Searching Algorithms

There are two Searching Algorithms

- Linear Search
- Binary Search

Linear Search

In Linear Search we check every element in the list for the element which is to be search for.

For example I have a list of 10 elements like

| 23 | 56 | 67 | 89 | 8 | 7 | 4 | 34 | 32 | 21 |

If I want to find for element 8 I will have to search for every element in the list, if the element is present in the list then we will say element found.

Binary Search

Binary Search is based on Divide and Conquer Strategy

For implementing Binary Search Our list should either be sorted in ascending order or descending order.

Sorted listed means list should contain elements either in ascending order or descending order.

To apply binary search on a list , list should be sorted first then only binary search can be applied.

Binary Search Code in Python

```
function binary_search(list, target):

    left = 0

    right = length(list) - 1

    while left <= right:

        mid = (left + right) // 2

        if list[mid] == target:

            return mid

        elif list[mid] < target:

            left = mid + 1

        else:

            right = mid - 1

    return -1
```