* + Explain why data structures and algorithms are essential in handling large inventories.

Ans: Efficient data storage and retrieval are crucial in handling large inventories because:

* **Performance:** The choice of data structure affects the speed of data operations such as searching, inserting, updating, and deleting.
* **Scalability:** Algorithms ensure that the system can handle big data without performance degradation.
* **Memory Usage:** Proper data structures help in managing memory efficiently, which is crucial for large datasets.
  + Discuss the types of data structures suitable for this problem.

Ans: ArrayList , Hashmap

* + Analyze the time complexity of each operation (add, update, delete) in your chosen data structure.

Ans: **Add Product:** O(1)

**Update Product:** O(1)

**Delete Product:** O(1)

**Retrieve Product:** O(1)