Introduction to \LaTeX

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Introduction

1. Introduction
2. Basic Typesetting
3. Advanced Typesetting
4. References

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Introduction to \LaTeX
What is \LaTeX? 

- \LaTeX is a document preparation system for high-quality typesetting.
What is \LaTeX? 

- \LaTeX is a document preparation system for high-quality typesetting.
- \LaTeX is most often used to produce technical or scientific documents, but it can be used for almost any form of publishing.
Why use \LaTeX?

- Professional result
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- Professional result
- Platform, version independent (Unix, Windows . . . )
Why use \texttt{\LaTeX}?

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- Platform, version independent (Unix, Windows …)
- Pre-set standard formats (for paper, thesis …)
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- Pre-set standard formats (for paper, thesis ...)
- Fast, professional math equations typesetting
Why use \LaTeX\? 

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- Platform, version independent (Unix, Windows \ldots)
- Pre-set standard formats (for paper, thesis \ldots)
- Fast, professional math equations typesetting
- Freely available
Basic LaTeX Work Flow I

User Input → TeX Compiler → DVI Output

DVI Output → Converters → HTML → pdf → ps
What Do You Need to Process a \LaTeX\ Document?

- \LaTeX\ Editor
  - Linux: Kile, Emacs
  - Windows: TeXworks, WinEdt, LyX
  - Mac: TeXworks, LyX, Emacs
What Do You Need to Process a LaTeX Document?

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- **LaTeX Compiler**
  - Linux: LaTeX, TeXLive
  - Windows: MikTeX
  - Mac: TeXshop
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  - Mac: TeXshop

- **$\LaTeX$ Output Viewer**
  - PDF: xpdf, Foxit, Adobe Reader
  - PS: Ghostscript, GhostView
  - HTML: Web Browser
Basic \LaTeX\ Work Flow II

User Input
Lyx, WinEdit

\TeX\ Compiler
MikTeX, LaTeX

DVI Output
Yap

TtH
pdfLaTeX

Converters
dvi2pdf, dvi2ps

HTML
Browser

pdf
Acrobat

ps
Ghostscript

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Introduction to \LaTeX\
Hello World in \LaTeX

Example

\documentclass[12pt,letterpaper]{article}
\%include packages here
\%\usepackage\{package\}
\begin\{document\}
Hello world!
\end\{document\}
Bold Text: \textbf{Bold Text }

Italic Text: \textit{Italic Text }

Spacing:
- Many spaces = one space
- Use \ for newline
- Hit return twice for a new paragraph
- \newpage

Comments: % . . . your comments here . . .

Reserved Symbols: # $ % ^ & ~ \
Mathematical Equations in \LaTeX

- Use $\ldots$ or \begin{math} \ldots \end{math} for include mathematical symbols, equations, etc.
- Subscript and superscripts — \( x^2 \): \( x^2 \) and \( x_2 \): \( x_2 \)
- Fractions— \( \frac{a}{b} \) or \( a \over b \): \( a/b \)
- Radical— \( \sqrt{x} \): \( \sqrt{x} \)
- Many more symbols and operators are available
Images and Figures in \LaTeX

- Include .eps (postscript) images in \LaTeX{} for dvi output
- Include .jpg, .png, and .gif images in \LaTeX{} for pdf output
- Software: gimp: for converting images, DIA and PowerPoint: for drawing figures
- graphicx package is required: \texttt{\usepackage{graphicx}}

Example

\begin{figure}
\includegraphics[height=50\%,width=50\%]{filename.eps}
\end{figure}
Making Tables in \LaTeX Using Excel

- Download Excel2LaTeX
  - Available for download at http://www.ctan.org/tex-archive/support/excel2latex/
- Extract the files and double click on the Excel Add-In file (Excel2LaTeX.xla)
- Create the table in Excel which you want in your \LaTeX document and highlight the cells
- Click on the Macro, an error might occur, just click ”End”
  - Most likely you will want to un-check ”Create table environment” and ”Booktabs-style formatting”
- Copy the table to your \LaTeX file!
Bibliography information is stored in a *.bib file, in Bibtex format.

To include and reference Bibliography:

- Set referencing style
  \bibliographystyle{plain}
- Create reference section by \bibliography{bibfile with no extension}
- Cite reference inside the text by \cite{bibliography item}
Bibliography in \LaTeX\ II

\begin{itemize}
  \item @book{Come95,
    author=“D. E. Comer”,
    title={Internetworking with TCP/IP: Principles, Protocols and Architecture},
    publisher=“Prentice-Hall”,
    year=1995,
    volume=1,
    edition=“Third” }
\end{itemize}
Other Useful Tools/Topics for \LaTeX

- Bibliography Management: JabRef, Zotero
Other Useful Tools/Topics for LaTeX

- Bibliography Management: JabRef, Zotero
- Very Helpful References for creating: Tables, Equation Arrays, Lists, etc.
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