1. **Understand Search Algorithms:**

* Explain linear search and binary search algorithms.

1. **Analysis:**

* Compare the time complexity of linear and binary search.
* Discuss when to use each algorithm based on the data set size and order.

Soln:

**Linear Search**

**Description:**

* Linear search sequentially checks each element of the list until the desired element is found or the list ends.
* It works on both sorted and unsorted lists.

**Time Complexity:**

* **Best Case:** O(1) - The element is at the beginning.
* **Worst Case:** O(n) - The element is at the end or not present.

**Binary Search**

**Description:**

* Binary search is a divide-and-conquer algorithm that works on sorted lists.
* It repeatedly divides the search interval in half, comparing the target value to the middle element.

**Time Complexity:**

* **Best Case:** O(1) - The middle element is the target.
* **Worst Case:** O(log n) - The element is not present or at the end of the search.