**UNDERSTANDING ASYMPTOTIC NOTATIONS**

1. Explain Big O notation and how it helps in analyzing algorithms

* Big-O Notation is a mathematical way to describe the **efficiency of an algorithm.** Itdescribes the different cases of time or space complexity of an algorithm .It tells you the maximum amount of time.

**Big-O** Notation is a way to express the **upper bound**of an algorithm’s time or space complexity.

1. Describe the best, average, and worst-case scenarios for search operations.

* In **Linear Search** , if the element found at start then the complexity will be : O(1)

It is the Best case.

In case of Average case , the element found at middle: O(n/2) ≈ O(n)

In case of Worst Case,the element found at the end or not found : O(n)

* In **Binary Search**,if the middle element is found then the complexity will be O(1)

Average or worst case is , since it reduces by half every time ,the time complexity will be: O( log n)