

Introduction to \LaTeX for Researchers

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What is \LaTeX ?

- Document preparation system
- \LaTeX was written by **Leslie Lamport**
- Free software
- License: LaTeX Project Public License
- Website: <https://www.latex-project.org/>

What's Different?

- It is not WYSIWYG.
- Concentrate on content writing and not formatting.
- Write simple commands for formatting.
- Write content and complex mathematical formulae with ease.

What can be done?

- Write articles, books, scientific journals and papers.
- Design posters, banners, presentation, resume etc.
- Mostly used by writers and engineers.

Why \LaTeX ?

- Quality and Aesthetics.
- Price
- Editing, Versioning and Outputs
- Focus on Content
- Time Investment
- Longevity

Process of Writing

- Write content using any text editor.
 - notepad
 - gedit
 - \LaTeX IDEs(TexStudio, Texmaker)
- Save it as .tex file
- Output: .tex File(Input) \longrightarrow pdflatex .tex(Build) \longrightarrow .pdf File(Output)

Some Sample \LaTeX Documents

- Show some sample \LaTeX documents
- Comparison with other word processor(Microsoft Word, Google Doc etc.)

Install \LaTeX

- Windows

<https://miktex.org/>

- Linux(Ubuntu)

```
sudo apt install texlive-latex-extra
```


- TexStudio
<https://www.texstudio.org/>
- Texmaker
<https://www.xmlmath.net/texmaker/>
- Kile
<https://kile.sourceforge.io/>
- TeXworks
<http://www.tug.org/texworks/>

- Sharelatex/Overleaf
<https://www.overleaf.com/>
- Latexbae
<https://latexbase.com/d/1648f17f-f52f-4653-8bca-7c9066c9a8de>
- CoCalc
<https://cocalc.com/doc/latex-editor.html>

How to choose \LaTeX IDEs/Editors

- Auto complete of \LaTeX commands.
- Parenthesis matching.
- Collapsible sections
- Inverse search
- Collaboration
- Public project
- Private project
- Track changes
- History
- Comments

See More: https://en.wikipedia.org/wiki/Comparison_of_TeX_editors

Resources

- <https://www.latex-project.org/help/documentation/>
- <https://www.overleaf.com/learn>
- <https://www.latex-tutorial.com/>
- <https://www.latextemplates.com/>
- <https://en.wikibooks.org/wiki/LaTeX/Mathematics>

You'll Learn ...

- Introduction
- Sections and Levels
- Content Formatting
- Ordered and Unordered List
- Nested List
- Inserting Images
- Inserting Tables
- Page Styles
- Reference Management using BibTeX and Mendeley
- Presentation using Beamer

Projects

- ➊ Report / Assignment Writing
- ➋ Thesis Writing
- ➌ Research Paper Writing
- ➍ Conference Poster Design

Let's Start Coding ...!