Introduction

Johan Montelius

KTH

HT23

Algorithms and data structures

Why?

- function
- time/memory

Algorithms and data structures

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Algorithms and data structures

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Algorithms and data structures

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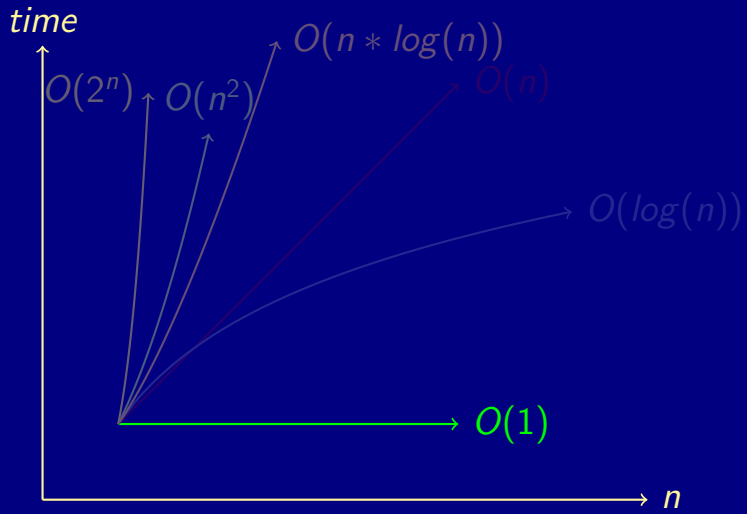
Algorithms and data structures

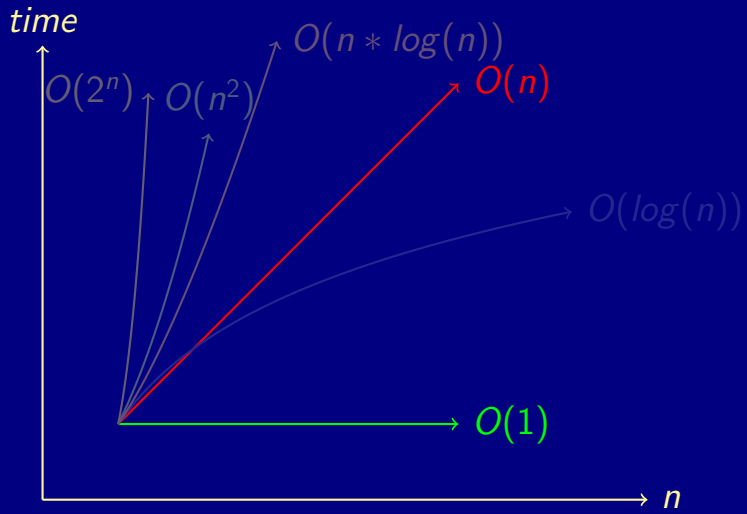
Why?

- function - make things work
- time/memory - estimate, if possible/necessary reduce

when things grow



when things grow



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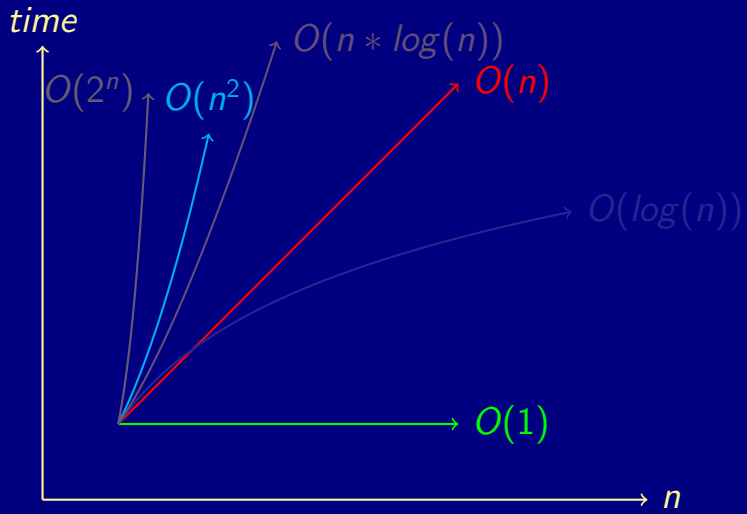

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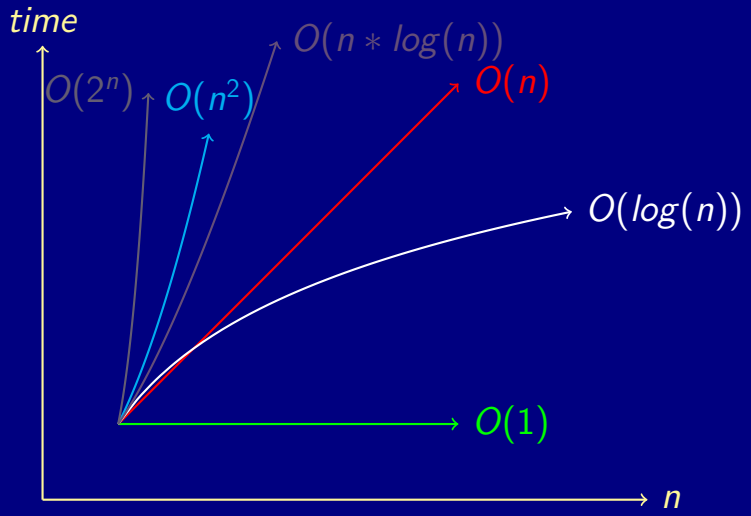

