

Algorithm design strategies: decrease and conquer

1. Design strategies

2. Decrease and conquer

1. Design strategies

Some algorithm design techniques:

- decrease and conquer (incremental)
- divide and conquer
- transform and conquer
- dynamic programming (solve all subproblems)
- greedy
- randomize

These are design categories, not algorithms themselves.

2. Decrease and conquer strategy

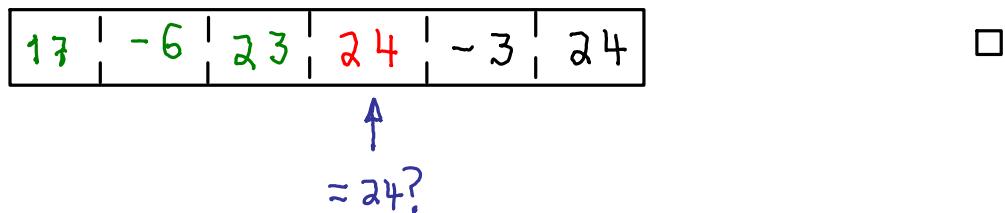
How does it work?

- at start: all input data is unprocessed
- at each iteration part of input data is processed (completely)
- after each iteration, the amount of processed data increases
- algorithm stops when all data is processed

Example

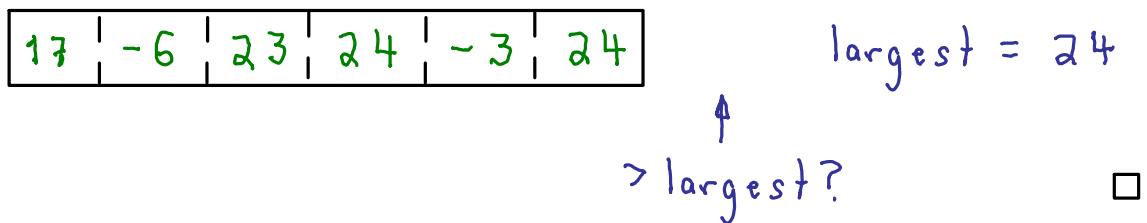
Linear search through array for particular element

Search for 24 in array



Example

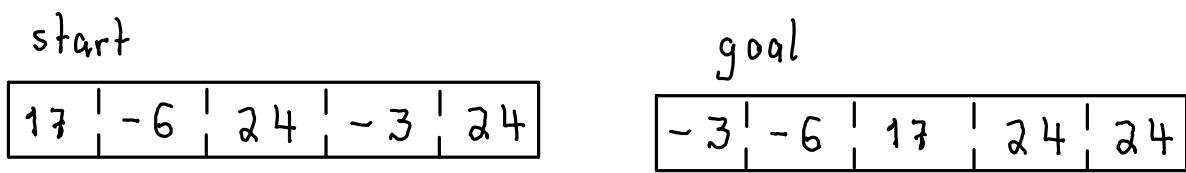
Find largest number in numerical array



Example

Insertion sort: a method for sorting elements in a list/array

Sort numbers in array from smallest to largest



Strengths

- clear, intuitive
- easy to implement (small amount of code)
- works well for small amounts of data

Weakness

- often better (=more efficient) alternatives for larger amounts of data

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