


Algorithmics	Student information	Date	Number of session
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Activity 1. Working with Paths

n	t NullPath(ms)
20	0
25	0
30	0
35	3
40	10
45	47
50	8444
55	8564

The expected time complexity of this algorithm will be $O(n!)$ due to it being a backtracking algorithm. However, this does not translate to the actual times. This is due to the random nature of the graphs, in which one graph of $n=50$ might have a path that is just as long as a graph of $n=55$. It appears that in the solutions, around the first 30 nodes will coincide between sizes, usually going from 0-30 consistently from size 40 onwards. The larger the size, the easier it is for the program to have to deal with a complicated graph, which requires many backtrackings in order to archive a solution.