Discrete Mathematics in Computer Science

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? $\rightarrow$ 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}

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

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

Preamble

```
\begin{document}

\section*{On sets}

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 $x \not\in S$ to
indicate that $S$ does not contain $x$.
\end{definition}

\end{document}
```

Document Text

Provided by Us

Exercise Template

- Should include all needed packages
- Not mandatory

LaTeX 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`
  $\rightarrow$ find symbol command by drawing the symbol
- `https://latexbase.com`
  $\rightarrow$ web-based LaTeX editor