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COMS 104 A

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**Built-in sorting algorithm used by C++**

For this assignment I chose to search information about the sorting algorithm used by C++. C++ uses a function called qsort that is named after the sorting algorithm QuickSort. QuickSort was developed by a British computer scientist named Tony Hoare in 1959 while he was working on a project on machine translation for the National Physical Laboratory in the Soviet Union. QuickSort gained widespread adoption appearing in Unix, C++ standard library, and in the reference implementation of Java. And in 2009, QuickSort was chosen as a new sorting algorithm in Oracle's Java 7 library.

This type of algorithm is usually faster than any other of its competitors. In this way, most lists can be sorted very quickly since it generally has an average performance of O(n log n). In the worst scenario, the performance is of O(n^2).

QuickSort is a recursive comparison sort whose process is the following: It picks an element as pivot and partitions the given array around the picked pivot. So basically, first it divides the input array into two sub-arrays (one for small elements and another for higher elements) and then sorts the sub-arrays recursively. Also, the qsort function achieves polymorphism by taking a function pointer to a three-way-comparison function.

Bibliography

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