Theory Answers & Output

Data structures and Algorithms

Exercise 2: E-commerce Platform Search Function

Big O Notation describes the time complexity of algorithms based on input size. It helps in analyzing performance for large data.
- Best Case: First element match — O(1)
- Average Case: Element in middle — O(n/2) for linear, O(log n) for binary
- Worst Case: Element not found — O(n) (linear), O(log n) (binary)

Linear Search: O(n); simple but slow.
Binary Search: O(log n); faster, needs sorted data.

Conclusion: Binary search is more suitable for optimized, large-scale e-commerce search if data is sorted.

OUTPUT