Sorting Customer Orders

1. Understand Sorting Algorithms:

* Bubble Sort: A simple algorithm that repeatedly compares adjacent elements and swaps them if they are in the wrong order. It continues until the entire array is sorted.
* Insertion Sort: Builds the final sorted array one item at a time by repeatedly taking an element and inserting it into its correct position within the sorted portion of the array.
* Quick Sort: A divide-and-conquer algorithm that selects a pivot element and partitions the array into two sub-arrays: elements less than the pivot and elements greater than the pivot. It then recursively sorts the sub-arrays.
* Merge Sort: Divides the array into two halves, recursively sorts each half, and then merges the sorted halves.

1. Setup:

* A class “Order” with attributes like “orderId”, “customerName”, and “totalPrice” was created.

1. Implementation:

* Bubble Sort was implemented to sort orders by “totalPrice”.
* Quick Sort was implemented to sort orders by “totalPrice”.

1. Analysis:

* Bubble Sort has the time complexity of O(n^2) in the worst and average case while Quick Sort has the time complexity of O(n log n) in the average case.
* Quick sort is generally preferred over Bubble sort due to its better average-case performance and lower space complexity. Bubble sort is mainly used for educational purposes or when simplicity is more important than efficiency.