

## Example of a running time analysis

Consider a recursive algorithm to compute the maximum element in a list of  $n$  elements:

- ▶ 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.

How do we prove this is linear time?