n

n

$\sim n$

n n

$O(n^2)$

How efficient is Selection Sort?

- Let our array contain n elements.
- For each element, we need to find the next smallest element.
- That is, we need to find the next smallest element n times.
- To find the next smallest element, we need to look through $\sim n$ other elements!
- So, we need to look through n elements, n times.
- Our algorithm will run in time proportional to $O(n^2)$.

Upper bound

What if our input array is already sorted?

[1 2 3 4 5]