

What is LaTeX? Why Should You Use It?

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What is LaTeX

- A document preparation system
- A markup language
- A typesetting language

Note that it is pronounced Lah-tek or Lay-tek

What is LaTeX

- LaTeX is essentially a set of macros (automation scripts) written in the TeX typesetting language. It was developed by Leslie Lamport and released in 1985.
- TeX was developed by Donald Knuth and was released in 1978. It is very powerful, yet difficult to use.
- But writing in LaTeX is much easier and it'll deal with TeX for us.

Word Processors and Markup Languages

- Word processors follow the WYSIWYG (What You See Is What You Get) system. But markup languages require you to code the formatting you want.

Word Processors and Markup Languages

For example, in a word processor, you select some text and press the Bold button to make it bold. The text instantly becomes bold.

Make me bold → Click B button → **Make me bold**

Word Processors and Markup Languages

But while using HTML, you write **Make me bold** in a text editor, and it is rendered **Make me bold** only when you preview the page in a web browser.

Code Editor

Make me bold

Web Browser

Make me bold

Why LaTeX?

- **Semantic** - Separates presentation from content
- **Automation** - for tasks including page numbering, chapter display, table of contents and index creation
- **Control** - Despite having automation, it still lets you control each and every bit of the document

Why LaTeX?

- LaTeX is the most suitable system to prepare documents with mathematical and scientific notations
- A word processor may look handy while preparing a letter or a notice, but when it comes to complicated works, LaTeX will be the one that is handy.

Examples

$$\frac{1}{2}$$

`\frac{1}{2}`

$$\sqrt{x}$$

`\sqrt{x}`

Examples

$$E_0 = mc^2 \quad E_0 = \text{mc}^2$$

$$E = \frac{mc^2}{\sqrt{1 - \frac{v^2}{c^2}}} \quad E = \frac{\text{mc}^2}{\sqrt{1 - \frac{\text{v}^2}{\text{c}^2}}}$$

Examples

```
doc.tex x
\documentclass[12pt]{article}
\usepackage{lipsum}
\title{My Article}
\author{My Name}

\begin{document}
\maketitle
\section{First Section}
    This is the first paragraph. This is the first
paragraph. This is the first paragraph. This is the
first paragraph.

    This is the second paragraph. This is the
second paragraph. This is the second paragraph. This is
the second paragraph.

\section{Second Section}
    This is the first paragraph. This is the first
paragraph.
    \subsection{Subsection Inside the Second
Section}
        This is the first paragraph. This is the
first paragraph. This is the first paragraph. This is
the first paragraph.

\end{document}
```

My Article

My Name

June 15, 2017

1 First Section

This is the first paragraph. This is the first paragraph. This is the first paragraph. This is the first paragraph.

This is the second paragraph. This is the second paragraph. This is the second paragraph. This is the second paragraph.

2 Second Section

This is the first paragraph. This is the first paragraph.

2.1 Subsection Inside the Second Section

This is the first paragraph. This is the first paragraph. This is the first paragraph. This is the first paragraph.

Examples

doc.tex x

```
\documentclass[12pt]{article}
\usepackage{lipsum}
\title{My Article}
\author{My Name}

\begin{document}
\maketitle
```

```
    \section{First Section}
        This is the first paragraph. This is the first
        paragraph. This is the first paragraph. This is the
        first paragraph.
```

```
    This is the second paragraph. This is the
    second paragraph. This is the second paragraph. This
    is the second paragraph.
```

```
    \section{Newly Added Section}
        This is the first paragraph. This is the first
        paragraph. This is the first paragraph. This is the
        first paragraph.
```

```
    \section{Second Section}
        This is the first paragraph. This is the first
        paragraph.
        \subsection{Subsection Inside the Second
```

My Article

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1 First Section

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