**Exercise 5: Task Management System Using Single Linked List**

**What Are Linked Lists?**

A **Linked List** is a linear data structure where each element (node) contains a reference (or link) to the next element.

#### Types:

* **Singly Linked List**: In this each node points to the next node. This is simpler to create and uses lesser memory.
* **Doubly Linked List**: In this each node has references to both the next and previous nodes. This is more useful for cases of backwards traversal.

**Time Complexity Of Different Operations**

| Operation | Time Complexity |
| --- | --- |
| add | O(n) |
| search | O(n) |
| traverse | O(n) |
| delete | O(n) |

#### **Advantages of Linked Lists over Arrays:**

* **Dynamic size**: There is no need to declare fixed length.
* **Efficient insertions/deletions**: Especially at beginning or middle.