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REPORT 1

Given values are average of 3 trials for each case. Since I finished the second part in the last hours, I could not test my implementations for large numbers of n.

Part A

N / M	1	5	20	50
1000	0.489 s	0.312 s	0.276 s	0.313 s
10000	17.349 s	9.464 s	8.754 s	6.765 s
100000	12m 50.846 s			

Part B

N / M	1	3	5
1000	0.595 s	0.397 s	0.372 s
10000	23.575 s	17.123 s	15.102 s
100000	18m 54.301 s		

Observations

For PartA, n = 1000; optimal m is in (5,50) which shows that elapsed time does not decrease all the time.

For PartA, n = 10000; elapsed time decreases always.

For both parts, t(n1,m) / t(n2,m) is about 40 (> 10), where n1 = 10n2.

For PartB, elapsed time decreases always.

Elapsed time for PartB is bigger than PartA. Message queues have a capacity problem which is solved by sending data until it is successful.