Activity 1. Create a table with the times you get for the different sizes of the problem using LevenshteinDistanceTest.java.

|  |  |
| --- | --- |
| Size n | Time in ms |
| 100 | 19 |
| 200 | 19 |
| 400 | 36 |
| 800 | 153 |
| 1600 | 605 |
| 3200 | 2426 |
| 6400 | 9726 |
| 12800 | 39099 |
| 25600 | 156823 |

What is the complexity of the algorithm?

The complexity of the algorithm is O(n\*m) being n the length of the first string and m the length of the second string. As this experiment obeys the rule that n = m in this case O is quadratic.

Do the empirical results make sense?

Yes, it does make sense applying that we have O(n^2) the formula says:

From here we can obtain the theoretical result of:

|  |  |
| --- | --- |
| 800 | 153 |
| 1600 | 605 |

The theoretical time with n2 being 1600 would be

The result is 612 ms in theory which is near to the 605 ms that were real. So we can agree the empirical results make sense.