 **Big O Notation**:

Describes the upper limit of an algorithm's time complexity, representing how the execution time or space requirements grow with the input size. It helps compare the efficiency of different algorithms.

Example: O(n) for linear search, O(log n) for binary search.

 **Search Operation Scenarios**:

**Best Case**: The desired element is found in the first position (O(1)).

**Average Case**: The element is in the middle of the dataset (O(n)).

**Worst Case**: The element is at the end or not present (O(n) for linear search, O(log n) for binary search).

 T**ime Complexity**:

* Linear Search: O(n)
* Binary Search: O(log n)

 **Suitability**:

**Binary search** is more suitable for searching through large datasets as it offers better performance compared to linear search, provided that the products are sorted.