An Introduction to LaTeX

ACM

New York University

2019

Why the f*** does this exist?

Most of us begin our word processing journey with huble intentions

Get the thing typed!

So why bother with LaTeX?

Why the f*** does this exist?

1. It's beautiful.
   - *Especially* for math.
   - Try and find a paper on Arxiv not written in LaTeX.
2. It was created by scientists, for scientists.
   - Large and active community.
   - Online support is readily found.
3. It's powerful; extremely rich package community.

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   - Journal articles and theses, with or without complex math notation.
   - The technical publishing industry.
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3. "You take care of writing, and we'll take care of presentation."

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How does this work?

1. You specify the input in a source file.
   - Vi/Vim, Emacs, Sublime, ...
   - TeXMaker, TeXStudio, ...
2. LaTeX processes the content and decides how best to typeset it.

```
I have a test \textbf {tomorrow}, but here I am \dots
```

I have a test **tomorrow**, but here I am ...

Some Examples...

```
\begin{enumerate}
\item \textit{Very} important first thing.
\item \textbf{Extremely} important second thing.
\item \underline{Ultra} important third thing.
\end{enumerate}
```

1. *Very* important first thing.
2. **Extremely** important second thing.
3. Ultra important third thing.

Some Examples. . .

```
\begin{figure}
    \centering
    \includegraphics{./cat.jpg}
\end{figure}
```

Some Examples. . .

```
$\forall \varepsilon > 0, \exists \delta > 0$ such that
if $d(x, y) < \delta \implies d(f(x), f(y)) <
\varepsilon$.
```

$$\Downarrow$$

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Shift in perspective

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1. You're right; kinda. There's a learning curve for the syntax.
2. Describe "What it is", not "How it looks".
3. Let LaTeX and it's packages do the rest.

Packages: Infinite Power

Packages are varied, powerful, and sometimes hilarious.

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1. Beamer. Slideshow documentclass, what this is written on!
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3. amsmath, amsthm, etc. Amazing extended math symbols from AMS.
4. Fun packages:
    1. Coffee Stains.
    2. avremu. Technically LaTeX is turing complete so...

Learning LaTeX

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1. Not hard, but slow. You must build your vocabulary!
2. Start LaTeX'ing!

Beginnings

```
\documentclass{article}
\begin{document}
Salve, munde! %minted coloring latex in latex
\end{document}
```

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Ok . . . , now we have code. How do we turn this into something usable?

Practical Demo: Introduction of Enviornments

1. GUI: Overleaf
2. CLI: pdflatex and pandoc+markdown.