



ESME-SUDRIA ENGINEERING SCHOOL

L^AT_EX Project Template

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Abstract

An abstract is a brief summarizing statement read by parties who are trying to decide whether or not to read the main document. Thus, it includes:

- a description of the problem
- its relevance
- the method used to solve the problem
- a summary of the main results, and
- main conclusions

Chapter 1

Introduction

A good **introduction** should tell the reader what the project is about (i.e., its purpose) without assuming any special knowledge and without introducing any specific material that might obscure his/her understanding. It should anticipate and combine the main points described in more detail in the rest of the document. It should also enthuse the readers about the project, to encourage them to read the whole report. Normally, an introduction comprises:

- the goals of the project
- the intended audience or users of the work
- the scope of the project
- the strategy employed to carry out the project
- the assumptions on which the work relies on
- a summary of the important outcomes

1.1 \LaTeX QuickStart

1.1.1 Defining a table

Table 1.1 shows a toy example.

Table 1.1: Defining a table in \LaTeX

Column 1	Column 2
A	42
B	7
C	707

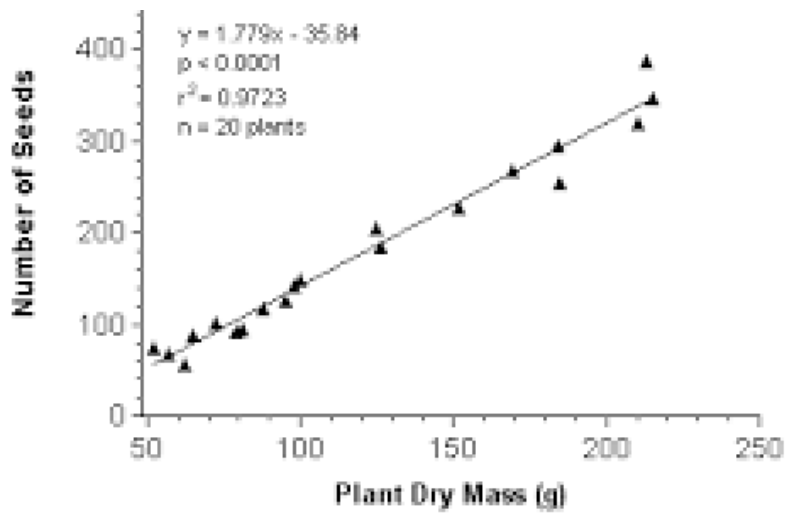


Figure 1.1: Seed production as a function of the biomass in waterlilies from Great Works Pond in Northern Maine in August 2011

1.1.2 Including a figure

Figure 1.1 shows seed production as a function of the biomass in waterlilies from Great Works Pond in Northern Maine in August 2011.

1.1.3 Citing a reference

We use

`\cite{russell:19}`

to cite a paper. For example, in [1] the authors show ... The references must be included in the file *references.bib*

Chapter 2

Background

The **background section** aims to provide to reader the information that they cannot be expected to know, but which they will need to know in order to fully understand and appreciate the rest of the report. This section usually describes things such as:

- the wider context of the project
- the theory associated with the scope of the project
- the constraints on the approach to be adopted
- the methods and tools that the solution may be based on or use to solve the problem

Chapter 3

Proposed Approach

Describe in reasonable detail the proposed approach you have used to address the problem. Give the pseudocode of the learning algorithm, including its general outline and the main equations. Trace through a concrete example of how the algorithm works. The example should be complex enough to illustrate all the essential aspects of the problem, but simple enough to be easily understood. If possible, an intuitively and meaningful example is better than one with meaningless symbols.

Chapter 4

Specification & Design

The purpose of the chapter **specification & design** section is to give to readers a clear picture of the system that will be created in terms of the required capability. A specification should tell readers what the system is required to do. The design gives them, the top-level details of how the system meets the requirements. It also points out constraints on the solution, that guided the decision making throughout the development process.

Describing what a software system does (i.e., specification) and how it does so (i.e., design) effectively usually means describing it from multiple viewpoints. In this case, each viewpoint must convey some information about the system that other viewpoints omit. Examples of possible viewpoints include:

- the user interface
- the dynamic behavior of the system
- how data flows through the system
- what data types are implemented in the system
- what algorithms are implemented in the system
- the static architecture of the system, i.e., how the code is partitioned into modules

It is strongly recommended to make extensive use of diagrams

It is also important to justify the design of the system, for example, by discussing the implications of the constraints on the solution and on different design choices. Then, it should give the reasons for making the choices the team did. Typically these implications will relate to the aims of the project and to aspects of it discussed in the background section.

Chapter 5

Implementation

The **implementation** chapter is similar to the **specification & design**. Therefore, it describes the system at a finer level of detail. This chapter is about the realization of the concepts and ideas presented in the previous ones. It can also describe any problems that may have arisen during the implementation and how the team dealt with them.

Please, do not attempt to describe all the code in the system, and do not include large pieces of code in this section. Instead pick out and describe just the pieces of code which, for example:

- are especially critical to the operation of the system
- illustrate a non-standard or innovative way of handling a problem

Chapter 6

Results & Evaluation

This chapter should describe to what extent the goal of the project was achieved.

It should demonstrate that the system works as intended. It includes comprehensible summaries of the results of all critical tests that were carried out.

This is also the place to describe the reasoning behind the tests to evaluate the system, what tests were executed, what the results are showing, and why these tests were selected.

All the results should be critically evaluated in the light of the tests, considering its strengths and weaknesses. It should present ideas to improve the solution in future works. **Remember:** no project is perfect, and even a project that has failed to deliver what was intended can achieve a good pass mark, if it is clear that the team have learned from their mistakes and difficulties.

This chapter also gives to team an opportunity to present a critical appraisal of the project as a whole.

All these information should be distributed across the following sections.

6.1 Methodology

What criteria have you used to evaluate your proposed solution? What hypotheses do your experiment aims to test?

6.2 Data set

What data set have you used to evaluate your solution? What are the dependent and the independent variables?

6.3 Results & Data Analysis

Describe the quantitative results of your experiments. A graphical representation is usually better than tables.

6.4 Discussion

Are your hypotheses supported? What conclusions do the results support the strengths and weakness of your proposed solution compared to other existing approaches? How can the results be explained in terms of the underlying properties of the algorithm and/or the data?

Chapter 7

Conclusions & Future Work

This chapter summarizes the aims of project and it restates its main results. In other words, it describes what has been learned and what has been achieved. An effective set of conclusions should not introduce new material. Instead it should briefly draw out, summarize, combine, and reiterate the main points that have been made in the body of the report and present opinions based on them.

It is quite likely that by the end of your project you will not have achieved all that you planned at the start; and in any case, your ideas will have grown during the course of the project beyond what you could hope to do within the available time.

This chapter finishes expressing the unrealized ideas. It is a way of stating what you would like to have done if only you had not run out of time. A good future work description should provide a starting point for someone else to continue the work which you have begun.

Bibliography

- [1] C. Russell, “Efficient search for diverse coherent explanations,” in *Conference on Fairness, Accountability, and Transparency*, 2019, pp. 20–28.