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and make an account
...
or open your favourite \LaTeX editor

L^AT_EX

a short introduction

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2025 June 5

Overview

Introduction

How \LaTeX Works

Getting Started

Resources

Introduction

What is \LaTeX ? A typesetting program

What is L^AT_EX? A typesetting program

input: filename.tex

```

1 \documentclass{article}
2 \usepackage{amsmath}
3 \title{\LaTeX}
4 \author{Wikipedia}
5 \date{January 1, 2020}
6
7 \begin{document}
8   \maketitle
9   \LaTeX{} is a document preparation system for the \TeX{} typesetting
    program. It offers programmable desktop publishing features and
    extensive facilities for automating most aspects of typesetting and
    desktop publishing, including numbering and cross-referencing, tables
    and figures, page layout, bibliographies, and much more. \LaTeX{} was
    originally written in 1984 by Leslie Lamport and has become the
    dominant method for using \TeX; few people write in plain \TeX{}
    anymore. The current version is \LaTeXe.
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11   % This is a comment, not shown in final output.
12   % The following shows typesetting power of LaTeX:
13   \begin{align}
14     E_0 &= mc^2 \\
15     E &= \frac{mc^2}{\sqrt{1-\frac{v^2}{c^2}}}
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output: filename.pdf

L^AT_EX

Wikipedia

January 1, 2020

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$$E_0 = mc^2 \quad (1)$$

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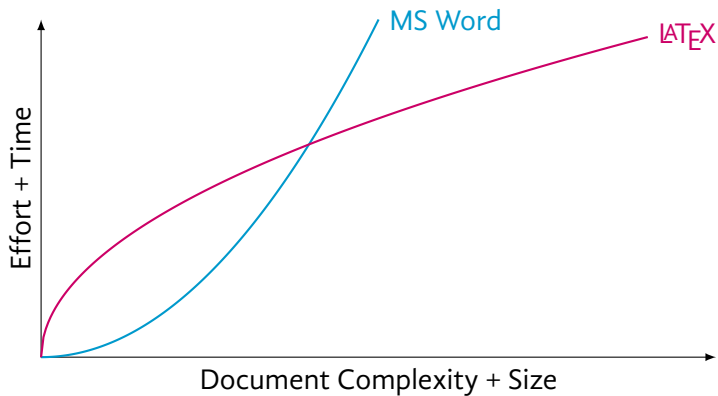
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- tables = pain

\LaTeX vs MS Word



How \LaTeX Works

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3. **“document”** this specific document, e.g. your thesis

Kernel: Putting Stuff on a Page

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Boxes:

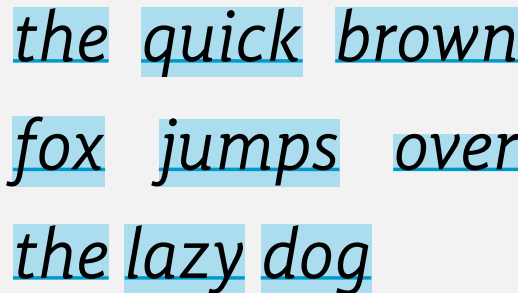
letters \rightarrow words \rightarrow lines
 \rightarrow paragraphs \rightarrow pages

Kernel: Putting Stuff on a Page

Boxes:

letters → words → lines
→ paragraphs → pages

Combining Boxes:



The diagram illustrates how text is broken down into boxes for typesetting. It shows the sentence "the quick brown fox jumps over the lazy dog" in a cursive font. Each word is enclosed in a light blue rectangular box. The boxes are arranged in three rows: the first row contains "the", "quick", and "brown"; the second row contains "fox", "jumps", and "over"; and the third row contains "the", "lazy", and "dog". This visualizes the process of combining individual word boxes into lines and paragraphs.

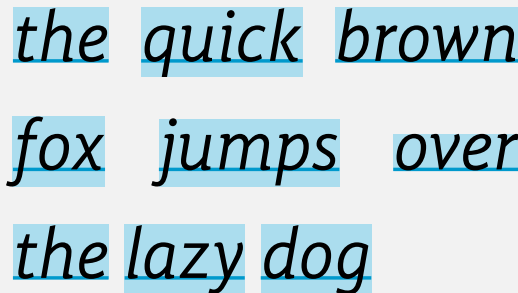
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Boxes:

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Combining Boxes:

- **modes:** horizontal, vertical, math



*the quick brown
fox jumps over
the lazy dog*

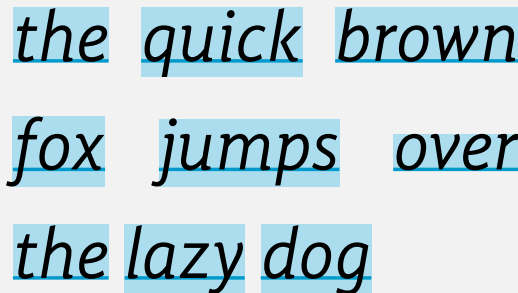
