**1. Understand Linked Lists:**

* **Types of Linked Lists:**
  + **Singly Linked List:** Each node has a reference to the next node. Good for simple operations where only forward traversal is needed.
  + **Doubly Linked List:** Each node has references to both the next and previous nodes. Allows for bidirectional traversal but requires more memory.

**2. Analysis:**

* **Time Complexity:**
  + **Add:** O(n) for singly linked list, as traversal to the end is needed.
  + **Search:** O(n), as each node must be checked.
  + **Traverse:** O(n), as each node is visited.
  + **Delete:** O(n) in the worst case, if the node to be deleted is near the end.
* **Advantages of Linked Lists:**
  + **Dynamic Size:** Can grow or shrink as needed.
  + **Ease of Insertion/Deletion:** Easier than arrays as it doesn’t require shifting elements