# Example of a running time analysis

Let $t(n)$ denote the number of operations used by this algorithm on an input of $n$ values:

- If $n = 1$, return the single element in the list
- Otherwise (for $n \geq 2$)
    - recursively find the maximum entry in the first $n - 1$ elements,
    - then compare it to the last entry in the list and return whichever is larger.

Then $t(n)$ satisfies the recursion:

- $t(1) = C$ for some positive constant $C$
- $t(n) = t(n - 1) + C'$ if $n \geq 2$ for some positive constant $C'$

We can prove that $t(n) = C'(n - 1) + C$ by induction on $n$.