Comparison of Linked Lists and Dynamic Arrays

Time complexity of each method:

Methods	Linked List	Dynamic Array
Access (by index)	O(n)	O(1)
Insertion (end)	O(1)	O(1)
Insertion (beginning)	O(1)	O(n)
Insertion (middle)	O(n)	O(n)
Deletion (end)	O(1)	O(1)
Deletion (beginning)	O(1)	O(n)
Deletion (middle)	O(n)	O(n)
Search (by value)	O(n)	O(n)
Size	O(1)	O(1)

Space complexity of each method:

Linked List	Dynamic Array
O(n)	O(n)
O(n)	O(1)

Advantages and disadvantages of each data structure:

Linked Lists

Advantages:

1. Flexible Memory Use
2. Easy Insertions/Deletions
3. Expandable
4. Two-Way Traversal

Disadvantages:

1. Slow Access

2. Extra Memory
3. Complex to Manage

Dynamic Arrays

Advantages:

1. Fast Access
2. Efficient Memory Use
3. Simple to Use
4. Quick to Add at the End

Disadvantages:

1. Resizing Can Be Slow
2. Slow Insertions/Deletions in the Middle
3. Fixed Size Until Resized
4. One-Way Traversal