LaTeX Tutorial

Making your math look good

CSE 390Z, Winter 2021

Overview

1. Quick Intro. slides
2. Setup + Demo
3. Group work in breakouts on “About Me” LaTeX assignment
4. Parting thoughts

LaTeX is a programming language

It enables you to create clear, organized, typeset documents!

Pros

- Don’t need to worry about design, LaTeX compiler takes of it!
- Math is displayed nicely and easy to edit!
- Nearly all CS research papers are written in LaTeX
- Required in upper division courses*

Cons

- There is a learning curve!

Okay, so what does it look like?

Input: `myFile.tex`

```
\documentclass{article}
\begin{document}
    The quadratic formula:

    $$
    x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}
    $$
\end{document}
```

Compiler does magic!

Output: `myFile.pdf`

The quadratic formula:

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

Some helpful commands from day 1!

\land makes the “logical and” symbol: $\land$

\lor makes the “logical or” symbol: $\lor$

\neg makes the “logical not” symbol: $\neg$

\rightarrow makes the “implies” symbol: $\rightarrow$

How about a truth table?

```
\begin{tabular}{|c|c|} \hline
   $p$  &  $\neg p$ \\ \hline
    T & F \\ \hline
    F & T \\ \hline
\end{tabular}
```

p	$\neg p$
T	F
F	T

Making unordered lists

```
\begin{itemize}
    \item This is item 1
    \item This is item 2
\end{itemize}
```

- This is item 1
- This is item 2

Making numbered (ordered) lists

```
\begin{enumerate}
    \item This is item 1
    \item This is item 2
\end{enumerate}
```

1. This is item 1
2. This is item 2

Inserting images*

```
\usepackage{graphicx}
\begin{document}

\[
\includegraphics[scale=0.1]{beefy_rob_photo.JPG}
\]

\end{document}
```

*This example assumes image is loaded in same working directory as .tex file

Inserting images with captions*

```
\begin{figure}
  \centering
  \includegraphics[width=0.5\textwidth]{pic.png}
  \caption{A screenshot of my home screen. Source: me}
\end{figure}
```

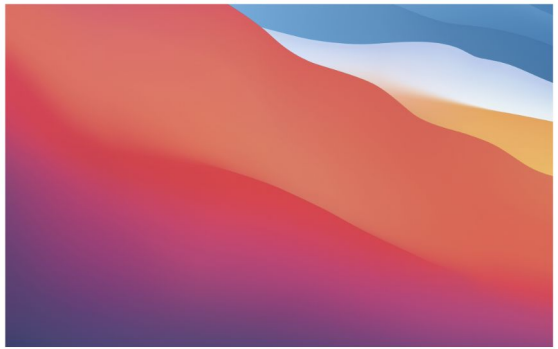

Figure 1: A screenshot of my home screen. Source: me

*This example assumes image is loaded in same working directory as .tex file

Inserting code*

```
\begin{verbatim}
    public static void main(String[] args) {
        System.out.println("Hello, World!");
    }
\end{verbatim}
```

```
public static void main(String[] args) {
    System.out.println("Hello, World!");
}
```

*Much fancier code formatting packages exist, try searching around for some!

Aligning equations

```
\usepackage{amsmath}
\begin{document}

\begin{align*}
    (x + 1)(x - 1) &= x^2 + x - x - 1 \tag{Distributive property} \\
                   &= x^2 - 1 \tag{Simplify}
\end{align*}

\end{document}
```

$$(x+1)(x-1) = x^2 + x - x - 1 \qquad \text{(Distributive property)}$$
$$= x^2 - 1 \qquad \text{(Simplify)}$$

Let’s try it out!

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