

Discrete Mathematics in Computer Science

X1. Introduction to \LaTeX

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X1.1 Introduction to \LaTeX

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Why?

- ▶ Powerful tool for scientific writing
 - ▶ papers
 - ▶ posters
 - ▶ slides
 - ▶ ...
- ▶ easy integration of formulas, algorithms, ...
- ▶ consistent, automatic formatting

Why here? → practice opportunity

Installation

Linux

```
sudo apt install texlive-full
Compiling: pdflatex file.tex
```

Windows

<https://tug.org/texlive/acquire-netinstall.html>
 TeXWorks: GUI for editing and compiling

MacOS

<https://www.tug.org/mactex/>
 TeXShow: GUI for editing and compiling (typeset button)

Installing all packages is recommended (if time and space permits).

Document Structure

```
\documentclass{article}
\usepackage{a4wide}
\usepackage[utf8]{inputenc}
\usepackage[T1]{fontenc}
\usepackage{amssymb}
\usepackage{amsmath}
```

Preamble

```
\usepackage{tikz}
\usetikzlibrary{automata}
\usetikzlibrary{arrows}
```

```
\newcommand{\ie}{i.\,e.}
\newtheorem{definition}{Definition}
```

```
\begin{document}
```

```
\section*{On sets}
```

Document Text

We start with a basic definition:

```
\begin{definition}
```

A set is an unordered collection of distinct objects. The objects in a set are called the elements of the set. A set is said to contain its elements. The set that does not contain any elements is the empty set \emptyset . We write $x \in S$ to indicate that x is an element of set S , and $x \notin S$ to indicate that S does not contain x .

```
\end{definition}
```

```
\end{document}
```

Provided by Us

Exercise Template

- ▶ Should include all needed packages
- ▶ Not mandatory

L^AT_EX Cheat Sheet

- ▶ General and chapter specific commands
- ▶ *Work in progress* – will be updated in line with lecture

Both can be found on the course website

Common pitfalls

- ▶ **undefined references**
→ compile two times
- ▶ **no new line**
→ empty line between paragraphs
- ▶ **overfull hbox**
→ text over document border
- ▶ **missing or too many spaces**
→ missing: \ after commands
→ too many: % after { at end of line
- ▶ **File ended while scanning ...**
→ missing }, \end{...}, ...

Unresolved problems? → Ask on Discord

Helpful Links

- ▶ <https://detexify.kirelabs.org/classify.html>
→ find symbol command by drawing the symbol
- ▶ <https://latexbase.com>
→ web-based \LaTeX editor