Today’s Topics

• Sections 8
• Efficiency
Section 8

Who has read it?

Any questions?

What I think is important:

Know your complexity classes: $O(1)$, $O(\log n)$, $O(n)$, $O(n \log n)$, $O(n^2)$, $O(2^n)$

Know “$O$-arithmetic”: when adding terms, all but the highest one disappears

Know when to add terms, and when to multiply: serial loops vs. nested loops

Distinguishing linear from logarithmic algorithms: getting closer to the solution by a constant amount vs. a percentage.

Understand the “magic” of quicksort: each recursive call halves the amount of data but still puts one element in place == when traversing the array once, the amount of elements put in place doubles.
Exercise – has_sequence

• Analyse the runtime behaviour of has_sequence
• Implement has_sequence_alt1 to time-standard
• Implement has_sequence_alt2 to time-standard
  • Tip: check the requirements – they do serve a purpose
Exercise – has_sequence

• Implement quick_sort_ptr (and quick_sort_range_ptr) so that they do not use the array-index-operator[].