

Introduction to \LaTeX

Tejas Sanap

December 28, 2019

A few words about myself

- ▶ I mainly work in IDAM.
- ▶ I work at Wipro.
- ▶ I am an organizer at (and, member of) PLUG.
- ▶ I do a lot of open-source stuff.

Type-setting?

What is type-setting?

Type-setting?

What is type-setting?

- ▶ The process of arranging the various objects on a page.
- ▶ It is process that takes place after the manuscript has been written.

Type-setting?

What is type-setting?

- ▶ The process of arranging the various objects on a page.
- ▶ It is process that takes place after the manuscript has been written.

How do we typeset?

Type-setting?

What is type-setting?

- ▶ The process of arranging the various objects on a page.
- ▶ It is process that takes place after the manuscript has been written.

How do we typeset?

MS WORD!

Type-setting?

What is type-setting?

- ▶ The process of arranging the various objects on a page.
- ▶ It is process that takes place after the manuscript has been written.

How do we typeset?

\LaTeX!

Why do I need \LaTeX ?

To save time and efforts.

Why do I need \LaTeX ?

To save time and efforts.

- ▶ \LaTeX does all the type-setting for you.

Why do I need \LaTeX ?

To save time and efforts.

- ▶ \LaTeX does all the type-setting for you.
- ▶ It also auto-generates:
 - ▶ Table of content
 - ▶ List of figures and tables
 - ▶ Captions
 - ▶ Headers and footers
 - ▶ Page numbers (both roman and decimal)

Why do I need \LaTeX ?

To save time and efforts.

- ▶ \LaTeX does all the type-setting for you.
- ▶ It also auto-generates:
 - ▶ Table of content
 - ▶ List of figures and tables
 - ▶ Captions
 - ▶ Headers and footers
 - ▶ Page numbers (both roman and decimal)

Why do I need \LaTeX ?

To save time and efforts.

- ▶ \LaTeX does all the type-setting for you.
- ▶ It also auto-generates:
 - ▶ Table of content
 - ▶ List of figures and tables
 - ▶ Captions
 - ▶ Headers and footers
 - ▶ Page numbers (both roman and decimal)

Why do I need \LaTeX ?

To save time and efforts.

- ▶ \LaTeX does all the type-setting for you.
- ▶ It also auto-generates:
 - ▶ Table of content
 - ▶ List of figures and tables
 - ▶ Captions
 - ▶ Headers and footers
 - ▶ Page numbers (both roman and decimal)

Why do I need \LaTeX ?

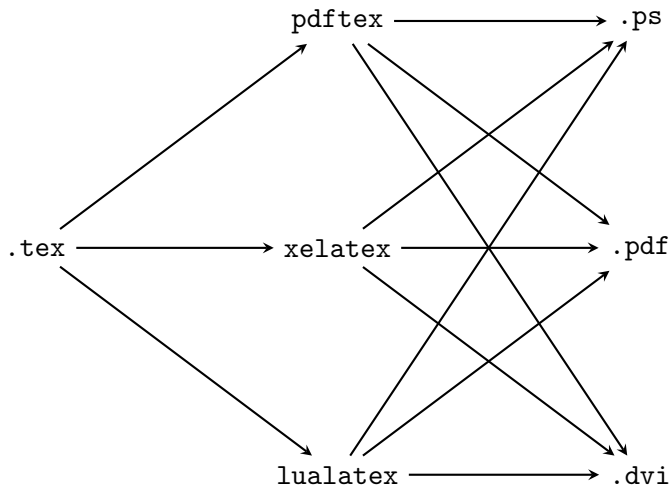
To save time and efforts.

- ▶ \LaTeX does all the type-setting for you.
- ▶ It also auto-generates:
 - ▶ Table of content
 - ▶ List of figures and tables
 - ▶ Captions
 - ▶ Headers and footers
 - ▶ Page numbers (both roman and decimal)

What is \LaTeX ?

- ▶ A type-setting system.
- ▶ An improvement over \TeX .
- ▶ Not a WYSIWYG editor.
- ▶ Uses simple plaintext.
- ▶ \LaTeX provides the user with a set of pre-defined templates.

How do I use L^AT_EX?

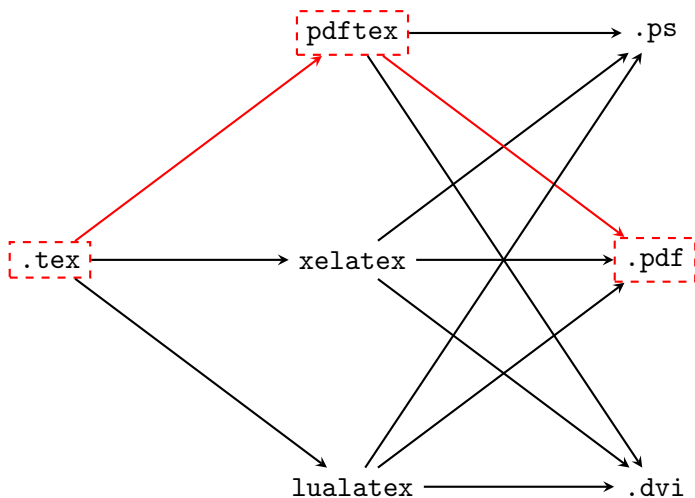


Source Code

L^AT_EX engine

Final Output

How do I use \LaTeX ?



Source Code

\LaTeX engine

Final Output

How do I use \LaTeX ?

There are multiple \TeX engines:

- ▶ **Knuth's \TeX :**

This is original \TeX engine which serves as the lowest layer of \LaTeX 's software architecture.

- ▶ **\pdfTeX :**

This engine adds a bunch of primitives related to the PDF and DVI extension.

- ▶ **\xetex :**

This engine provides better font support.

- ▶ **\luatex :**

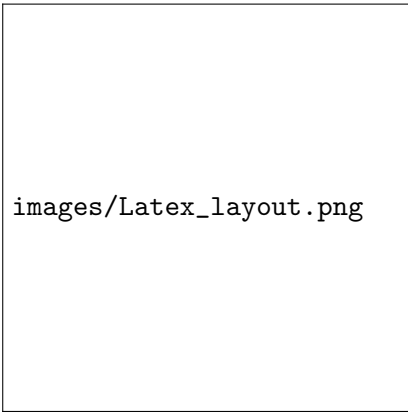
Originally, meant to replace \pdfTeX , but, now moving in a very different direction. This engine also better font support (like, \xelatex) through Lua code.

Structure of \LaTeX source file.

```
1  \documentclass{article}
2
3  \usepackage{hyperref}
4
5  \title{A critical analysis of Naruto: the Manga}
6  \author{Tejas Sanap}
7
8  \begin{document}
9      \maketitle
10
11 \end{document}
```

Page Geometry

- 4. `\topmargin`
- 7. `\textheight`
- 8. `\textwidth`
- 11. `\footskip`



images/Latex_layout.png

Environments

Environments are used to format a bunch of text in \LaTeX documents instead of doing it in only one place.

Environments

Environments are used to format a bunch of text in \LaTeX documents instead of doing it in only one place.

Example:

```
1 \begin{center}
2     The Jinchuriki.
3 \end{center}
```

Environments

Environments are used to format a bunch of text in \LaTeX documents instead of doing it in only one place.

Example:

```
1 \begin{center}
2     The Jinchuriki.
3 \end{center}
```

A few of the most common environments we see are:

- ▶ align.
- ▶ figure.
- ▶ equation.
- ▶ document.