



SORTING!

show a live-demo of `[1,7,4,6].sort()` → `[1,4,6,7]`

We have this, why learn? Because it's a sort of classic problem, very essential (we often want to sort some values by some ordering) and there are many, many approaches. It's also a good way to introduce complexity analysis (we'll get to that)

*“By understanding sorting, we obtain an amazing
amount of power to solve other problems.”*

– STEVEN SKIENA, THE ALGORITHM DESIGN MANUAL

(Some) Classic Sorting Algorithms

- Bubble
- Selection
- Insertion
- Merge: 1945 Jon von Neumann
- Quick: 1959 Tony Hoare
- Heap: 1964 J. W. J. Williams
- Radix: 1887 Hermann Hollerith, for his Tabulating Machine
- Bogo?

Bubble Sort

6 5 3 1 8 7 2 4

Bubble Sort

1. Loop over elements
2. Swap anything that's out of order
3. Repeat 1-2 until there are no swaps

Big O

Time	$O(n^2)$
Space	$O(1)$