Problem: Implement a stack with push, pop, peek, and is_empty methods using a linked list.

Constraints

- **If we pop on an empty stack, do we return None?**
  - **Yes**
- **Can we assume this fits memory?**
  - **Yes**

Test Cases

Push

- **Push to empty stack**
- **Push to non-empty stack**

Pop

- **Pop on empty stack**
- **Pop on single element stack**
- **Pop on multiple element stack**

Peek

- **Peek on empty stack**
- **Peek on one or more element stack**

Is Empty

- **Is empty on empty stack**
- **Is empty on one or more element stack**

Algorithm

Push

- **Create new node with value**
- **Set node's next to top**
- **Set top to node**

Complexity:

- **Time: O(1)**
- **Space: O(1)**

Pop

- **If stack is empty, return None**
- **Else**
  - **Save top's value**
  - **Set top to top.next**
  - **Return saved value**

Complexity:

- **Time: O(1)**
- **Space: O(1)**

Peek

- **If stack is empty, return None**
- **Else return top's value**

Complexity:

- **Time: O(1)**
- **Space: O(1)**

Is Empty

- **If peek has a value, return False**
- **Else return True**

Complexity:

- **Time: O(1)**
- **Space: O(1)**