Merge two sorted linked lists

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This challenge is part of a tutorial track by MyCodeSchool

Given pointers to the heads of two sorted linked lists, merge them into a single, sorted linked list. Either head pointer may be null meaning that the corresponding list is empty.

Example

$headA$ refers to $1 \rightarrow 3 \rightarrow 7 \rightarrow NULL$

$headB$ refers to $1 \rightarrow 2 \rightarrow NULL$

The new list is $1 \rightarrow 1 \rightarrow 2 \rightarrow 3 \rightarrow 7 \rightarrow NULL$

Function Description

Complete the mergeLists function in the editor below.

mergeLists has the following parameters:

- SinglyLinkedListNode pointer headA: a reference to the head of a list
- SinglyLinkedListNode pointer headB: a reference to the head of a list

Returns

- SinglyLinkedListNode pointer: a reference to the head of the merged list

Input Format

The first line contains an integer t, the number of test cases.

The format for each test case is as follows:

The first line contains an integer n, the length of the first linked list.

The next n lines contain an integer each, the elements of the linked list.

The next line contains an integer m, the length of the second linked list.

The next m lines contain an integer each, the elements of the second linked list.

Constraints

- $1 \leq t \leq 10$
- $1 \leq n, m \leq 1000$
- $1 \leq list[i] \leq 1000$, where $list[i]$ is the i^{th} element of the list.

Sample Input

```
1
3
1
2
3
```

```
2
3
4
```

Sample Output

```
1 2 3 3 4
```

Explanation

The first linked list is: $\mathbf{1} \rightarrow \mathbf{3} \rightarrow \mathbf{7} \rightarrow \boldsymbol{NULL}$

The second linked list is: $\mathbf{3} \rightarrow \mathbf{4} \rightarrow \boldsymbol{NULL}$

Hence, the merged linked list is: $\mathbf{1} \rightarrow \mathbf{2} \rightarrow \mathbf{3} \rightarrow \mathbf{3} \rightarrow \mathbf{4} \rightarrow \boldsymbol{NULL}$

Change Theme Language Python 3

```
#     int data
#     SinglyLinkedListNode next
#
#
def mergeLists(head1, head2):
    if head1 is None and head2 is None:
        return None

    head = head1
    cur1 = head1.next
    cur2 = head2
    if head1.data > head2.data:
        head = head2
        cur1 = head1
        cur2 = head2.next
    cur = head

    while cur1 and cur2:
        if cur1.data < cur2.data:
            cur.next = cur1
            cur = cur1
            cur1 = cur1.next
        else:
            cur.next = cur2
            cur = cur2
            cur2 = cur2.next
    # post precessing
    if cur1 is None:
        cur.next = cur2
    if cur2 is None:
        cur.next = cur1
    return head

if __name__ == '__main__':…
```

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Congratulations

You solved this challenge. Would you like to challenge your friends?

Next Challenge

- Test case 0
- Test case 1
- Test case 2
- Test case 3
- Test case 4
- Test case 5
- Test case 6

Compiler Message

Success

Input (stdin) Download

```
1
3
1
2
3
2
3
4
```