Algorithmics	Student information	Date	Number of session
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Activity 1. Null Path

The theoretical complexity of this algorithm is O(n!) because in the worst case at the first iteration of the algorithm we have to try with n – 2 nodes (we don't consider the origin and the target), on the next iteration we have n-3 and we keep iterating until there is only 1 node left.

$$(n-2)! = n-2 * n-3 * \dots * 1$$

The average times obtained are not very reliable as they change a lot each time we measure them and sometimes tests with more size last less time than the ones with less size.

n	Avg
20	0,61
25	22,21
30	82,13
35	1005,44
40	5536,55
45	2649,94

To keep times more similar to the theoretical complexity I measured the worst cases.

n	Worst
5	0,0195
6	0,0615
7	0,3095
8	2,1555
9	17,7665

Each time we add a node, the time is (n - 2)* t_{n-1} as:

$$t_n = \frac{n!}{(n-1)!} * t_{n-1} = n * t_{n-1}$$