Selection Algorithms

Main Focus: Introduction

Understanding Selection Algorithms

It is an algorithm used for finding the k^{th} smallest or the largest number in a list. There are multiple solutions which provide different complexities and we shall try to cover those.

Selection by Sorting

We can convert a selection problem into a sorting problem and solution. We sort the input elements and then obtain the desired results based on our wants.

If we want to get the k^{th} smallest element, we just need to sort the list of elements and and scan and find the element present in that k^{th} index.

When we try to formulate the time complexity of the above procedure, we realise that this method requires $O(nlogn)$ time for sorting purposes (n is length of the input list). If we perform n queries, then the average cost per operation is $nlogn/n \approx O(nlogn)$.
