

# Stack Using Singly Linked List [CodeStudio](#)

- **Node Class:** Represents the individual nodes of the linked list. It stores an integer value and a pointer to the next node.
- **Stack Class:** Implements a stack using a linked list. It has member functions to perform stack operations.
  - **isEmpty():**
    - Checks if the stack is empty by verifying if the **top** pointer is null.
    - **Time Complexity:  $O(1)$**
    - **Space Complexity:  $O(1)$**
  - **push(int value):**
    - Adds a new node with the given value to the top of the stack.
    - **Time Complexity:  $O(1)$**
    - **Space Complexity:  $O(1)$**
  - **pop():**
    - Removes the top element from the stack.
    - **Time Complexity:  $O(1)$**
    - **Space Complexity:  $O(1)$**
  - **getTop():**
    - Returns the value of the top element without removing it.
    - **Time Complexity:  $O(1)$**
    - **Space Complexity:  $O(1)$**
  - **getSize():**
    - Calculates the number of nodes in the stack.
    - **Time Complexity:  $O(n)$**
    - **Space Complexity:  $O(1)$**
  - **Destructor ~Stack():**
    - Deletes all nodes in the stack, freeing up memory.
    - **Time Complexity:  $O(n)$**
    - **Space Complexity:  $O(n)$**