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Lab09

For the list of size 13: | 13, 12, 3, 10, 9, 8, 2, 6, 5, 4, 3, 2, 1, |

Cut-off Value	Time Taken
1	680204 nanoseconds
2	369960 nanoseconds
3	271055 nanoseconds
4	224868 nanoseconds
5	155822 nanoseconds
6	189412 nanoseconds
7	10731 nanoseconds
8	9797 nanoseconds
9	10730 nanoseconds
10	9330 nanoseconds
11	10730 nanoseconds
12	9797 nanoseconds
13	9797 nanoseconds

Output: | 1, 2, 2, 3, 3, 4, 5, 6, 8, 9, 10, 12, 13, |

Firstly, there isn't a particular order the time follows, with increasing cut-off values.

Secondly, the time taken changes every time we run the algorithm with the same cut-off value.

One thing we observe is when cut-off is 1, it is a simple sequential insertion sort, and it takes the most time to sort the array. The second half of the cut-offs used don't show a pattern but definitely make the algorithm run faster.

The best time for the algorithm is when the cut-off is 10, but it isn't certain that If we run the same test again, that we arrive at the same result.

In conclusion any cut-off value from 7 to 13 will be a better decision than lower cut-offs.