n

n

$< n$

$< n$ 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 $< n$ 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

Selection Sort Exercise

- Swap each element of the array with the next minimum element.