Introducing LaTeX

FTS Peeps

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Introduction

- Markup language (not programming!)
- Uses:
  - Papers
  - Articles
  - Books
  - Scientific formulas / maths
  - Presentations
  - Posters
- Very high-level:
  - Does most things for you automatically
  - Integrates well with bibtex libraries (for citations)
  - Little work required
- Lightweight (e.g. vs. MS Word):
  - All you need is a text editor and the LaTeX library

Download and Installation

- Apple Mac OS X (MacTeX)
  - Download from http://www.tug.org/mactex
  - Follow installation instructions

- Linux (Tex Live)
  - Debian, Ubuntu, Linux Mint, etc.
    - apt-get install texlive
  - Fedora
    - yum install texlive

- MS Windows (proTeXt)
  - Download from http://www.tug.org/protext
  - Follow installation instructions

Starting Off

- All you need is a standard text-editor
  - Notepad, TextWrangler, vi(m), GEdit, etc.

- Then simply compile:
  - latex my_doc.tex or
  - pdflatex my_doc.tex

- We advise using a LaTeX Editor
  - Easy to use graphical interface
  - Quick-start wizards
  - Spell-checking, etc.

- TexMaker is our example

LaTeX Commands

- Start with backslash "\". Arguments in curly braces "{", "}"
  - \begin{itemize}
  - \section{Introduction}

- First line defines document type:
  - \documentclass[12pt,a4paper]{book}
- Import packages to use:
  - \usepackage{amsfonts}
  - \usepackage{graphicx}
- Set the document details:
  - \author{Charles Darwin}
  - \title{On the Origin of Species}
- Start the document!
  - \begin{document}

LaTeX Document General Form

```
\documentclass[12pt,a4paper]{article}

\author{FTS Team}
\date{25/01/2012}
\title{FTS: Introducing LaTeX}

\begin{document}

\maketitle

\section{Introduction}
Some text

\section{Background}
\subsection{Download}
Download from here...
\subsection{Starting Off}
Possible text editors to use are...

\end{document}
```

FTS: Introducing LaTeX

FTS Team

25/01/2012

1 Introduction

Some text

2 Background

2.1 Download

Download from here...

2.2 Starting Off

Possible text editors to use are...

Example in TexMaker

Figures and Images

- First, get the needed packages:
  - \usepackage{graphicx}
  - \usepackage{float}

- Insert image file as a figure:

```
\begin{figure}[h]
\centering
\includegraphics[scale=0.75]{image.png}
\caption{This is my image}
\end{figure}
```

Example in TexMaker

Blind Text

- Show what your formatting will look like
- Import needed packages:
  - \usepackage[english]{babel}
  - \usepackage{blindtext}
- Insert blind text where you need it:
  - \blindtext
  - \blindmathpaper

Sectioning, Lists and Styles

- Sectioning commands (depends on document class):
  - \section*{Introduction}
  - \subsubsection{Other Work}
  - \chapter{Motivation}, etc.
- Bullet lists:

\begin{itemize}
\item This is a bulleted item
\item This is another
\end{itemize}

- Enumerated lists:
  - \begin{enumerate}
- Font styles:
  - \textit{This is in italics}
  - \emph{This is emphasised (enboldened)}
  - \texttt{This is typewriter (useful for code)}
- Table of contents:
  - \tableofcontents

Example in TexMaker

Bibliography

- Works well with your existing BibTex library files (*.bib)
- Make your citation:
  - ... as discussed in \cite{allen10}.
- Ensure cite key matches a key in your library

```
@inproceedings{allen10,
  author = {Allen, S. M. and Colombo, G. and Whitaker, R. M.},
  title = {Uttering: social micro-blogging without the internet},
```

- Make your bibliography (end of document):
  - \bibliography{library}
  - \bibliographystyle{plain}

Maths Mode

- Allows the use of mathematical and scientific symbols
- Enter Maths Mode:
  - Inline: $ ... $
  - Display: \[.... \]
  - Numbered equations: \begin{equation}
- Maths symbols will not work outside of maths mode
- Examples:
  - \frac{a}{b}
  - \sqrt{a}
  - \tan{a}
- Can all easily be combined:
  - \[w = \int_1^4 \frac{\frac{a}{b+1} - z^3}{6x + \sqrt{y+z}} dx \]

Tables

- Quickly and easily insert tables:
  - \begin{tabular}
- Second argument defines the columns:
  - \begin{tabular} {| l || c | r}
- Enter data with '&' as delimiters:

```
\begin{tabular} {| l || c | r | }
    Twos & Threes & Fours \\
    2 & 3 & 4 \\
    4 & 6 & 8 \\
    6 & 9 & 12 \\
\end{tabular}
```

- Create horizontal lines as needed:
  - \hline