Report Benchmark Sorting

In this report, I will show the difference between three types of sorting: Merge, Quick and the java default sort (Array.sort).

Procedure:

To benchmark the different sorting types, I tried them on several cases.

First, there are five types of arrays:

* Same, which is an array filled with the same integer.
* Ordered, which is an array already ordered.
* Reversed, which is an array ordered in the reverse order.
* SameFirstSameLast, which is an array that have the same integer on the first 10 000 cells and on the last 10 000, the rest is randomly filled.
* AllRandom, which is an array filled with random numbers.

Then, each test is done on three sizes of the arrays:

* 10^6
* 10^7
* 10^8

Results:

Here are the results of the benchmark represented as scatter graphs where the Y represents the time consumed by the operation in seconds and the X represents the size of the array.

Conclusion:

As graphs show, we can see that “Array.sort” is the most optimized since “Same”, “Ordered” and “Reversed” are pretty stable in term of time consuming where “Merge” is absolutely not stable and “Quick” is only stable on “Same”.