Programming 2
Assignment 2 Complexity

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The hypothesis was that for small arrays (few inputs) linear search beats binary search because small arrays increase the likelihood to get its best case O(1). While it will lose on larger arrays and more searches. As for the worst case, linear search has O(N) and binary search O(log N).

By performing the tests, we see that linear search indeed performs better on small input arrays than binary search. This is because linear search moves linearly through the array. While binary search always makes extra steps in splitting the array, which performs poorly on small arrays.

This means the more input elements we have (larger array) the slower linear search performs in comparison to binary search.
For small arrays with few inputs the speed goes towards its best case O(1) where it beats binary search which has the best case O(1), but here it rather depends on the chance that the index we start at directly hits the number we search for.

As assumed the more inputs we have the more binary search outperforms linear search as it has the worst case O(log N) in comparison to linear searches O(N).