Activity 1. Tromino Times

The algorithm was run 100 times each. The resulting table was the following:

|  |  |
| --- | --- |
| N | T(ms) |
| 8 | 2 |
| 16 | 2 |
| 32 | 6 |
| 64 | 21 |
| 128 | 106 |
| 256 | 275 |
| 512 | 759 |
| 1024 | 3524 |
| 2048 | 15179 |
| 4096 | 87232 |
| 8192 | 467011 |
| 16384 | Out of Heap Space |

As the graph shows the complexity is likely to be quadratic and applying the knowledge obtained in theory lectures. The algorithm can be divided in a, b and k.

* A -> 4
* B -> 2
* K -> 0

This means that the algorithm complexity is obtained by therefore the complexity is O(n^2).

Regarding both questions asked the theoretical complexity and if the times are met, as I explained before. Both questions are answered.

The visual result of the algorithm is:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | 9 | 8 | 8 | 4 | 4 | 3 | 3 |
| 9 | 7 | 7 | 8 | 4 | + | 2 | 3 |
| 11 | 7 | 10 | 10 | 6 | 2 | 2 | 5 |
| 11 | 11 | 10 | 1 | 6 | 6 | 5 | 5 |
| 19 | 19 | 18 | 1 | 1 | 14 | 13 | 13 |
| 19 | 17 | 18 | 18 | 14 | 14 | 12 | 13 |
| 21 | 17 | 17 | 20 | 16 | 12 | 12 | 15 |
| 21 | 21 | 20 | 20 | 16 | 16 | 15 | 15 |