### **Best, Average, and Worst-Case Scenarios**

**Linear Search:**

* **Best Case:** Time Complexity: **O(1)**
* **Average Case:l**Time Complexity: **O(n/2) → O(n)**
* **Worst Case:**Time Complexity: **O(n)**

**Binary Search:**

* **Best Case:**Time Complexity: **O(1)**
* **Average Case:** Time Complexity: **O(log n)**
* **Worst Case:** Time Complexity: **O(log n)**

**Linear Search:** O(n) time, no sorting needed, simple loop but poor scalability for large datasets.

**Binary Search:** O(log n) time, requires sorted data, faster and more scalable for large datasets.

**Binary Search:** Best for large, sorted datasets where fast performance is needed.

**Linear Search:** Suitable for small, unsorted, or frequently changing data with simple implementation.