Introduction to \LaTeX

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Outline

1. Introduction
2. Basic Typesetting
3. Advanced Typesetting
4. References
What is \LaTeX? 

- \LaTeX is a document preparation system for high-quality typesetting.
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- \LaTeX is pronounced “lay-tech” or “lah-tech”, \textit{not} “la-teks”
What is \LaTeX ?

- \LaTeX is a document preparation system for high-quality typesetting
- \LaTeX is pronounced “lay-tech” or “lah-tech”, not “la-teks”
- \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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- Platform, version independent (Unix, Windows . . .)
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- Pre-set standard formats (for paper, thesis . . .)
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- Pre-set standard formats (for paper, thesis ...)
- Fast, professional math equations typesetting
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- Platform, version independent (Unix, Windows . . .)
- Pre-set standard formats (for paper, thesis . . .)
- Fast, professional math equations typesetting
- Freely available
Basic $\LaTeX$ Work Flow I

- User Input
- TeX Compiler
- DVI Output
- Converters
- HTML
- pdf
- ps

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Introduction to $\LaTeX$
What Do You Need to Process a $\LaTeX$ Document?

- $\LaTeX$ Editor
  - Linux: Kile, Emacs
  - Windows: WinEdt, LyX
  - Mac: LyX, Emacs
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- LaTeX Compiler
  - Linux: LaTex, TexLive
  - Windows: MikTeX
  - Mac: TeXshop
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- \LaTeX\ Output Viewer
  - PDF: xpdf, Foxit \textit{(better than Acrobat!)}
  - PS: Ghostscript, GhostView
  - HTML: Web Browser
Basic \LaTeX \ Work Flow II

**User Input**
Lyx, WinEdit

**\TeX Compiler**
MikTeX, \LaTeX

**DVI Output**
Yap

**Converters**
dvi2pdf, dvi2ps

**HTML**
Browser

**TtH**

**pdfLaTeX**

**\LaTeX to PDF**
Acrobat

**\LaTeX to PostScript**
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}
Basic Formatting in \LaTeX

- **Bold Text**: \textbf{Bold Text }
- **Italic Text**: \textit{Italic Text }
- Spacing:
  - Many spaces = one space
  - Use \textbackslash\textbackslash for newline
  - Hit return \textit{twice} for a new paragraph
  - \textbackslash\texttt{newpage}
- Comments: % ... your comments here ...
- Reserved Symbols: # $ % ^ & _ \{ \} ~ \textbackslash
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}: $\frac{a}{b}$
- Radical — \sqrt{x}: $\sqrt{x}$
- Many more symbols and operators are available
Images and Figures in \LaTeX

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

Example

\begin{figure}
\includegraphics[height=50\%,width=50\%]{filename.eps}
\end{figure}
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}
@book{Come95,  
  author = "D. E. Comer",  
  title = '{Internetworking with TCP/IP: Principles, Protocols and Architecture}',  
  publisher = "Prentice-Hall",  
  year = 1995,  
  volume = 1,  
  edition = "Third" }
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.
  - Not So Short Introduction to \LaTeX
  - Simplified Introduction to \LaTeX
  - \LaTeX\ WikiBook

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- Google is your friend