Task 7: Merging Two Sorted Linked Lists

You are provided with the heads of two sorted linked lists. The lists are sorted in ascending order. Create a merged linked list in ascending order from the two input lists without using any extra space (i.e., do not create any new nodes).

```java
class ListNode {
    int val;
    ListNode next;

    ListNode(int val) {
        this.val = val;
    }
}

public class MergeSortedLinkedLists {
    public static ListNode mergeTwoLists(ListNode list1, ListNode list2) {
        ListNode dummy = new ListNode(0);
        ListNode head = dummy;

        while (list1 != null && list2 != null) {
            if (list1.val <= list2.val) {
                head.next = list1;
                list1 = list1.next;
            } else {
                head.next = list2;
                list2 = list2.next;
            }
            head = head.next;
        }

        head.next = list1 == null ? list2 : list1;

        return dummy.next;
    }

    public static void main(String[] args) {
        ListNode list1 = new ListNode(1);
        list1.next = new ListNode(2);
        list1.next.next = new ListNode(4);

        ListNode list2 = new ListNode(1);
        list2.next = new ListNode(3);
        list2.next.next = new ListNode(4);

        ListNode mergedList = mergeTwoLists(list1, list2);
```

```java
        System.out.println("Merged List:");
        printLinkedList(mergedList);
    }

    public static void printLinkedList(ListNode head) {
        ListNode current = head;
        while (current != null) {
            System.out.print(current.val + " ");
            current = current.next;
        }
        System.out.println();
    }
}
```