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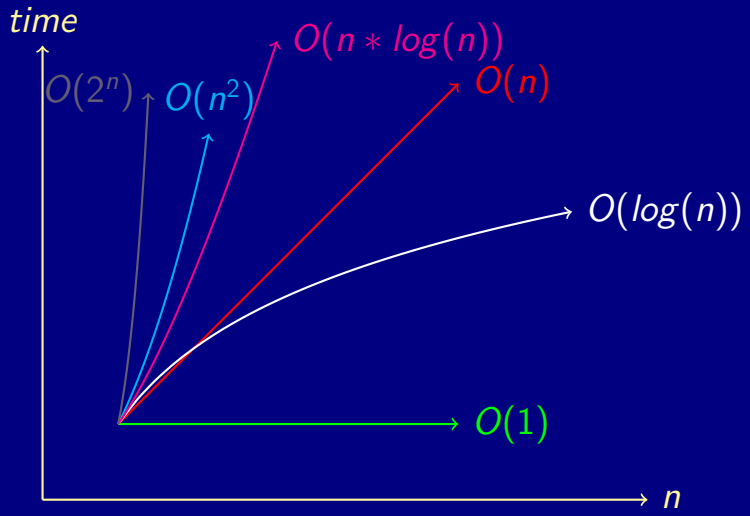

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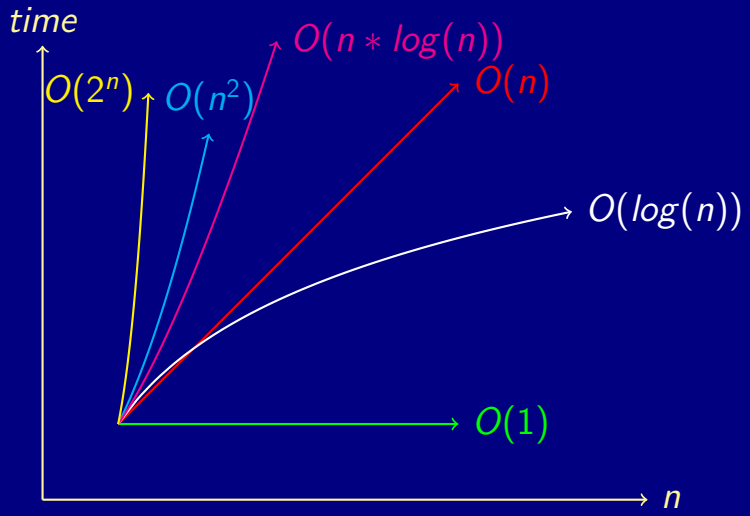

Course syllabus

- assignments
- lectures
- help

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- assignments - to pass the course
- lectures - to guide you through the assignments
- help - practical help to solve problems

Assignments

These are the assignments to pass with grade E:

- arrays - measure time
- hp35 - make use of a stack
- sorted - a lot simpler
- sorting - so learn how to sort
- linked data structures - flexible
- trees - I love'em
- queues - boring
- priority queues - better
- hash tables - the shit
- graphs - the world

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These are the assignments for higher grades:

- D: Doubly linked list
- C: Quick sort
- B: T9
- A: Narvik to Malmö

To receive a grade you need to do all of the assignments up to and including the grade.

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language

You choose the languge to use:

- Java - this is what I will use
- CC++ - yes, not a problem
- C# - yes, it's Java
- Python - no, you need to be able to work with arrays explicitly
- Julia - yes, might be the default language next year
- Rust - hmmm, I like Rust but it's not ideal for this course
- Haskell, Erlang ... functional languages - no, need updateable data structures
- Kotlin - yes, fun
- Go - yes, be aware of slices
- R - well, a bit unsure
- ... if you choose another language, ask me

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The reports

My first report.

My Name

Spring Fall 2022

Introduction

This is what a report should look like, vanilla LaTeXwith regular page width and height and single spaced lines.

The name of the report should not be "My first report" and the name should not be "My Name". I thought that would be obvious but each year I have submitted reports were these templates have not been changed.

Layout

The rows in regular article mode are short - because it makes it easier to read. Do not set the column width or margins explicitly, let LaTeX decide what it should look like.

Don't use any fancy packages that will turn your report into a Christmas tree, keep it simple!.

sections

Since this is a small report I can omit having numbered sections and you do this by using section commands that end with a *. You can of course have

Grading

- 2: - well done (or at least ok)
- 1: - make up, fix withing three days
- 0: - fail, come back next year

Continuous examination does not mean eternal examination.

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- in or after lectures
- help sessions on Wednesdays
- Canvas discussion board

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