Data structures and algorithms are critical in handling large inventories due to the need for efficient data storage, retrieval, and manipulation. An effective data structure can significantly reduce the time complexity of operations such as searching for a product, updating its details, or deleting it from the inventory. Proper algorithms ensure these operations are performed optimally, making the system scalable and responsive even with a large number of items.

**Types of Data Structures Suitable for Inventory Management:**

1. ArrayList (Dynamic Array):
2. HashMap(Dictionary)
3. LinkedList
4. Binary Search Tree

**Optimization:**

* **HashMap Performance:** Ensure the HashMap is properly sized to minimize collisions. This can be done by setting an appropriate initial capacity and load factor.
* **Concurrency:** For a multi-threaded environment, consider using ConcurrentHashMap to ensure thread-safe operations without compromising performance.
* **Memory Management:** Regularly check and manage memory usage, especially if the inventory size grows significantly. Implement mechanisms to handle scenarios when the system runs low