While you are waiting - create an account on `overleaf.com`

https://xkcd.com/2109/
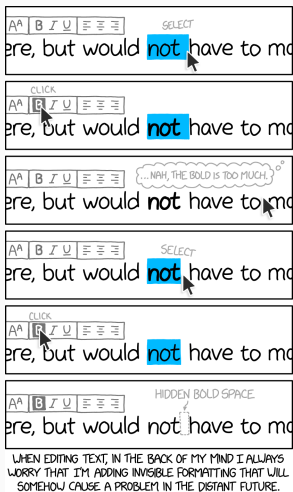
An Introduction to LaTeX

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2020-02-26

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A quick note on pronunciation…

The "TeX" in LaTeX are the capital letters tau, epsilon, and chi witch derive words like "technology" in English today. This makes the logical ways to pronounce it *lah-teck* and *lay-teck*.

What is LaTeX?

It is **not** a "what you see is what you get" editor (WYSIWYG).
LaTeXconverts plain text files (.tex) into (typically) PDFs

```
\begin{equation}
      x = \frac{ - b \pm \sqrt{b^2 - 4 a c}}{2a}
\end{equation}
```

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \tag{1}$$

```
\begin{equation}
  \int_0^a x^n dx = \frac{1}{n+1}\
  a^{n+1} \qquad n \geq 0
\end{equation}
```

$$\int_0^a x^n dx = \frac{1}{n+1} \, a^{n+1} \qquad n \geq 0 \tag{2}$$

More LaTeX

```
\begin{itemize}
  \item{Point 1}
  \item {Point 2}
\end{itemize}
```

- Point 1
- Point 2

```
\begin{enumerate}
  \item{Point 1}
  \item {Point 2}
\end{enumerate}
```

1. Point 1
2. Point 2

The Why

Widespread use in Academia

1. Almost all journals, especially in Math, CS, and Physics either prefer or mandate LaTeX as the document submission format
2. Discrete Math (CSCI 358) uses LaTeX for all of your homework
3. It can make your project / homework submissions look much more professional

Better looking equations (arguably)

- Word

$$\int_0^a x^n dx = \frac{1}{n+1} a^{n+1} \qquad n \geq 0$$

- LaTeX

$$\int_0^a x^n dx = \frac{1}{n+1} \, a^{n+1} \qquad n \geq 0 \tag{3}$$

Easy citation management!

- Packages provide all the different citation styles

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- (Dagny shows example)

Inserting code

Syntax highlighting in the code you add to your reports!

Nerd Quality of Life

- Use your favorite text editor to write those long papers

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- 1000x better citation management

Breaking up a LaTeX document

"Hello World" document

```
\documentclass{article}
\usepackage[margin=1in]{geometry}
\begin{document}

\title{Title Here}
\author{Jacob Vossen}
\maketitle
\begin{abstract}
The abstract text goes here.
\end{abstract}
\section{Introduction}
Here is the text of your introduction.
\subsection{Subsection Heading Here}
Write your subsection text here.
\section{Conclusion}
Write your conclusion here.

\end{document}
```

- This slide exists to remind Jake to show you the example Hello World document

The Header

```
\documentclass{article}
\usepackage[margin=1in]{geometry}
\begin{document}
```

- Document class - typically `article`, but you would change this if you where working on a book or thesis (or slides like these)
- Packages - easiest way to extend LaTeX to include more functionality (in this case, setting margins away from the default 2 inches)

The Title

```
\title{Title Here}
\author{Jacob Vossen}
\maketitle
```

- Title is automatically created and formatted with maketitle

The Body

```
\section{Introduction}
Here is the text of your introduction.
\subsection{Subsection Heading Here}
Write your subsection text here.
```

This is the meat of writing LaTeX documents, using section, subsection, and subsubsection etc to structure your document, adding in equations when you need them.

Examples

- If you didn't guess already, these slides are in LaTeX! You can find them at
  https://github.com/jakevossen5/acm-w-latex-talk

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- Some other examples...

How to get Started with LaTeX

In approvement order of most tech-intensive to least tech-intensive

1. Overleaf - The Google Docs equivelent of LaTeX- everything is in browser
2. ⟨Texpad, Texstudio, Texmaker⟩ are all desktop apps designed for out of the box LaTeXusage
3. Using `pdflatex` (on macOS: `brew cask install mactex`) + the text editor of your choice

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- It can be frustrating when your English homework doesn't compile

Getting Help on LaTeX

Official documentation is not great, try the following places for good documentation / tutorials

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4. Google - you are a comp sci after all

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4. Use git!

Questions?