Sorting Customer Orders

1. Bubble Sort:

* In the bubble sort algorithm we will compare adjacent elements in the array and based on that we perform swapping
* In this at completion of every iteration of outer loop the biggest element is placed at last and we reduce the size of array to reduce iterations

2. Insertion Sort:

* In this sorting algorithm we start at a position and we try to traverse back to starting index
* In this process we move the elements of array one at a time until it is placed at a correct position

3. Quick Sort:

* In this sorting algorithm we try to divide the array into two partitions by selecting an element known as pivot
* Then we recursively sort the partitions

4. Merge Sort:

* This follows divide and conquer approach
* We partition the array as we go deep into recursion
* We backtrack by sorting and merging all the partitions all the way until we get entire sorted array

5. Time Complexity:

* Best case: O(n) for bubble sort when array is already sorted

O(n log n) for quick sort when array is already sorted

* Average case: O(n^2) for bubble sort when array is not sorted

O(n log n) for quick sort when one half is sorted and other half is not sorted

* worst case: O(n^2) for bubble sort when array is not sorted

O(n^2) for quick sort when array is not sorted

6. Quick sort vs Bubble sort:

* quick sort is faster than bubble sort
* it is good for large datasets
* bubble sort follows brute force and is time taking