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Boxes:

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Combining Boxes:

- **modes:** horizontal, vertical, math
- **glue:** stretchy space



The diagram illustrates the concept of boxes and glue in L^AT_EX. It shows three lines of text in a serif font, where each word is enclosed in a light blue rectangular box. The first line contains 'the', 'quick', and 'brown'. The second line contains 'fox', 'jumps', and 'over'. The third line contains 'the', 'lazy', and 'dog'. The spaces between the boxes represent 'glue', which is the stretchy space used to adjust the spacing between words and lines.

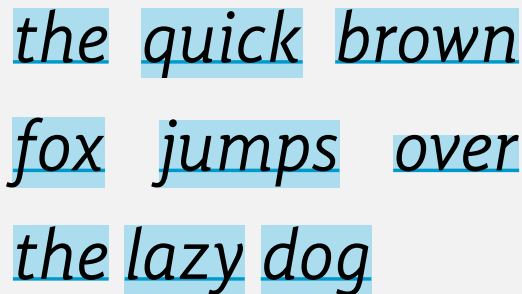
Kernel: Putting Stuff on a Page

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Combining Boxes:

- **modes:** horizontal, vertical, math
- **glue:** stretchy space
- **floats:** “float” around (figures/tables)



The diagram illustrates how text is organized into boxes. It shows the sentence "the quick brown fox jumps over the lazy dog" arranged in three rows. Each word is enclosed in a light blue rectangular box. The boxes are connected by horizontal lines, representing the flow of text from left to right and top to bottom. The first row contains "the", "quick", and "brown". The second row contains "fox", "jumps", and "over". The third row contains "the", "lazy", and "dog".

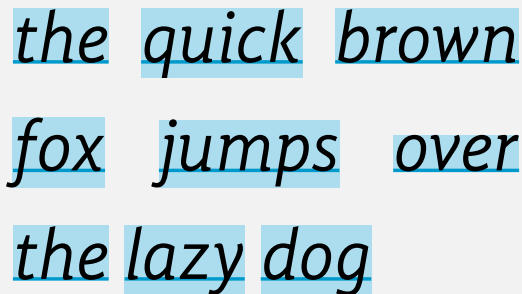
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Combining Boxes:

- **modes:** horizontal, vertical, math
- **glue:** stretchy space
- **floats:** “float” around (figures/tables)
- **penalties:** avoid “bad” layouts



The diagram illustrates how text is composed of boxes in LaTeX. It shows three lines of text: "the quick brown", "fox jumps over", and "the lazy dog". Each word is enclosed in a light blue rectangular box, and each box has a thin blue horizontal line underneath it. The boxes are arranged to show how they fit together to form lines of text, with spaces between them.

Getting Started

Editors

Editors



Editors



- no install + package management

Editors



- no install + package management
- must have internet connection

Editors



- no install + package management
- must have internet connection
- pay to integrate reference database

Editors



- no install + package management
- must have internet connection
- pay to integrate reference database
- some collaborate features

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- DIY collaborate
- custom hotkeys

Your First Document

```
\documentclass{article}  
% document header  
\begin{document}  
  % document body  
  Hello World  
\end{document}
```

Document Elements

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- title, author, date

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- title, author, date
- sections, subsections, etc.

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- [Github Repository](#) example documents & “cheat sheets”

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