Thesis projects

and reports

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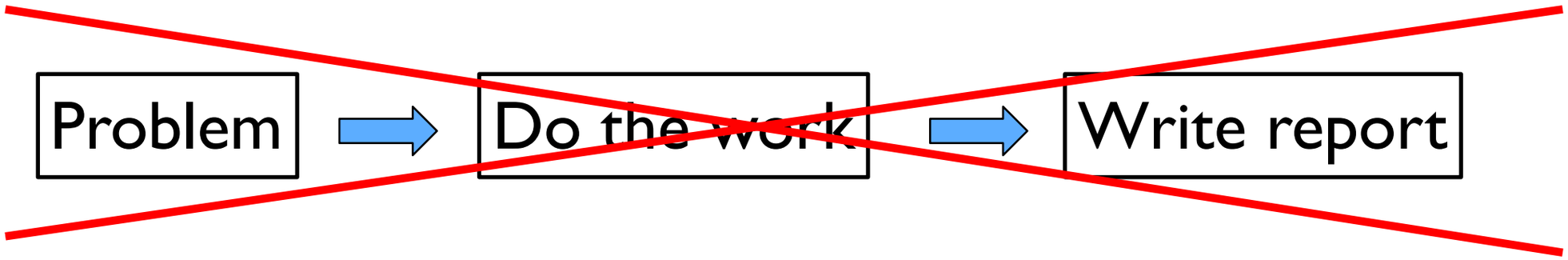
Based on slides by Olle Gällmo

Where to begin



First step: the project plan!

Let the report feed your work

(not the other way around)

Where to begin

- Start writing day 1!
- Mandatory events to make sure you do:
  - Day 1: Make an outline for the whole report and discuss it with your reviewer
  - Mid course meeting: Focusing on what you have written so far (which should be plenty by then). Book a time for this now!

Swedish or English?

- English is recommended
  - Easier to find a reviewer
  - Wider audience for your thesis
  - No need to translate technical terms

- Swedish
  - if you think language quality would suffer otherwise
  - if your supervisor requires it

Who is the reader?

- Consider whom you're writing for!
  - Your supervisor?
  - Your subject reviewer/examiner?
  - Yourself at the start of the work?
  - A random student in your class?

- Be explicit and comprehensive!
  - Don't take things for granted

- Will your report make sense 10 years from now?
  - Affects both when you refer to sources, and to where you can refer

Structure

- Title
- Abstract
- Table of contents

1. Introduction
2. Background (optional)
3. Body (several sections)
4. …
5. Related work (that is not part of introduction)
6. Discussion (optional)
7. Conclusions and future work

- References

If you need a glossary, insert it here

Structure

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- References

Title

- The 'face' of your report
  - Maybe few people read your report, but many will read the title!
- You have 2 seconds to catch the reader's interest!
- Short
- Informative
- True

Structure

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Abstract

- Written last!
- Up to half a page.
- Come directly to the point!
  1. What's the problem?
  2. Why does it need to be solved? (optional)
  3. How did you solve it?
  4. What are the results?
  5. Conclusion (what it means for the future)
- Make sure the abstract stands on its own!
  - No reference tags
  - Avoid acronyms

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Introduction

1. Describe the problem
    - Probably including some prior work but not necessarily all related work
    - If this grows too big, consider inserting a Background section after the Introduction
2. State your contributions
    - Perhaps as a bulleted list (optional)
    - For each contribution, refer to where in the report you go into more details, or finish with a short paragraph about the structure of the rest of the report

Problem Formulation

- The problem is described in a concrete and relevant way.
- There is a clear motivation and context for the problem described.
- The problem is clearly delimited.
- Issues are identified that are relevant to the problem
- Those issues can be evaluated.

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Background

- What does a reader need to know to understand what you have done?
- This varies wildly between reports.
- Remember the canonical reader!

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Body

Subject dependent. For example:

- Theory → Method → Results
- Requirements → Design → Implementation → Evaluation
- Existing methods → Comparison → Suggestions

Explaining things

- Do it top-down! (when possible)
- Intuition first, details later
  - Easier to understand the details
  - A reader who skips the details, gets something valuable anyway
- The order in which you discovered or did things, may not be the best order for the reader!

Explaining decisions

- Justify your decisions!
- Describe also the alternatives!
  - How did you come up with them?
  - Why you did not choose them?
  - (Some of them may of course be open for discussion later, in the Discussion or Future work sections)

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Related work

- Part of the introduction or after the body
  - After the body: easier to explain, shorter intro
  - Prior work ⊊ Related work

- Credit is not like money!
  - Giving credit to someone else does not take away from yours!
  - Failing to give credit, however, does!
    - If you claim an idea is yours when it isn't, you either did not know (bad), or you knew but pretended it was yours (very bad)

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- References

Discussion

- Connect the results from the main part of the paper
- Make connections to background and related work
- Make judgments!
  - good enough, significant, too slow, expressive
- Provide the bigger picture

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Conclusions and future work

- Summarize your contributions
  - Be honest!
  - Acknowledge weaknesses in your work
- Conclusions from the results
- Implications for the future

- No new information in this section!

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- References

References in Text

- Always refer to the literature when
  - you first introduce an established concept
  - you claim things for which there is no evidence in this report
  - you are quoting (including figures from other sources, which require a reference in the caption)

- Most common reference tag formats
  - Vancouver [1] (most common in computer science)
  - Harvard (Andersson, 2019)
- If you want to refer to a certain page, do so in the tag [1, p.17], not in the reference list!

Reference List

- References in the list must be complete!
  - a source, not just a name and a title
- Refer to the publication, not to the web site where you found the paper!
  - web links to publications should be to the publisher's web site, or via the DOI
- Avoid web references!
  - Often neither authoritative nor of high quality
  - Content may, and probably will, change
  - Imagine someone reading your report in 10 years
  - If a web site really is the best source, include:
    - a link to an independent archive (e.g. Wayback Machine)
    - date of access

Language

- Don't write as you talk! (or chat)
- Grammatically correct English, including …
  - Articles ('the', 'a', etc)
  - Singular/plural dependencies (is/are, has/have and verbs with or without an 's')
- Be personal if you wish, but within reason!
  - Your reviewer decides what "within reason" means
  - Don't address the reader directly! ("you")
- Spell check!
- Have someone else proof read
- Spell out acronyms first time they are used
- Use figures!

The most common mistakes

- Forgetting who the reader is
- Taking too much for granted
- Poor reproducibility (lack of details)
- Not supporting your claims by references
- Unnecessary web references
- Incomplete references
  - Author and title is not sufficient

Common project faults

- Lack of access (to tools, data, or supervision)
- Getting stuck / going slow
- Starting to work on other things
- Not writing enough

Good luck!