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Sorting Algorithms Analysis

April 21, 2019

As long as the input elements are evenly distributed the algorithm will be able to loop faster through each bucket index. The more elements a bucket index has means it has to continuously loop over each element to find the right place to insert the element that is larger. This comes with more operations such as comparatives. Having more elements in one group can be more complex than skipping over a null group because of the amount of iterations. Additionally, having the elements evenly distributed allows for the smallest amount of operations. The estimate for this sort routine is O(nlogn) as it begins with log(n) when sorting and dividing up the array and the k groups give it n and combining them makes the time complexity O(nlogn).