

The LaTeX Tutorial





Outline

- Goals
- The Problem
- The Solution
- Introduction of LaTeX
- Key Concepts
- Hands-on
- Summary



Goals

- Introduce key concepts
- Establish working knowledge of LaTeX



Problem

- Documentation necessary
- Cross - platform readability
- Consistent look of docs project-wide



Solution

- One tool for all written documentation

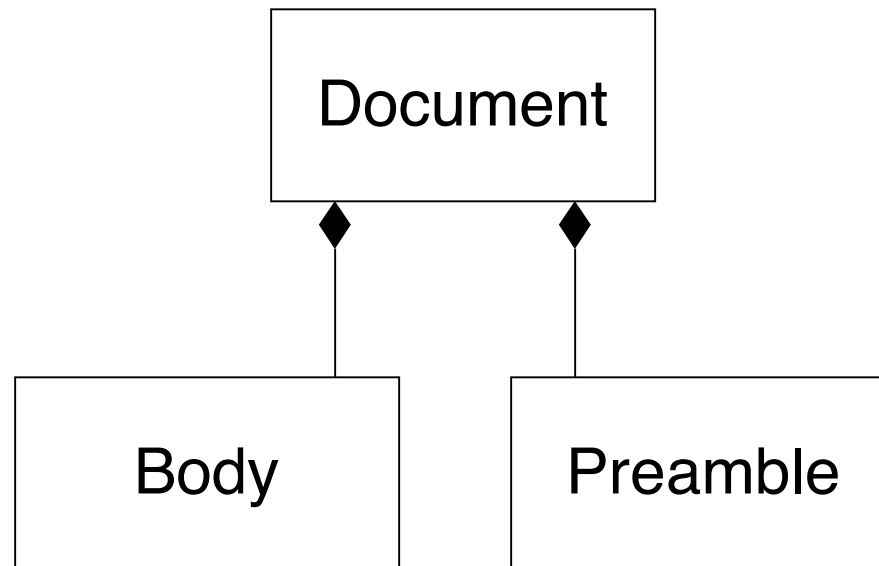


LaTeX

- Typesetting Program with plain text input
- Output to .dvi, .ps, .pdf
- Formatting using commands, not manually
- Structure specified in document



LaTeX Documents





Example

```
\documentclass{article}
```

preamble

```
\begin{document}
```

```
\section{Das Festmahl}
```

```
\subsection{Der Alte Mann}
```

```
``Ja, ja'', sagte der alte Mann, und er hatte  
seinen Hut wieder, und wenn es auch nur die  
Krempe war
```

body

```
\end{document}
```




Result

1 Das Festmahl

1.1 Der Alte Mann

“Ja, ja”, sagte der alte Mann, und er hatte seinen Hut wieder, und wenn es auch nur die Krempe war.

(it looks better on paper)

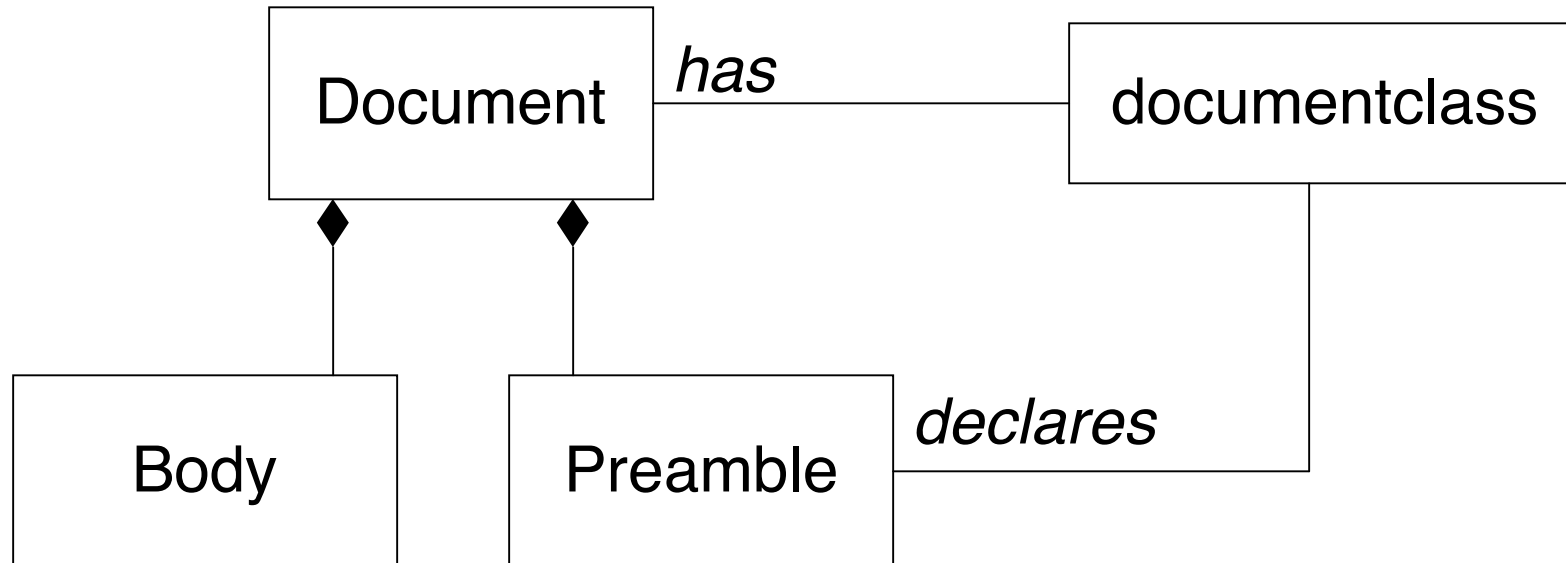
The logo for ARENA, featuring the word "ARENA" in a bold, serif font with a metallic, 3D effect. The letters are set against a background of golden, concentric circular patterns that resemble ripples in sand or a field of grain. The overall aesthetic is clean and professional.

ARENA Some Key Concepts

- Document Class
- Packages
- Logical Structure
- Environments
- Funny Characters



