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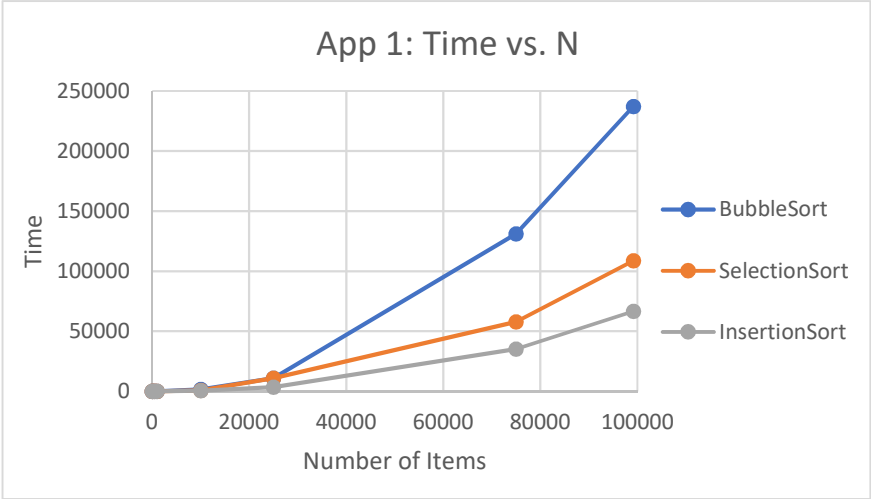
APP 1

BubbleSort	NumberOfItems	Time Taken (ms)
	10	0
	100	2
	500	13
	1000	33
	10000	1646
	25000	11003
	75000	131184
	99171	237199

SelectionSort	NumberOfItems	Time Taken (ms)
	10	0
	100	0
	500	7
	1000	15
	10000	839
	25000	11003
	75000	57714
	99171	108826

InsertionSort	NumberOfItems	Time Taken (ms)
	10	0
	100	1
	500	8
	1000	24
	10000	493
	25000	3419
	75000	35198
	99171	66630



BubbleSort, SelectionSort and InsertionSort are all big O(N^2), with BubbleSort having the most comparisons since it takes longer.

Sort Sorted:

Bubble: 240141 ms

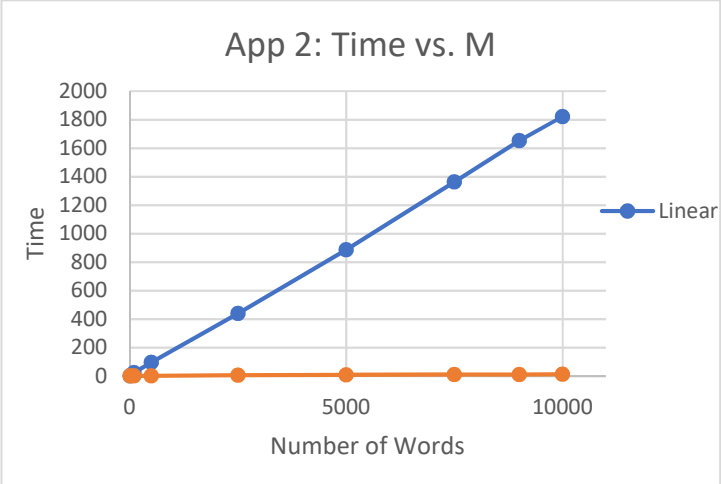
Selection: 44418 ms

Insertion: 14 ms

App 2

Linear	NumberOfWords	Time Taken (ms)
	10	1
	100	25
	500	96
	2500	441
	5000	888
	7500	1364
	9000	1653
	10000	1823

Binary	NumberOfItems	Time Taken (ms)
	10	1
	100	2
	500	3
	2500	7
	5000	9
	7500	11
	9000	12
	10000	13



Linear is O(N) and Binary is O(logN). Both are linear trends. Time increases as the number of words increases linearly.

App 3

The big-O for the insert method:

(i) if the dictionary is unsorted is O(N). N is one insertion

(ii) if it is sorted is O(MNlogN). LogN is used to find the correct insertion position. MN is the shifts and insertion.

App 5

Words found:

euro
sumo
soap
errs
eras
elks
elmo
sump
trap
elms
loss
sows
toms
tors
lows
lump
slaw
toss
slap
slag
sums
tums
tows