

Challenge 2: Search in a Singly Linked List

This lesson explains how searching is done in a singly linked list. There is also a coding exercise to test your concepts.

We'll cover the following ^

- Problem Statement
 - Input
 - Output
 - Sample Input
 - Sample Output
- Coding Exercise

Problem Statement

It's time to figure out how to implement another popular linked list function: `search`

To search for a specific value in a linked list, there is no other approach but to traverse the whole list until we find the desired value.

In that sense, the **search** operation in linked lists is similar to the linear search in normal lists or arrays - all of them take $O(n)$ amount of time.

The search algorithm in a linked list can be generalized to the following steps:

1. Start from the `head` node.
2. Traverse the list till you either find a node with the given value or you reach the end node which will indicate that the given node doesn't exist in the list.

Input

A linked list and an integer to be searched.

Output

True if the integer is found. False otherwise.

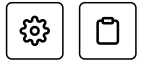
Sample Input

```
Linked List = 5->90->10->4
Integer = 4
```

Sample Output

```
True
```

Coding Exercise



If you know how to insert an element in a list, then searching for an item will not be that difficult for you.

Now, based on the steps mentioned above, we have designed a simple coding exercise for your practice.

The `Node` and `LinkedList` classes are available to you.

Try to solve this exercise on your own. There are hints to help you along the way.

If you get stuck, you can always refer to the solution which is explained in the next lesson.

main.py
LinkedList.py
Node.py

```
1 from Node import Node
2 from LinkedList import LinkedList
3 # Access head_node => list.get_head()
4 # Check if list is empty => list.is_empty()
5 # Node class {int data ; Node next_element;}
6
7 # Searches a value in the given list.
8
9
10 def search(lst, value):
11     # Write your code here
12     pass
13
```

Searching Node in List

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Next →

Solution Review: Insertion at Tail

Solution Review: Search in a Singly Li...

✓ Completed

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