Algorithms Summary

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- There are many different types of searching and sorting algorithms, and we'll only skim the surface in CS50.
- Let's see if we can't distill each algorithm down to its core elements, so you can remember the most important information about each.


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| Algorithm Name | Basic Concept | 0 | $\Omega$ |  |
| :---: | :--- | :---: | :---: | :---: |
| Selection Sort | Find the smallest unsorted element in an array and swap it with the <br> first unsorted element of that array. | $n^{2}$ | $n^{2}$ |  |
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| Merge Sort | Split the full array into subarrays, then merge those subarrays back <br> together in the correct order. | $n \log n$ | $n \log n$ |
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| Linear Search | Iterate across the array from left-to-right, trying to find the target <br> element. | $n$ | 1 |
| Binary Search | Given a sorted array, divide and conquer by systematically eliminating <br> half of the remaining elements in the search for the target element. | $\log n$ | 1 |

