



# Lecture 7

# The Report

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# The objectives lecture

- ✓ The importance of reports and their role in documenting and disseminating results
- ✓ Define the target audience for the report
- ✓ Requirements for a clear and accurate report
- ✓ General structure of the report, from the title page to the conclusions and references
- ✓ How to write the abstract, introduction, description of the problem, analysis of the results, and presentation of related work
- ✓ Scientific writing style to ensure clarity and accuracy



# How to Write a Report

# Introduction

- ❑ **The report represents** the **means** for publishing results and experiences to other people (it is also a proof of project existence).
- ❑ **Writing** is also an excellent way **of structuring your thoughts**.
- ❑ Therefore, writing during the different stages of your project helps you to:
  - Keep the focus in the project.
  - Communicate with your supervisor,
  - It provides another means for you to get his/her feedback on drafts of different parts of the report while you are working on the project.

# Introduction

- ❑ Becoming a good writer takes a lot of time.
- ❑ The best researchers spend significant time making sure their presentation is excellent, often rewriting sentences and paragraphs numerous times before they are satisfied. This is part of what makes them so good.
- ❑ **Note:** You should remember that it does not matter how brilliant your work is if it is not being published.

# Who is The Report For?

- ❑ Before starting to write your report, you need to **decide who is going to read it**. It is strongly suggested that you write down a list of who your reader groups are, and what you think they require from the report.
- ❑ This should be used as a **guiding document** throughout the writing process, and as such, it can help in answering any questions related to what to **include** and **exclude** in the report.
- ❑ It is not until you have determined your reader groups that you can decide about the **form and contents of your report**.

# There May Be Several Reader Groups

## □ Experts.

- Experts are people with highly specialized **theoretical** and **practical** knowledge in one or several areas.
- Often, they are professionals operating in research and development areas in the business world, or in academic environments.

## □ Technicians.

- Like experts, technicians have a high level of knowledge, but it is more often of a **practical** nature, and **they normally operate and maintain the things that experts have designed and developed.**

# There May Be Several Reader Groups

## ☐ Executives and business professionals.

- These make decisions on non-technical issues, e.g. business, legal, financial, or political issues.
- Typically, they are nonspecialists with little or no technical knowledge of the subject.

## ☐ Non-specialists.

- People with little or no technical knowledge of the subject.



# Requirements of the report

□ The report should be written so that it enables the reader to:

- follow the chain of thought,
- be able to
  - make sense of the approach,
  - apply the solution to a related problem elsewhere,
- verify your results and contribution



# Requirements of the report

- ❑ In this sense, it is not very different from conveying your message in any other form. **A report should be:**
  - **Concise.** Delete unnecessary redundancy in your report.
  - **Focused.** Only include things that are explicitly related to your project, and which are necessary in order to understand and evaluate your work.
  - **Clear.** Avoid unnecessarily complicated terminology, and write at a level you are comfortable with.
  - **Well written.** The report should contain no spelling, grammatical or other language errors.

# Structure Of The Report

- ☐ Title page
- ☐ Abstract
- ☐ Acknowledgments
- ☐ Table of contents
- ☐ List of figures and tables (optional)
- ☐ part 1: Introduction and Background
  - ☐ Chapter 1: Introduction
  - ☐ Chapter 2: Background
  - ☐ Chapter 3: Problem description and problem statement





# Structure Of The Report

## ☐ Part 2: Main body

- ☐ Chapter 4: Theory (theoretical part of solution)
- ☐ Chapter 5: Description of approach and method(s) to solve the problem.
- ☐ Chapter 6: Result analysis

## ☐ Part 3: Summery or review

- ☐ Chapter 7: Related work
- ☐ Chapter 8: Conclusions

## ☐ References (or bibliography)

## ☐ Appendices (optional)



# Abstract

- ❑ An abstract is an overview or summary whose purpose is to help the reader to decide whether to spend more time reading the rest of the report. In the abstract, we present:
  - a high-level description of the subject area
  - an overview of the problem
  - a high-level description of the approach
  - a summary of the contribution.
- ❑ Also, the abstract does not include a general background.
- ❑ The abstract must be able to stand alone allowing the reader to understand the text without searching through the rest of the report, i.e. no references, acronyms or abbreviations are included.
- ❑ The abstract should be one of the last things, if not very last thing, that you write. The reason is that you will have a full picture of what you achieved and you can write a precise and meaningful abstract.

