

Quiz 5 (10 points) - L05(27) Tu

Date: Apr 1, 2025

Time limit: 40 minutes

Name:

Student Number:

Given the head of a singly linked list, reverse the list and **return** the reversed list.

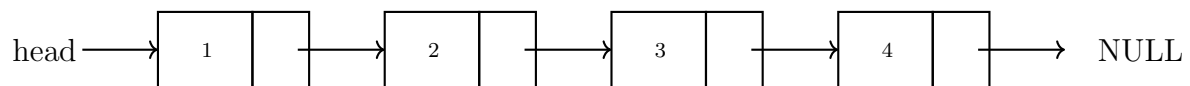
The list node is defined as:

```
struct ListNode {  
    int val;  
    struct ListNode *next;  
};
```

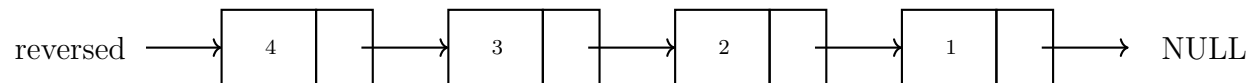
Implement the `reverseList` function in C.

- *Example 1:*

– Input: `head`



– Output:



Quiz 5 (10 points) - L06(21) Mo

Date: Mar 31, 2025

Time limit: 40 minutes

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Student Number:

You are provided with the head pointers of two sorted singly linked lists, `list1` and `list2`. Merge these two lists into a single sorted linked list by connecting together the nodes from both lists, **while the merged list is still sorted based on `val`**. **Return** the head of the merged linked list.

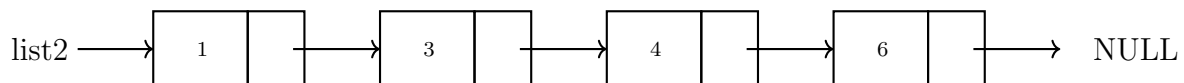
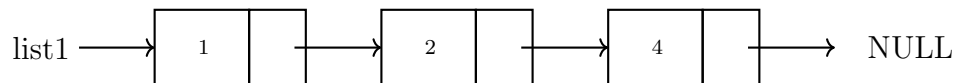
The list node is defined as follows:

```
struct ListNode {
    int val;
    struct ListNode *next;
};
```

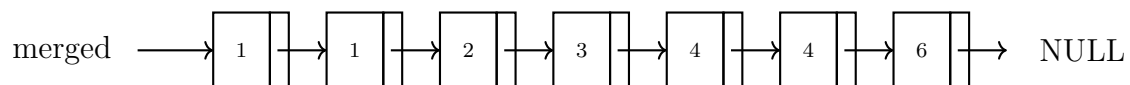
Implement the `mergeTwoLists` function in C.

• *Example 1:*

– Inputs: `list` and `list2`



– Output:



Notes:

- Both `list1` and `list2` are sorted in non-decreasing order.

Quiz 5 (10 points) - L07(20) Tu

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Student Number:

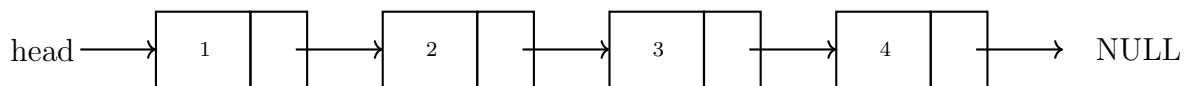
Given the head of a singly linked list, remove the n^{th} node **from the end** of the list and **return** the head of the modified list. The linked list node is defined as follows:

```
struct ListNode {
    int val;
    struct ListNode *next;
};
```

Implement the `removeNthFromEnd` function in C.

• *Example 1:*

– Inputs: `n = 3` and `head`



– Output:



Quiz 5 (10 points) - L08(27) Mo

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Implement functions to insert a new node **at the end** of a singly linked list and to free the memory allocated for the list. The node structure is defined as follows:

```
typedef struct Node {  
    char *name;  
    struct Node *next;  
} Node;
```

Implement the `insertNode` and `FreeList` function in C.

- *Example 1:*

- Inputs: `"Alice"` and `head`

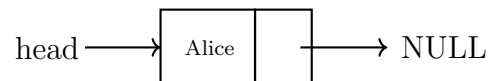
head → NULL

- Output:



- *Example 2:*

- Inputs: `"Bob"` and `head`



- Output:

