

Problem 4: Given the head of a singly linked list, return true if it is a palindrome.

```
class ListNode:
    def __init__(self, val=0, next=None):
        self.val = val
        self.next = next

def isPalindrome(head):
    if head is None or head.next is None:
        return True

    slow = fast = head
    while fast.next and fast.next.next:
        slow = slow.next
        fast = fast.next.next

    second_half = reverse_linked_list(slow.next)
    slow.next = None

    first_half = head
    while first_half and second_half:
        if first_half.val != second_half.val:
            return False

        first_half = first_half.next
        second_half = second_half.next

    return True

def reverse_linked_list(head):
    prev = None
    curr = head

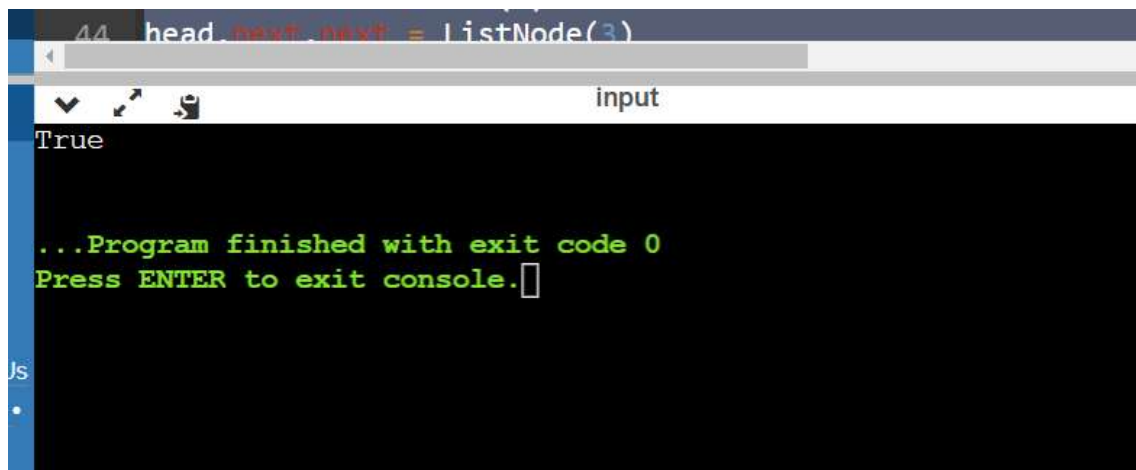
    while curr:
        next_node = curr.next
```

```
curr.next = prev  
  
prev = curr  
  
curr = next_node
```

```
return prev
```

```
head = ListNode(1)  
head.next = ListNode(2)  
head.next.next = ListNode(3)  
head.next.next.next = ListNode(3)  
head.next.next.next.next = ListNode(2)  
head.next.next.next.next.next = ListNode(1)
```

```
print(isPalindrome(head))
```



The image shows a screenshot of a code editor and a terminal window. The code editor at the top displays the line `44 head.next.next = ListNode(3)` with syntax highlighting. Below the editor is a terminal window with a title bar that says "input". The terminal has a black background with white text. It shows the output `True` on the first line. The second line is `...Program finished with exit code 0` in green text. The third line is `Press ENTER to exit console.` in green text, followed by a cursor. On the left side of the terminal window, there is a vertical blue bar with the text "Js" and a small white dot below it.