# ANALYSIS

1. **Compare the time complexity of linear and binary search algorithms**

Ans: Linear Search : Time complexity of best case is O(1). The time complexity of average case is O(n/2) ≈ O(n)

Time complexity of worst case O(n),that means element found in the end or not and the space complexity is O(1) no extra space is in use .

Binary Search : The best case is O(1) when element is found at the middle index . The average or worst case is O(log n). It works by dividing a sorted array into halves and eliminates the other half.

Linear search performance is slower than binary search and linear search does not need sorting whereas binary search needs sorting .

1. **Discuss which algorithm is more suitable for your platform and why**

Ans: For Ecommerce platform with a large and frequently searched product catalog, Binary Search is the best choice than linear search as long as data is sorted . It gives logarithmic time complexity improving performance significantly over linear search .