Deletion in a Linked List

Consider the following Linked List

head $\longrightarrow$ | 8 | → | → | 9 | → | → | 11 | → | → | 7 | → | → | 2 | → | $\longrightarrow$ NULL
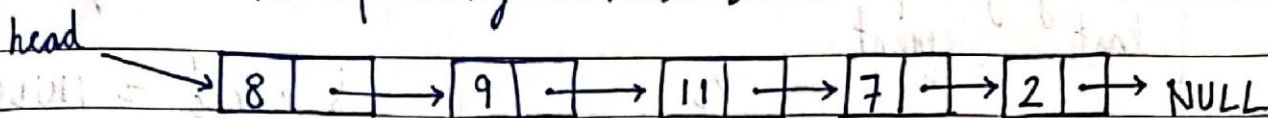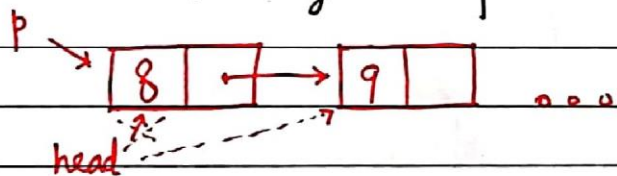
Deletion can be done for the following cases:

1> Deleting the first Node
2> Deleting the node at an index
3> Deleting the last Node
4> Deleting the first node with a given value.

The deletion just like insertion is done by rewiring the pointer connections, the only caveat being: we need to free the memory of the deleted node using free().
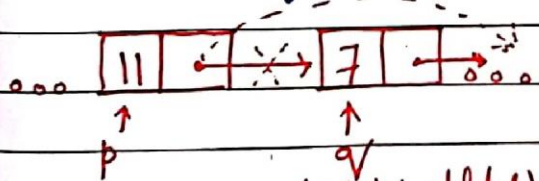
Case 1 : Deleting the first node

p $\searrow$

| 8 | → | → | 9 | | ...   Struct Node * p = head

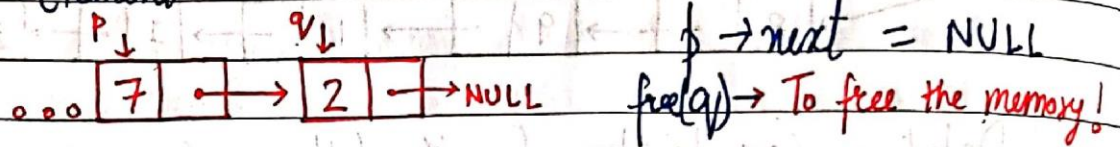head   head = head → next;

free(p);

Case 2 : Deleting the node at an index

for deleting a given node, we first bring a temporary pointer p before element to be deleted and q on the element being deleted

... | 11 | → | ✗ | → | 7 | → | ...

↑ p   ↑ q

(Node being deleted)

p → next = q → next;
free(q);

Case 3: Deleting the last Node

Last node can be deleted just like Case 2 by bringing p on second last element and q on last element.

```
     p↓          q↓
...  [7] ⟶ [2] ⟶ NULL
```

p → next = NULL
free(q) → To free the memory!

Case 4: Delete the first node with a given value

This can be done exactly like Case 2 by bringing pointers p & q to appropriate positions

```
     p↓          q↓
... [11] ⟶  [7] ⟶ ...
        (Node being deleted)
```

p → next = q → next;
free (q);
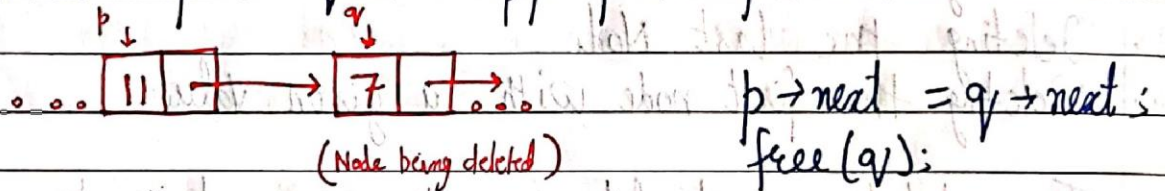
Staff Selection Commission
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Combined Higher Secondary (10+2) Level Examination, 2021 (Tier-I):Uploading of Final Answer Keys - reg.

Staff Selection Commission has declared the result of Combined HigherSecondary (10+2) Level Examination (Tier-1), 2021 on 04.08.2022.

2.   In order to ensure greater transparency in the examination system, and in the interest of the candidates, the Commission has uploaded the Final Answer Keys alongwith Question Paper(s) w.r.t. Tier-1 of Combined Higher Secondary (10+2) Level Examination, 2021 on the website of the Commission on 16.08.2022.

3.   The candidates may take a print out of their respective Final Answer Keys alongwith respective Question Paper(s) by using the link given below. This facility will be available for the candidates for a period of one month only i.e. from 16.08.2022 (18:00 Hrs) to 15.09.2022 (18:00 Hrs).

4.   The Candidates may take a print out of their respective Final Answer Keys alongwith respective Question Paper, as the same will not be available after the above-specified time limit.

Under Secretary (C-1/1)
16.08.2022

Click here for Final Answer Keys alongwith Question Paper

Data Structures & Algorithms by CodeWithHarry

This course will get you prepared for placements and will teach you how to create efficient and fast algorithms.

Data structures and algorithms are two different things.

Data Structures: Arrangement of data so that they can be used efficiently in memory (data items)

Algorithms: Sequence of steps on data using efficient data structures to solve a given problem.

Other Terminology

Database -: Collection of information in permanent storage for faster retrieval and updation.

Data warehousing -: Management of huge amount of legacy data for better analysis.

Big data -: Analysis of too large or complex data which cannot be dealt with traditional data processing application.

Data Structures and Algorithms are nothing new. If you have done programming in any language like C you must have used Arrays → A data structure and some sequence of processing steps to solve a problem → Algorithm (oo)

Memory layout of C programs

When the program starts, its
Code is copied to the main
memory.

Stack holds the memory occupied
by the functions.

Heap contains the data which is
requested by the program as dynamic
memory.

Intialized and uninitialized data segments hold
initialized and uninitialized global variables respectively

Heap
Stack
Uninitialized Data → static + global
Initialized Data ↗ variables
Code Segment

memory (RAM)