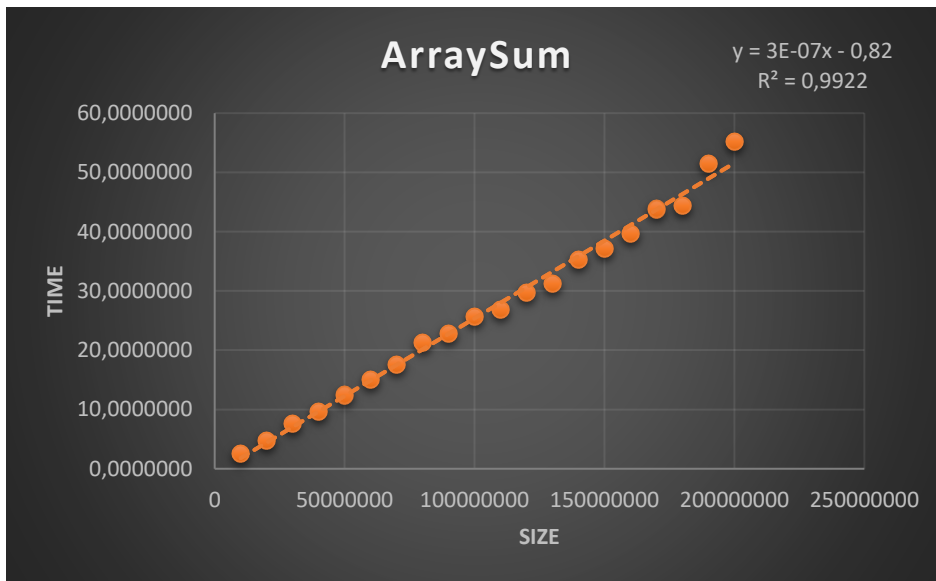


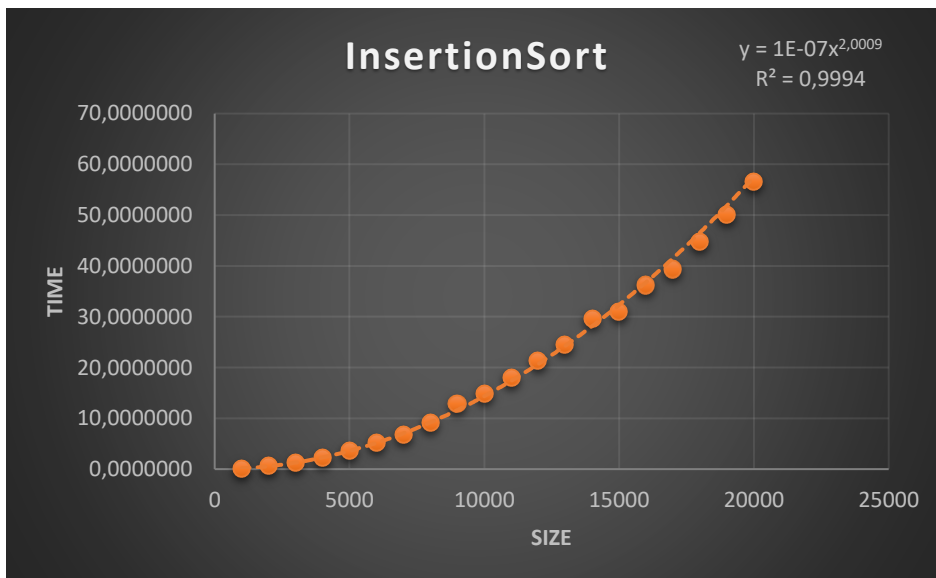
Members:

-Juan David Echeverri Villada

-Octavio Vásquez Zapata



sizes	times
10000000	2,5195799
20000000	4,7263746
30000000	7,5724726
40000000	9,6516499
50000000	12,4129072
60000000	15,0307750
70000000	17,6125170
80000000	21,2428925
90000000	22,7676666
100000000	25,6653691
110000000	26,8551801
120000000	29,7434721
130000000	31,1347583
140000000	35,2802175
150000000	37,1512723
160000000	39,7097067
170000000	43,7856317
180000000	44,3569962
190000000	51,5211136
200000000	55,1166858

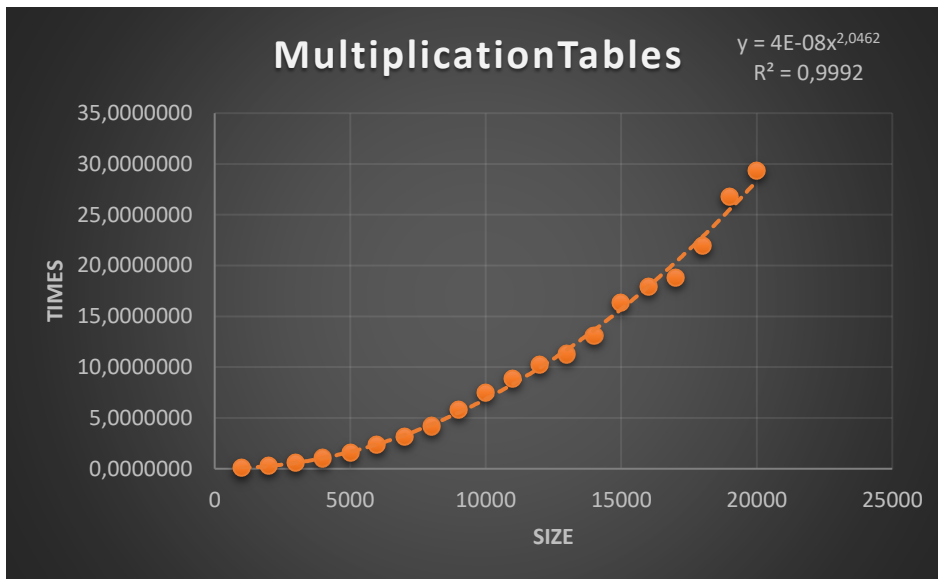


sizes	times
1000	0,1369472
2000	0,5862631
3000	1,2740607
4000	2,3038832
5000	3,5931848
6000	5,1975392
7000	6,8578350
8000	9,0767353
9000	12,9277834
10000	14,8936340
11000	18,0828806
12000	21,3276397
13000	24,4242924
14000	29,5841403
15000	31,0135028
16000	36,2180744
17000	39,3732616
18000	44,8143088
19000	50,1349992
20000	56,5538772

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sizes	times
1000	0,0617565
2000	0,2634286
3000	0,6010527
4000	1,0246297
5000	1,5849706
6000	2,3181611
7000	3,1274053
8000	4,1761706
9000	5,8283834
10000	7,4481731
11000	8,8336719
12000	10,1987046
13000	11,2798263
14000	13,1393543
15000	16,3123020
16000	17,9547801
17000	18,8417924
18000	21,9103957
19000	26,7470358
20000	29,3634260

### Point1

Well, its complexity is exponential, which means that in the worst case, it could take a lot of time to finish the execution, making it not a good option to high volume datasets.

### Point2

The recursive alternative is almost the same that the loop one, making them really similar. Actually, the complexity in both cases is the same  $O(n)$ . This happens because both of them only have one loop clause (one recursive call in the recursive alternative and one 'for' loop in the loop alternative) making both of them good alternatives in every situation without a lot of time differences.

### Point3

It is right. After experimenting with the algorithm, taking times and putting them into a graphic, we discovered that its complexity is truly  $O(n^2)$ , corroborating the information given by the theory (asymptotic notation).