Document Classes





Document Classes

Usage

```
\documentclass[class_options]{document_class}
```



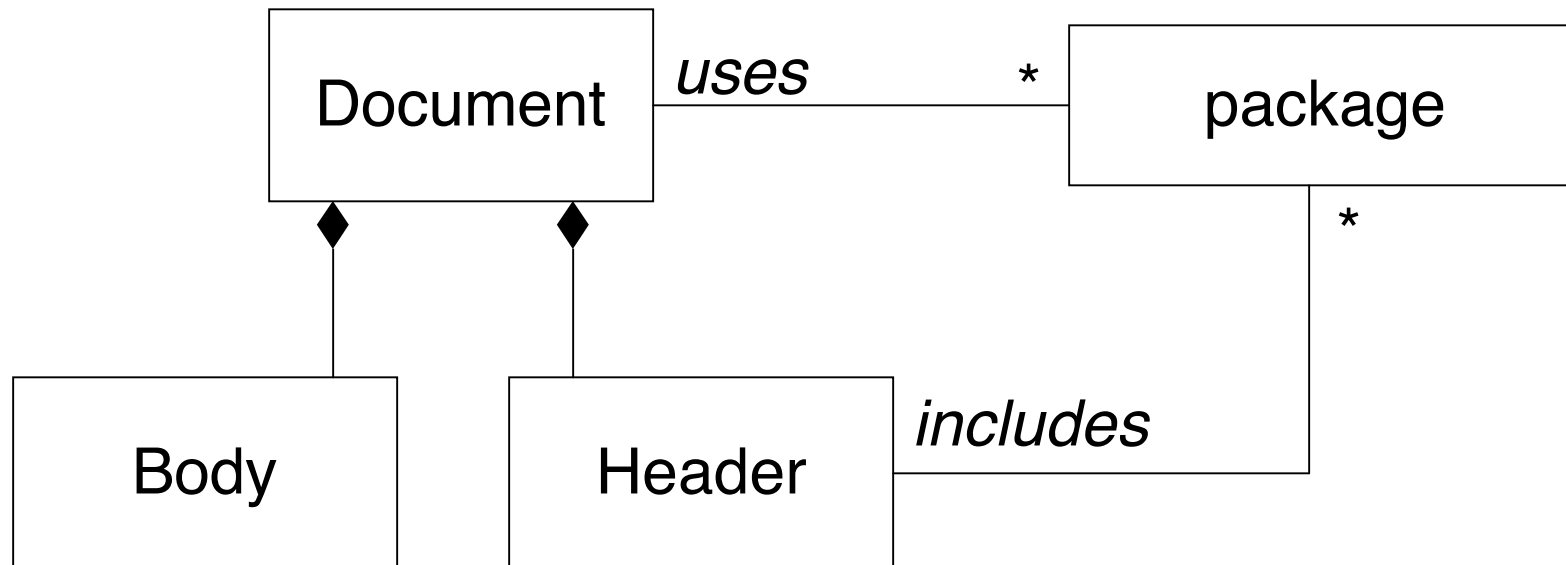
Document Classes

- book
- report
- article
- letter
- slides



Document Classes

- Class options
- 10pt | 11pt | 12pt
- onecolumn | twocolumn
- oneside | twoside
- notitlepage | titlepage
- final | draft
- a4paper | letterpaper | a5paper | ...





Packages

Usage

```
\usepackage[options]{package}
```



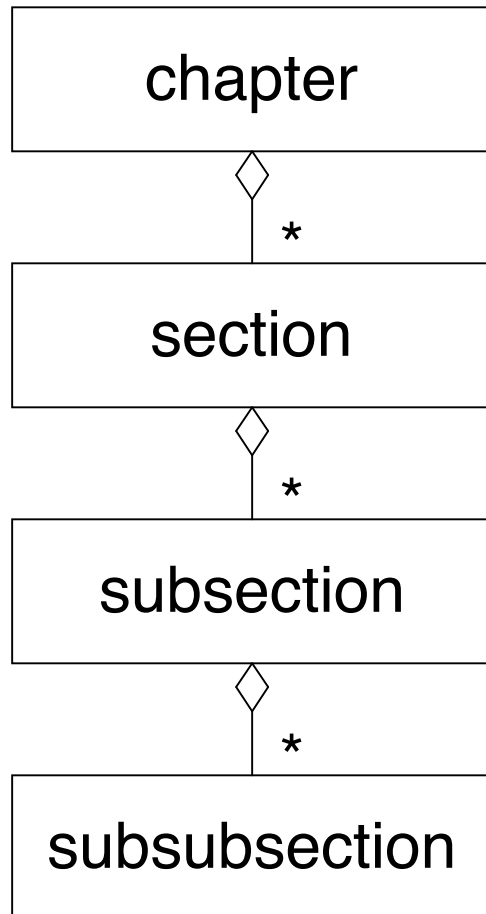

Packages

- babel - support for languages
`\usepackage[german]{babel}`
- colortbl - coloured tables
- amsmath - more math symbols
- qtree - drawing trees
- array - improved tables
- graphicx - including pictures
- ...

