

DOCUMENTATION OF SHAPE ANALYZER

Version 1.0

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CHAPTER 1

Introduction

This \LaTeX template is designed for the creation of thesis documents (bachelor, master, phd) and targets both beginner and experienced users of \LaTeX . It supports all basic functionality and requirements of a technical document such as the inclusion of graphics, math, tables, references, bibliography and much more. In contrast to a standard LaTeX document this template not only loads all state of the art packages (`preamble/packages.tex`) to provide the best functions for each task, but also includes a separate document for the style/layout of the document (`preamble/style.tex`). It therefore tries to separate functionality and layout as much as possible. And the best, everything is documented in the code and furthermore in a separate documentation file (`TemplateDocumentation.pdf`)

This document shows in ?? a general tutorial for \LaTeX with links to the documentation for further tasks. You can view the underlying code in file `content/demo/latextutorial.tex` or in this document in ??.

The code of the template itself is documented in `TemplateDocumentation.pdf`.

CHAPTER 2

Theory

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2.1 Section heading

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$$J_f(a) := \frac{\partial f}{\partial x}(a) := \frac{\partial(f_1, \dots, f_m)}{\partial(x_1, \dots, x_n)}(a) := \left(\frac{\partial f_i(a)}{\partial x_j} \right)_{i=1, \dots, m; j=1, \dots, n} \quad (2.1)$$

2.1.1 Subsection heading

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Subsubsection heading

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CHAPTER 3

Customs

3.1 Exceptions

There are two types of exceptions you might want to throw: Exceptions (3.1.2) and Errors (3.1.1). The first one is kind of optional, it includes all normal exceptions C++ provides, the second one is for non-fatal problems that might occur and that can actually be handled.

3.1.1 Errors

3.1.2 Exceptions

- **Throw when** you have special cases that are due to previous faulty programming or unexpected errors
- **Documentation** not necessary

Any exception will be caught by the main program and showed within an error message. The program will then terminate. In order to make debugging easier a short description of the problem is useful.

```
1 if(s >= points_->size()) {  
2     throw invalid_argument("Source point (" + to_string(s) + ")  
3     larger than number of points (" + to_string(points_->size()) + ")  
4     in " + __PRETTY_FUNCTION__);  
5 }
```


CHAPTER 4

Results

List of Figures

List of Tables

APPENDIX A

First chapter of appendix

A.1 Parameters

Todo list
