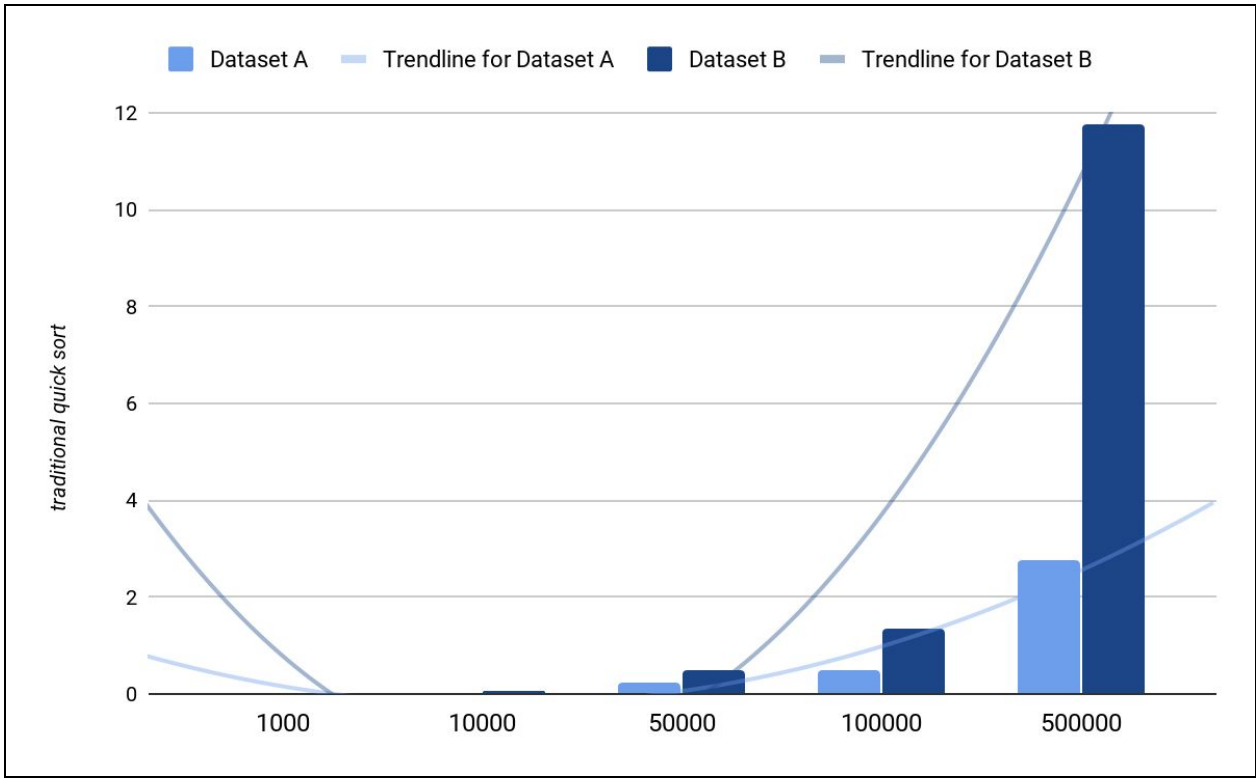
Ketan Kokane CSCI 661 Project 1 Results

Result

Below are the results of running the two quicksort algorithms on two different datasets of sizes ranging from 1000 to 500K.

Performance of traditional quick sort algorithm on two different datasets:

N	Dataset A	Dataset B(Poisson distribution)
1000	0.002646408583	0.003299098266
10000	0.03608965874	0.05900948926
50000	0.2400871076	0.4846746294
100000	0.4896214008	1.361950109
500000	2.773322808	11.76108436



