n");
printList(head);
getchar();
return 0;
}

```

This solution doesn't work if the node to be deleted is the last node of the list. To make this solution work we can mark the end node as a dummy node. But the programs/functions that are using this function should also be modified.

You can try this problem for doubly linked list.



Related Tpoics:

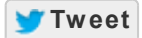
- Given a linked list, reverse alternate nodes and append at the end
- Pairwise swap elements of a given linked list by changing links



- Self Organizing List | Set 1 (Introduction)
- Merge a linked list into another linked list at alternate positions
- QuickSort on Singly Linked List
- Delete N nodes after M nodes of a linked list
- Design a stack with operations on middle element
- Swap Kth node from beginning with Kth node from end in a Linked List



9



0



1

Writing code in comment? Please use ideone.com and share the link here.

705



Subscribe

Recent Comments

Abhi You live US or India?

Google (Mountain View) interview · 47 minutes ago

Aman Hi, Why arent we checking for conditions...

Write a C program to Delete a Tree. · 1 hour ago

kzs please provide solution for the problem...

Backtracking | Set 2 (Rat in a Maze) · 1 hour ago

Sanjay Agarwal bool

tree::Root_to_leaf_path_given_sum(tree...

Root to leaf path sum equal to a given number · 1

hour ago

GOPI GOPINATH @admin Highlight this

sentence "We can easily...

Count trailing zeroes in factorial of a number · 1

hour ago

newCoder3006 If the array contains negative numbers also. We...

Find subarray with given sum · 2 hours ago

AdChoices

► [Linked List](#)

► [C++ Code](#)


► [Java Source Code](#)

AdChoices 

► [Programming C++](#)

► [Void Pointer](#)

► [Pointers Pointer](#)

AdChoices 

► [Dangling Pointer](#)

► [One Pointer](#)

► [Pointer Free](#)

@geeksforgeeks, **Some rights reserved**

Contact Us!

Powered by **WordPress** & **MooTools**, customized by geeksforgeeks team