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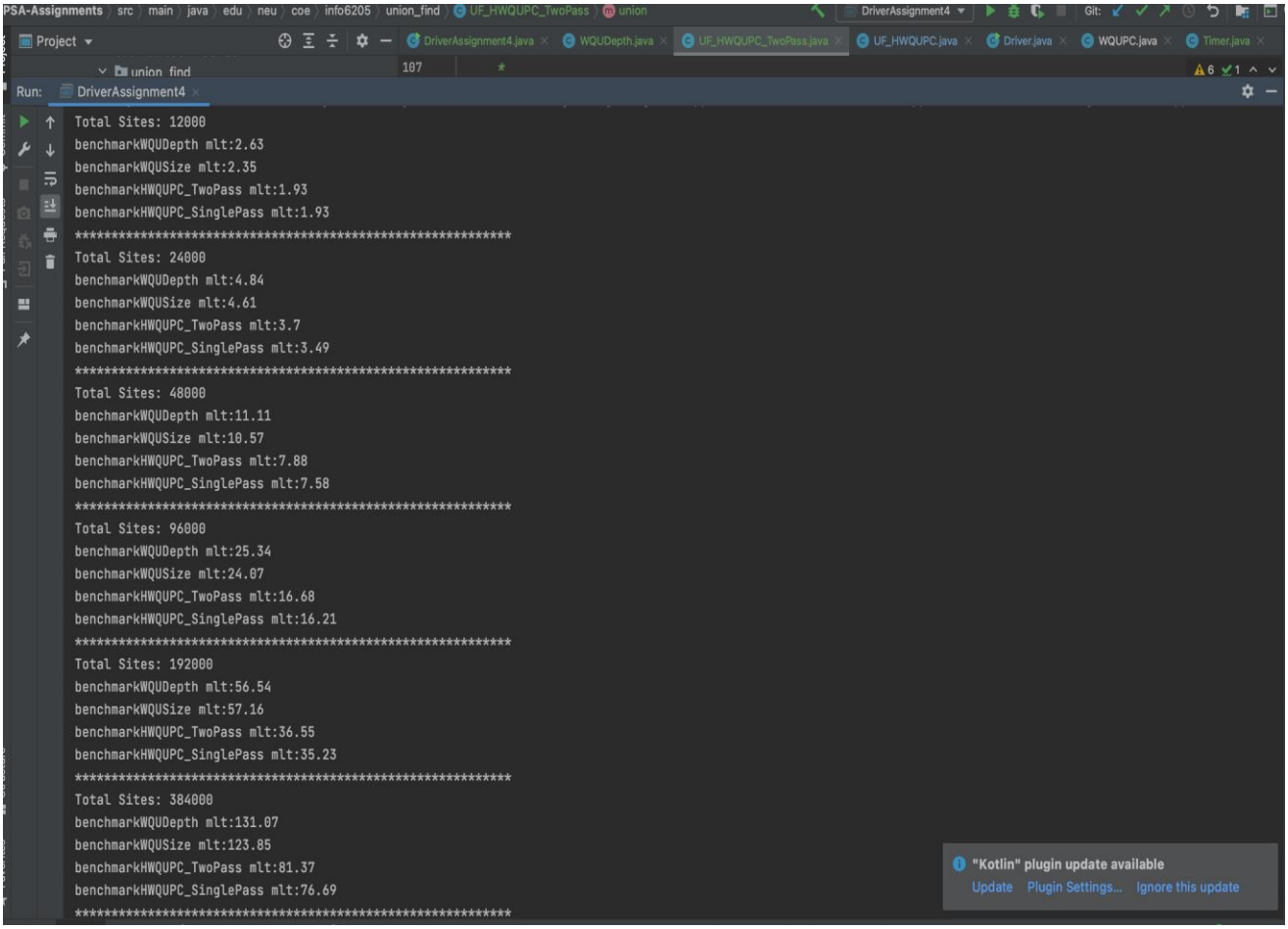
Program Structures & Algorithms

Spring 2021

Assignment No. 4

Task: Benchmark alternatives for weighted quick union find and weighted quick union find with path compression

Output:



Relationship Conclusion:

Weighted quick union find with depth marginally slower than weighted quick union find size. But nothing statistically significant, we can consider their running times equal for practical purposes

Weighted quick union find path compression Two pass is marginally slower than weighted quick union find path compression single pass. But nothing statistically significant, we can consider their running times equal for practical purposes

Evidence to support the conclusion:

Sites	benchmarkWQUDepth	benchmarkWQUSize	benchmarkHWQUPC_TwoPass	benchmarkHWQUPC_SinglePass
12000	2.63	2.35	1.93	1.93
24000	4.84	4.61	3.7	3.49
48000	11.11	10.57	7.88	7.58
96000	25.34	24.07	16.68	16.21
192000	56.54	57.16	36.55	35.23
384000	131.07	123.85	81.37	76.69

Graphical representation: