1. **Explain the different types of linked lists (Singly Linked List, Doubly Linked List).**

**Singly Linked List:**

* **Structure**: Consists of nodes where each node contains data and a reference (or link) to the next node in the sequence.
* **Operations**: Efficient for inserting and deleting elements, especially at the beginning, but not for random access.
* **Advantages**: Dynamic size, efficient insertions/deletions.
* **Disadvantages**: Extra memory for storing references, slower access to elements compared to arrays.

**Doubly Linked List:**

* **Structure**: Similar to a singly linked list, but each node contains a reference to both the next and previous nodes.
* **Operations**: More flexible for bidirectional traversal and efficient deletions.
* **Advantages**: Allows traversal in both directions, easier to delete nodes from the middle.
* **Disadvantages**: Extra memory for storing two references, slightly more complex operations.