**Understand Search Algorithms**

* **Linear Search**: This algorithm checks each element in the list sequentially until the desired element is found or the list ends. It’s simple but can be slow for large datasets.
* **Binary Search**: This algorithm works on sorted lists. It repeatedly divides the search interval in half. If the value of the search key is less than the item in the middle of the interval, it narrows the interval to the lower half. Otherwise, it narrows it to the upper half. This is much faster than linear search for large datasets.

Analysis

Time Complexity:

Linear Search: O(n)

Binary Search: O(log n)

When to Use:

Use linear search for small or unsorted datasets.

Use binary search for large, sorted datasets.