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Sorting Algorithm

Introduction

we have 3 algorithms to comparison—Selection Sort, Merge Sort, and Quick Sort. The most effective algorithm will be determined by running time. Sorting is important since it helps you find information faster, and enables you you to look for

- numbers.
- names.
-items.

In the right order.

Purpose

To make it simpler to locate the sorted set.
It is a fundamental activity that is performed almost universally and practically everywhere. Objects are sorted in all locations where they can be found and retrieved

Problem & Solution

Problem: Identifying the most efficient algorithm that provides the best performance and running time.

Solution : The most effective algorithm, taking into account each instance, is displayed below. It takes the least time and runs the fastest.

1- Best Case:Selection sort (Θ (n)).
2- Average Case:Merge sort (Θ (n lg n)).
3- Worst Case:Merge sort (Θ (n lg n)).

Results

1. Quick sort is the most efficient algorithm
2. The best case for selection sort is (n log n)
3. The best case for merge sort is (n)
4. The best case for quick sort is (n log n)
5. Worst case for selection sort is (n^2)
6. Worst case for merge sort is (n log n)
7. Worst case for quick sort is (n^2)

Conclusion

Finally we concluded that the most efficient algorithm (Quick Sort) even when it's running time in worst case Θ(n*2) unlike merge sort the running time in all cases Θ (n lg n)) The reason for this because the Quick Sort sort in place so it's commonly used in practice

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