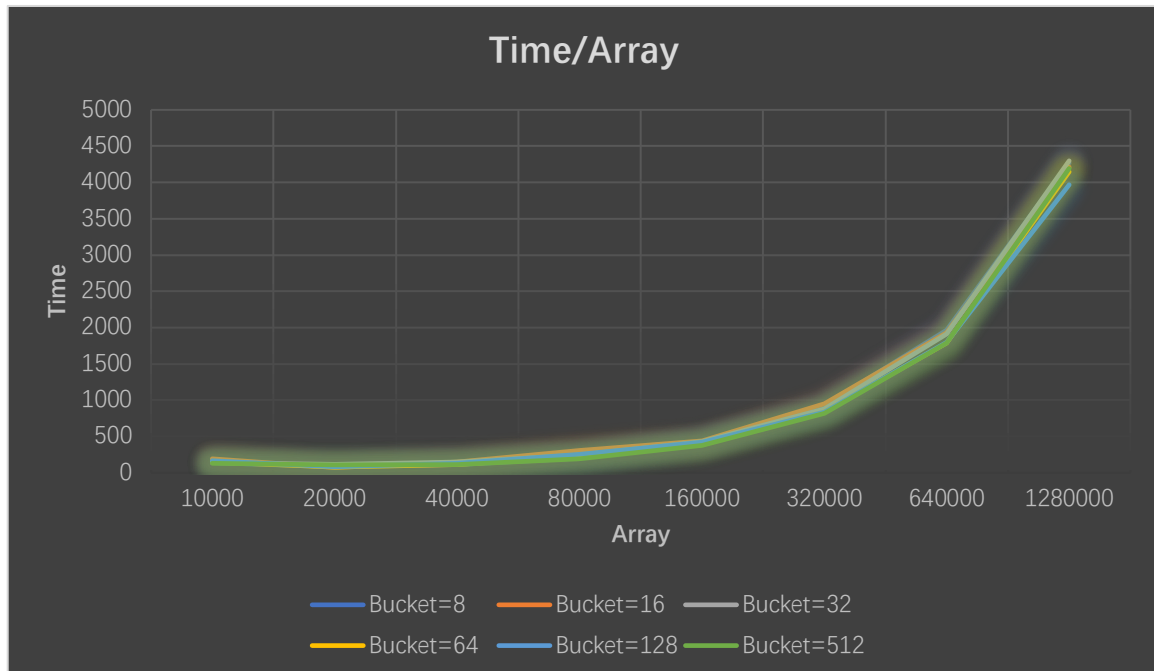


Analysis Report of Bucket Sort

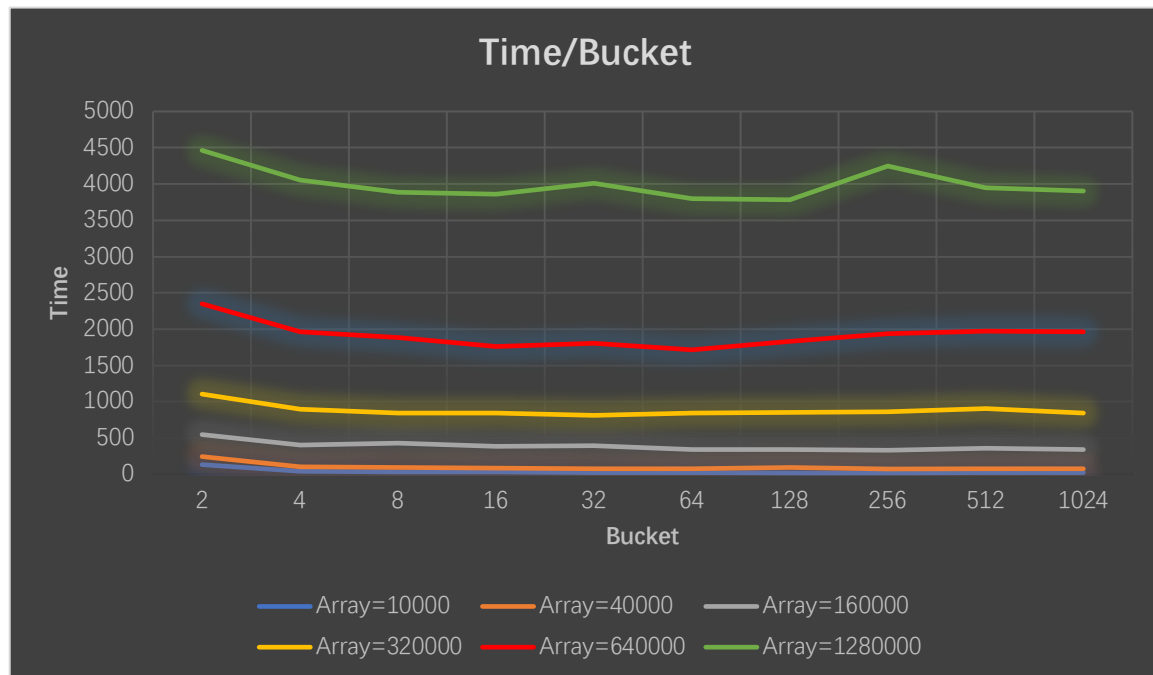
Bucket sort is a comparison sort algorithm that operates on elements by dividing them into different buckets and then sorting these buckets individually. Each bucket is sorted individually using a separate sorting algorithm or by applying the bucket sort algorithm recursively. Bucket sort is mainly useful when the input is uniformly distributed over a range. To analyze the Bucket Sort, we divided the analysis into two parts.

First, we analyze the effect of bucket size on the time complexity.



We can see that the size of Bucket is not affected a lot on Bucket Sort in different Array.

Second, we analyze the effect of Array size on the time complexity.



We can find the Bucket Sort is efficient in a small range of array, the time complexity in a big array is very high.

Through the above analysis, we can know the characteristics of Bucket Sort, which is fast and simple, but also has a corresponding weakness, that is, low time complexity. If the data/array is too large, the time may not be affordable, or these elements are not suitable for Bucket Sort.