1. **Understand Asymptotic Notation**

**Q. Explain Big O Notation and how it helps in analyzing algorithms.**

=> Big O Notation describes the upper bound of an algorithm's running time or space as the input size increases. It helps in predicting scalability and performance bottlenecks.

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

=> There are two types of search operations:

1. Linear Search

2. Binary Search

Linear Search: It checks for the entire dataset whether the dataset is sorted or unsorted. Slower for large datasets.

Binary Search: Requires a sorted dataset and checks only that part where it can have the element it is looking for.

Best Case: Occurs when the searching element is at the beginning.

Average Case: Occurs when the searching element is anywhere between the starting and the ending element in the dataset.

Worst Case: Occurs when the searching element is at the last of the dataset.