Quicksort Algorithm

Quicksort is a well-known sorting algorithm developed by C. A. R. Hoare that, on average, makes $\Theta(n\log n)$ (big O notation) comparisons to sort $n$ items. In the worst case, it makes $\Theta(n^2)$ comparisons, though if implemented correctly this behavior is rare. Typically, quicksort is significantly faster in practice than other $\Theta(n\log n)$ algorithms, because its inner loop can be efficiently implemented on most architectures, and in most real-world data, it is possible to make design choices which minimize the probability of requiring quadratic time. Additionally, quicksort tends to make excellent usage of the memory hierarchy, taking perfect advantage of virtual memory and available caches. Coupled with the fact that quicksort is an in-place sort and uses no temporary memory, it is very well suited to modern computer architectures. (en.wikipedia.org)