# Chapter 1- Introduction

- ❑ A good report requires a good introduction which sets the scene by putting the work into a bigger perspective.
- ❑ This is normally best done by giving an overview showing how your subject area, e.g. databases, relates to the rest of the field of computer.
- ❑ The introduction complements the abstract. It gives the information left out of the abstract. Normally, an introduction contains some or all of the following elements:
  - Topic-indicating the specific topic of the report; preferably in the first paragraph of the report.
  - Purpose and situation-indicating why the report was written.
  - Literature review-describing the most important related work in the area (with proper referencing)
  - Topic background-provides key definitions and basic preliminaries important to the reader; it should catch the reader's interest.
  - Overview of the report-describes the general outline of the report.

# Chapter 2-Background

- ❑ A reader who is familiar with the subject area should be able to skip this chapter without difficulties.
- ❑ Hence, this chapter should only present fundamental knowledge necessary in order to understand the problem (but not necessarily the solution).
- ❑ The problem will be described in detail in the successive chapters.
- ❑ Hence, it is best to avoid discussing specifics with respect to the problem, your solution and contribution in this chapter.
- ❑ The hard thing about writing this section is to decide what the level of detail should be.
- ❑ This is where you can take advantage of the list of target readers you produced earlier. For each target group, list the subject areas you think the typical reader will need in order to appreciate your findings.

# Chapter 3-Problem description and statement

- ❑ This chapter has two important objectives it should :
  - Present the problem in a non-ambiguous way, both at a high level and in detail;
  - Show why the problem is important, justifying why it should be studied (after all, you do not want to study a problem that no one is interested in).
- ❑ Describing the problem in detail entails, declaring the aims and objectives, and outlining the existing constraints and assumptions that have been made regarding the problem.



# Chapter 4-5-6: The core of the report

□ These chapters describe and discuss:

1. **advanced preliminaries**, i.e. existing knowledge that the reader group may not be familiar with, but which is necessary in order to understand your solution
2. your approach and methods
3. your analysis of the results

□ **The primary purpose of your report** is to publish your findings or results. Your findings, then, should be described in enough detail for the reader to judge them.

□ **Further**, there should be enough detail to make it possible to transfer any of your solutions elsewhere.

- For example, if you have developed a new algorithm for sorting numbers, others should be able to implement your algorithm in the future, either for sorting numbers in some application, or for using it as a baseline in a benchmark test of such algorithms.

# Chapter 7-Related work

- ❑ This chapter serves the purpose of positioning your work in the context of other people's work in the area.
- ❑ This chapter should include a comparison of your work with closely related efforts.
- ❑ It should demonstrate the principal differences and similarities with respect to:
  - (1) the details of the problem,
  - (2) the approach,
  - (3) the results.

# Chapter 7-Related work

- ❑ In particular, when you compare your approach with those of others, it is important that you objectively weigh the advantages and disadvantages.
- ❑ This will show that you know what the state-of-the-art in the area is.
- ❑ This will support any claims of originality in your work.
- ❑ The related work chapter should complement the other chapters.
  - For example, if you want to report on the results of a new sorting algorithm, then you will have to compare its performance with some other sorting algorithms, and those should probably then be described in detail in the analysis chapter in order for the reader to appreciate your results.

# Chapter 8-Conclusion

- ❑ The conclusion chapter is the last section of the report, and it gives
  - a summary of the report,
  - presents conclusions,
  - a final analysis, and
  - possibly some afterwords, e.g. directions for future work.

# Chapter 8-Conclusion

❑ First, a general rule for the conclusion chapter is that:

- it should consist of reflections on the work.
- It should not present any new details of the approach or results etc., which have not been explained in previous chapters. This is not the time or place to surprise the reader.
- The conclusion chapter should at least contain a brief overview of the purpose of the work and the problem studied.
- More importantly, it should have a summary that emphasises the main contributions and results, stressing why the results are valuable and putting them into the research context.

# Style of the report

- ❑ In order to enhance understanding and readability of your report,
  - ✓ it is of utmost importance that you are not vague or ambiguous in your descriptions.
  - ✓ Make sure that sentences are not unnecessarily long, and that they are to the point.
  - ✓ In scientific writing, it is generally considered good practice to avoid using personal pronouns, e.g. I, you, etc.
  - ✓ Avoid words that do not add any meaning to your argument.
  - ✓ When making a choice between equally simple expressions, choose the most precise one.
  - ✓ Similarly, when making a choice between equally precise expressions, choose the simplest one.

Any ? Question

Thank you  
for attention