INTRODUCTION TO LATEX

June 9th, 2009

Byungwon Woo

Hamze

2018

WHAT IS LATEX?

- LaTeX is pronounced “lay-tech” or “lah-tech,” not “la-teks.”
- 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?

- Designed by academics and easily accommodates academic use.
- Professionally crafted predefined layouts make a document really look as if "printed."
- Mathematical symbols and equations are easily integrated.
- Even complex structures such as footnotes, references, table of contents, and bibliographies can be generated easily.
- Forces author to focus on logical instead of aesthetic structure of a document.
- Creates more beautiful documents.
- Portable, compatible, flexible, versatile, and cheap (or free)!

LATEX FILE STRUCTURE

- Document Class

  Predefined Formats (article, report, book,..).

- Packages used

  Added Functionality (graphics, reference style,...).

- Main Body

  Text and Bibliography References.

INSTALLING LATEX

- In Windows
- MiKTeX
  - MiKTeX is a typesetting system for the Windows.
  - Download from www.miktex.org for free
  - It is generally recommended to install MiKTeX first, then WinEdt.
- TeXstudio
  - Text editor.
  - WinEdt creates the source file (.tex and others).
  - Free

INSTALLING LATEX

- Other text editors
  - There are other text editors.
  - Winshell for free (http://www.winshell.de/)
  - Scientific Workplace
    - Combination of LaTeX and Mathematics program
    - Does a good job of calculating and graphing, very user friendly, but expensive
- In Mac
- TexShop
  - Download for free http://www.uoregon.edu/~koch/texshop/
  - Includes everything!

BASIC DOCUMENT STRUCTURE

- The format of a document is pretty simple.
  - In the preamble
    - Document class
    - Packages
  - In the body
    - Contents
  - In the back matter
    - bibliography

BODY OF TEXT

- **Start with** `\begin{document}`
- **End with** `\end{document}`
- **Typesetting Text**
  - `\\` **or** `\newline` **and** `\newpage`
  - **Quotations**
  - **Bold** `\textbf{.....}` **or** `\bf`
  - **Italics** `\emph{.....}` **or** `\textit{.....}` **or \it**
  - **Underline** `\underline{.....}` **or** `\ul`

IN THE BODY

- To begin a new section
- \section{}
  - Similarly, \subsection{}, \subsubsection{}, \subsubsubsection{}
  - LaTeX does automatic numbering. If you don't like it, use section*{}
- \emph{}, \textbf{}
- \singlespacing, \doublespacing, \onehalfspacing
- \centering or \begin{centering} & \end{centering}

LISTS

- **Source**
  - `\begin{itemize}`
  - `\item Apple`
  - `\item Orange`
  - `\end{itemize}`
- **Result**
  - Apple
  - Orange

- `Enumerate` instead of `itemize` gives a numbered list

FONT SIZE

\tiny \scriptsize \footnotesize

\small \normalsize

\large \Large

\LARGE \huge

\Huge

FOOTNOTES/EQUATIONS

- \footnote{}
- Mathematical Equations
  - Math always in between $ & $
    - Alternatively, \begin{equation} & \end{equation}
  - $ 1+4=5 $
  - \frac{}{}, \sqrt{}, \sum_{k=1}^{n}
  - ^{}, _{}
  - \greek letters (e.g. \alpha or \Alpha)
  - WinEdt also provides click and type functions.

BIBLIOGRAPHY USING BIBTEX

- \cite{bibtexkey}, citeyear{bibtexkey}

- Bibliography information is stored in a *.bib file, in Bibtex format.
- Set referencing style
  - \bibliographystyle{chicago}
- Create reference section by
  - \bibliography{bibfile with no extension}

BIBLIOGRAPHY USING BIBTEX

@book{Come95,

author="D. E. Comer",

title={Internetworking with TCP/IP: Principles, Protocols and Architecture},

publisher="Prentice-Hall",

year=1995,

volume=1,

edition="Third"}

BIBLIOGRAPHY CONTD.

- Citing references in text
  - `\cite{cuc98}` = (Cuce 1998)
  - `\citeN{cru98}` = Crud (1998)
  - `\shortcite{tom98}` = (Tom, et. al. 1998)