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Gr 924 - Year 2

2. Add *n* big numbers. We want the result to be obtained digit by digit, starting with the least significant one, and as soon as possible. For this reason, you should use *n-1* threads, each adding two numbers. Each thread should pass the result to the next thread. Arrange the threads in a binary tree. Each thread should pass the sum to the next thread through a queue, digit by digit.

Algorithm:
The threads were arranged in a binary tree, such that the 'root' thread computes the final sum and the leaf nodes takes as input two initial numbers, compute their sum digit by digit and sends the result to the parent thread. The threads used a synchronized queue to send the digits.

Synchronization methods:
No synchronization is needed because everything is independent in terms of what variables they modify (the threads write to independent variables and read readonly variables).

Performance:

Number of elements	Time (seconds)
10	0.00093089
50	0.0030229
100	0.00821407
500	0.0556759
1000	0.154996