
Daily Coding Problem #104

Problem

This problem was asked by Google.

Determine whether a doubly linked list is a palindrome. What if it's singly linked?

For example, 1 -> 4 -> 3 -> 4 -> 1 returns True while 1 -> 4 returns False.

Solution

This problem can be solved for both singly and doubly linked list by using iterators.

We can then create an iterator over the first node, and another iterator over the reverse of the linked list. Then compare that the two are the same.

This would take $O(N)$ space and time.

```
def get_values(node):  
    while node:  
        yield node.val  
        node = node.next  
  
def is_palindrome(node):  
    values = get_values(node)  
    values_reversed = reversed(list(get_values(node))) #  $O(N)$  space  
  
    return all(x == y for x, y in zip(values, values_reversed))
```

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