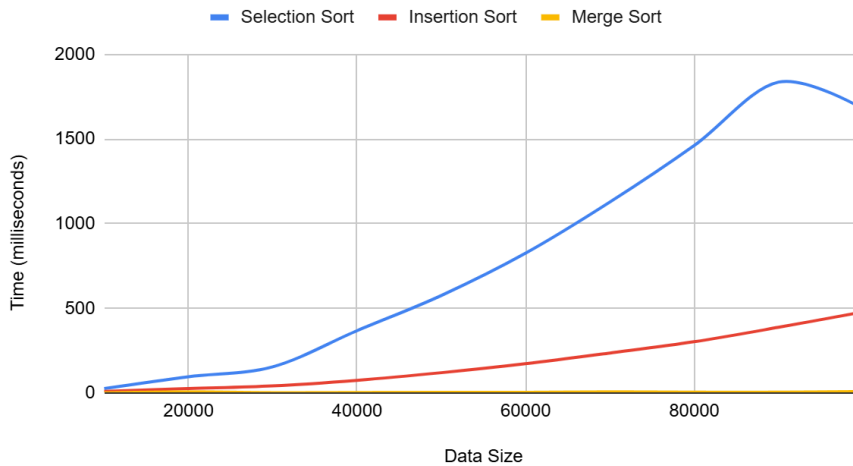


### Selection Sort, Insertion Sort and Merge Sort



#### Selection Sort:

- Takes the most time, pretty inefficient
- As data size gets bigger, takes a significant longer time to sort
- $O(n^2)$  efficiency,  $O$  must be large

#### Insertion Sort:

- Takes the second longest time of the three, still inefficient
- Significantly less time than selection sort
- As data size gets bigger, takes more time to sort, larger difference in time from size to size when size is larger
- $O(n^2)$  efficiency,  $O$  must be smaller than in selection sort

#### Merge Sort:

- Most efficient, takes the least time
- Times gets slightly longer as data size increases, but not by large amount (<10 ms)
- $O(n \log n)$  efficiency

Data Size	Selection Sort	Insertion Sort	Merge Sort
10000	26	10	1
20000	96	26	7
30000	155	42	2
40000	368	75	3
50000	576	120	4
60000	826	173	4
70000	1128	236	7

Lab Assignment 8 - Report  
Stidam, Lillia

80000	1462	303	5
90000	1836	388	5
100000	1678	479	9