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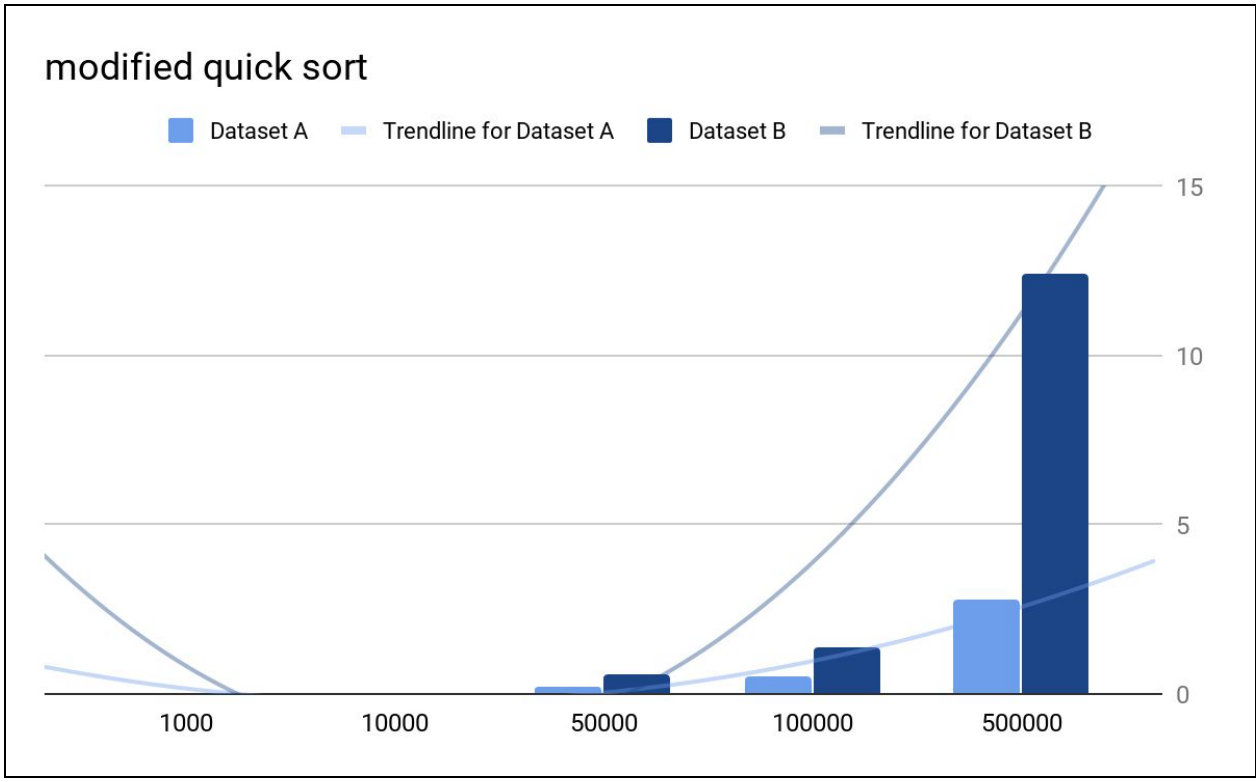
The rationale of higher execution time for Dataset B(poisson distribution):

Quick Sort has to worst case N comparisons on every turn to check if the element is less than the pivot element. Hence for Poisson distribution quick sort ends up doing way more comparisons which result in higher execution time.

Performance of modified quick sort algorithm on two different datasets:

N	Dataset A	Dataset B(Poisson distribution)
1000	0.002513634531	0.00272435891
10000	0.03413278178	0.05777684011
50000	0.1976368051	0.5551629317
100000	0.4976565587	1.379709946
500000	2.790194562	12.38778536



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Performance of two Algorithms:

N	Algo A Dataset A	Algo B Dataset A	Algo A Dataset B	Algo B Dataset B
1000	0.002513634531	0.002646408583	0.00272435891	0.003299098266
10000	0.03413278178	0.03608965874	0.05777684011	0.05900948926
50000	0.1976368051	0.2400871076	0.5551629317	0.4846746294
100000	0.4976565587	0.4896214008	1.379709946	1.361950109
500000	2.790194562	2.773322808	12.38778536	11.76108436