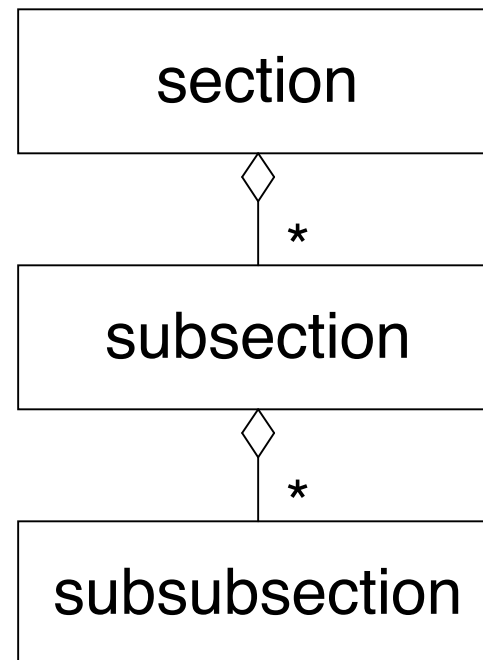


Logical Structure

book, report



article





Logical Structure

Usage

`\chapter{heading}`

`\section{heading}`

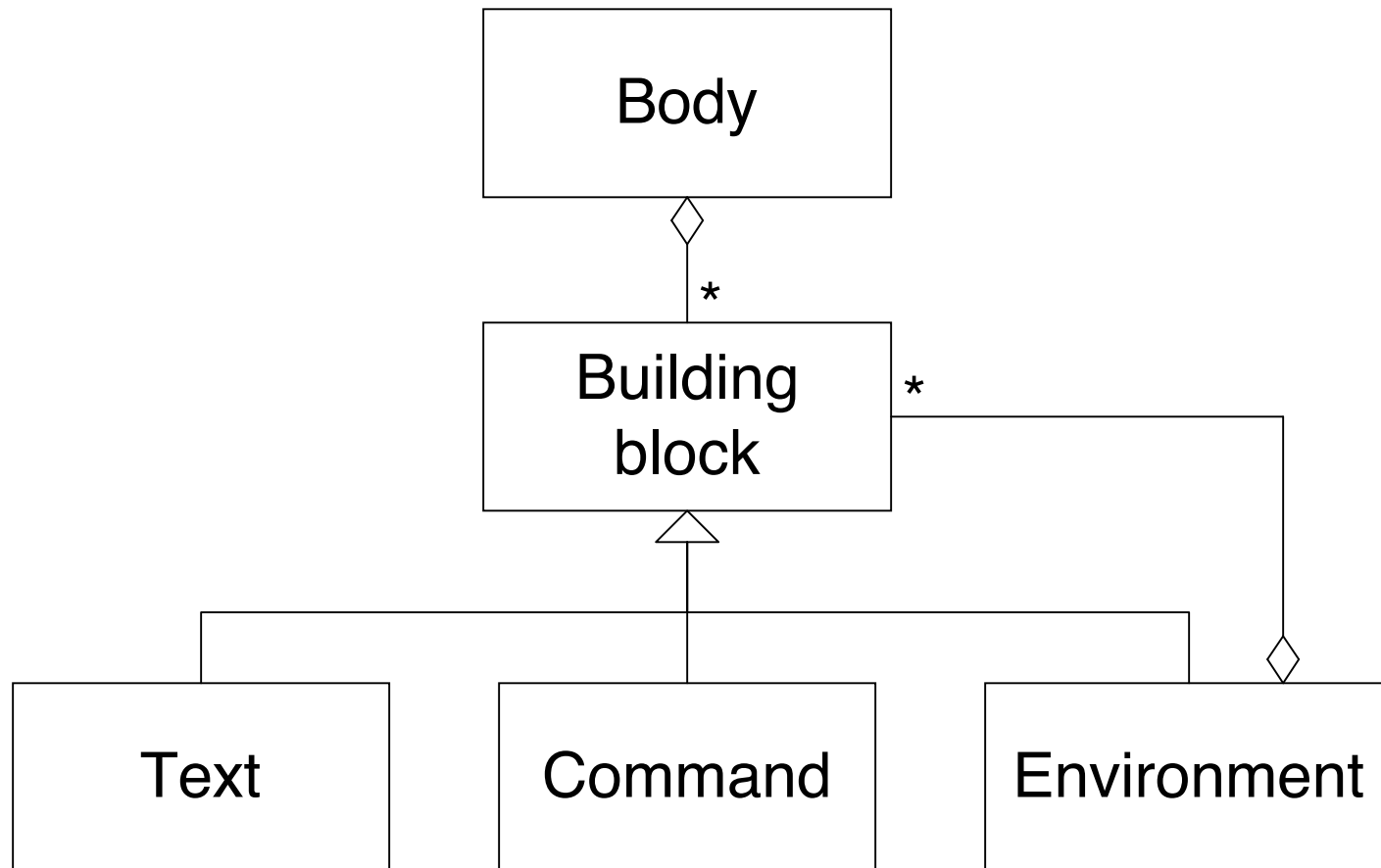
`\subsection{heading}`

`\subsection{heading}`

`\section{heading}`



Environments





Environments

Usage

`\begin{environment}`

or `\begin{environment}{parameters}`

...

...

`\end{environment}`



Environments

- document - top level environment
- tabular - tables
- table - floating elements
- equation - what it says
- itemize - bullet list
- center - format text centered



Funny Characters

- Greek letters: `\pi`, `\Gamma`, `\alpha`
- Umlauts : `\"a`, `\"u`, `\"e`, `\"s`
- Math symbols: `\leftarrow`, `\subset`, `\simeq`
- Quotes: ```(left), `"`(right)



Hands - On

Do It



Summary

- Document Classes : article
- Logical Structure : chapter, subsection
- Environments : itemize, tabular
- Funny Characters : \"a, \alpha



Helpful Links

LaTeX Kochbuch (german)

www.uni-giessen.de/hrz/tex/cookbook/cookbook.html

Another LaTeX online manual

macbruegge7.informatik.tu-muenchen.de:16080/~creight0/LaTeX/

List of mathematical symbols

www.math.hkbu.edu.hk/TeX/symbols.pdf

The Comprehensive TeX Archive Network

www.ctan.org