Introduction to LaTeX
Seminar: Control Flow Integrity based Security

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Outline

1 Latex in General

2 General Information on the Elaboration

3 Latex Presentation
Why \LaTeX? 

- Design has nothing to do with content.
- Documents can be written in the text editor.
- SVN, GIT, ... compatible!
- Design is added by compiling the contents.
- Simple insertion of mathematical formulas.
- Packages available for German texts as well.
Literature

- http://www.sec.in.tum.de/hilfestellungen-zu-seminaren/
- http://www.dante.de/tex/TeXAnfaenger.html
- http://www.ctan.org/
- http://en.wikibooks.org/wiki/LaTeX/
- https://www.google.de/
Document class gives basic document structure.

Content is added in the *document* environment.
The Basic Class

Code

\documentclass[12pt, a5paper, landscape]{scrartcl}
\begin{document}
:  
Hello World!
:
\end{document}

- article → scrartcl; book → scrbook; report → scrreprt; letter → scrlttr2
- There are also komma scripts for german texts as well
- The basic class is \textit{scrartcl}.
- Other options are: \textit{a4paper,11pt}
- \textit{twoside} - Double-sided printing (margins)
- \textit{landscape} - Landscape
Packages

Code

\documentclass[optionen]{scrartcl}
\usepackage[options]{package}
\begin{document}
[...]
\end{document}

- *babel* (with language option) culturally determined typographical rules
- *inputenc* (with option utf8) for correct input encoding
- *graphicx* for figures
- *todonotes* comments inside the document
- Other packages for figures, hyperlinks, ...
Environment

Different environments to structure content.

- *center* for centering text.
- *itemize* or *enumerate* for enumerations
- *tabular* for tables
- *figure* for graphics
Environment - Examples (1)

Code

\begin{document}
\begin{itemize}
\item one
\item two
\item three
\end{itemize}
\end{document}

\begin{document}
\begin{enumerate}
\item one
\item two
\item three
\end{enumerate}
\end{document}

one
two
three
Environment - Examples (2)

Code

\[\begin{document}\\begin{tabular}{lcr}  1 & 2 & 3 \\  4 & 5 & 6 \\  7 & 8 & 9 \\
\end{tabular}\\end{document}\]

Code

\[\begin{document}\\begin{figure}[h]\\begin{center}\\includegraphics[width=3cm]{foo}\\caption{Caption!}\\label{fig:example}\\end{center}\\end{figure}\\end{document}\]
Typesetting

Code

\begin{document}
\begin{itemize}
  \item \textbf{Bold}, \textit{Italic}, \texttt{Typewriter}
  \item \Large Large, \Huge Huge, \footnotesize footnotesize, \ldots
  \item better \emph{\textbackslash emph}
\end{itemize}
\end{document}

- **Bold**, *Italic*, Typewriter
- Large, **Huge**, footnotesize, \ldots
- better \emph
Dividing the document into sections (Sections).
In Book (and LLNCS) parent chapter (Chapter).
Outline with \tableofcontents.
The .tex source file has to be compiled several times.
Hello World Example!
Citation - Reference List

Code

```c
@ARTICLE{freely1997,
    author = {Freely, I.P.},
    title = {A small paper},
    journal = {The journal of small papers},
    year = {1997},
    volume = {-1},
    note = {to appear}
}
```

... 

- Bibtex (bibtex.bib) file creation  
  (if you want you can use JabRef for administration).
- Publication types: article, book, inproceedings, misc, phdthesis, proceedings, techreport, unpublished, patent.
Citation - Integrating the references

Code

\begin{document}
[...]
This was demonstrated 1997 in Freely \cite{freely1997}.
[...]
\bibliographystyle{ieeetr}
\bibliography{bibtex} <-- bibtex.bib
[...]
\end{document}

- Entries can be added with \cite{}.
- Embed literature list in the document.
- Only references used in the bibliography.
  - \nocite{} do not use.
Layout problems

- Before delivering the report check the overfull and underfull \hboxes{}.  
  - Hyphenation for a word unknown.  
  - Long object leaves no separation possibility.  
  - Table is too wide.

- Avoid widows and orphans  
  (see: https://en.wikipedia.org/wiki/Widows_and_orphans)

Code

\clubpenalty = 10000 \% No "widows"
\widowpenalty = 10000
\displaywidowpenalty = 1000 \% No "orphans"
\setlength{\baselineskip}{3ex}
Generally

- Complete sentences in tables, captions and footnotes.
- Figures, Tables, ... always reference and give description in text.
- No duplicate headers.
- Pay attention to spelling errors.
- For numbers and formulas use math mode (\$\ldots\$)
- Use glossary for abbreviations.
Latex can be used also for slides.

*beamer* as design package.

*frame* environment for single slides.

*block* environment for emphasising.
Summary of the actual message on the last slide.
Summarize important points again.
No questions on the last slide.
This slides should remain in memory after the presentation.
Latex is good for writing academic papers.
After a brief introduction latex usage becomes intuitive.
Latex cares largely by itself of the design of the work.
Additional packages allow expansion of the \LaTeX functionality.
The report can be relatively quickly transformed into a presentation.
A lot of documentation available.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>09.05.16</td>
<td>VTint</td>
<td>Jasmin B.</td>
</tr>
<tr>
<td>09.05.16</td>
<td>HA Fine-Grained CRAs Detection</td>
<td>Fabian G.</td>
</tr>
<tr>
<td>23.05.16</td>
<td>RockJIT</td>
<td>Jonas E.</td>
</tr>
<tr>
<td>23.05.16</td>
<td>SAFE DISPATCH</td>
<td>Maximilian K.</td>
</tr>
<tr>
<td>30.05.16</td>
<td>Control-Flow Restrictor</td>
<td>Maxi W.</td>
</tr>
<tr>
<td>30.05.16</td>
<td>Enforcing Forward-Edge CFI in GCC &amp; LLVM</td>
<td>Patrick F.</td>
</tr>
<tr>
<td>06.06.16</td>
<td>Control-Flow Bendig</td>
<td>Nadine G.</td>
</tr>
<tr>
<td>06.06.16</td>
<td>Protection of C++ Virtual Function Tables</td>
<td>Magdalena P.</td>
</tr>
<tr>
<td>13.06.16</td>
<td>Out of Control: Overcoming CFI</td>
<td>Florian J.</td>
</tr>
<tr>
<td>13.06.16</td>
<td>Missing the Point(er)</td>
<td>Paolo H.</td>
</tr>
<tr>
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<td>Counterfeit OOP:</td>
<td>Rauf Z.</td>
</tr>
<tr>
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<tr>
<td>27.06.16</td>
<td>VTrust</td>
<td>Nikos T.</td>
</tr>
<tr>
<td>27.06.16</td>
<td>KCoFI</td>
<td>Daniel H.</td>
</tr>
</tbody>
</table>