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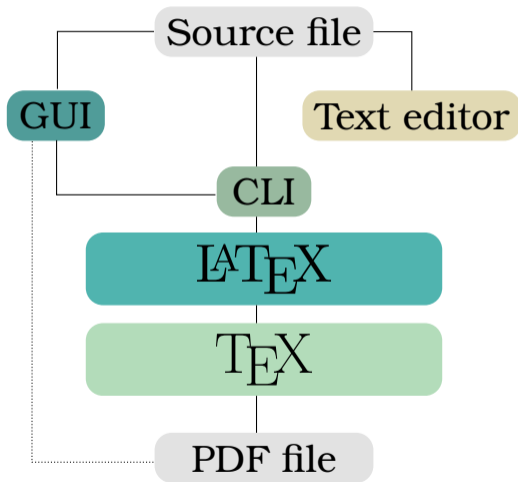
Getting started with \LaTeX

The basics



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- `latex` The original compiler. It generates a PostScript file.
- `pdflatex` Generates a PDF file.
- `lualatex` Includes Lua scripting capabilities
- `xelatex` Supports Unicode and additional fonts technologies such as OpenType, Graphite and Apple Advanced Typography (AAT).

- Preamble: add commands to influence the style of the whole document, or load packages that add new features to the L^AT_EX system
 - Document Class: general structure of the document.
 - Package: additional code to extend core L^AT_EX functionalities.
- Body: enter the text mixed with some instructions to the L^AT_EX compiler
 - Command: an instruction used for producing something new or to change the form of an existing item, e.g., producing the symbol α or printing italic as *italic*.
 - Environment: a logical structure established by a pair of commands `\begin{...}\end{...}` to perform a particular task or render the output in a particular way.

```
\command[options]{argument}
```

`\documentclass command``\documentclass [options] {argument}`

Argument		Options	
book	Default is two-sided.	10pt/11pt/12pt	Font size.
report	No <code>\part</code> divisions.	letterpaper/a4paper	Paper size.
article	No <code>\part</code> or <code>\chapter</code> divisions.	twocolumn	Use two columns.
letter	Letter.	twoside	Set margins for two-sided.
slides	Large sans-serif font.	landscape	Landscape orientation.
beamer	Presentations.	draft	Figures not loaded.

```
\usepackage[options]{package_name}
```

Package	Use	Options
babel	Internationalization	english, german
amsmath	Math writing	sumlimits, nosumlimits, leqno, reqno
hyperref	Hypertext links	draft, final, debug
graphicx	Graphics inclusion	draft, final, hiderotate

<https://www.ctan.org>

Syntax

Sectioning

```
\begin{document}
  \title{Title}
  \author{Author's name}
  \maketitle      %this is the command to actually draw the title

  \begin{abstract}
    Your abstract goes here...
    ...
  \end{abstract}

  \part{title}
  \chapter{title}
  \section{title}
  \subsection{title}
  \subsubsection{title}
  \paragraph{title}
  \subparagraph{title}

  \bibliographystyle{style}
  \bibliography{source}
\tableofcontents
\end{document}
```

<code>\begin{enumerate}</code>	Numbered list.
<code>\begin{itemize}</code>	Bulleted list.
<code>\begin{description}</code>	Description list.
<code>\item text</code>	Add an item.
<code>\item[x] text</code>	Use x instead of normal bullet or number. Required for descriptions.

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

Reserved and special characters

<code>&</code>	<code>\&</code>		<code>_</code>	<code>_</code>		<code>...</code>	<code>\ldots</code>		<code>▪</code>	<code>\textbullet</code>
<code>\$</code>	<code>\\$</code>		<code>^</code>	<code>\^{}</code>		<code> </code>	<code>\textbar</code>		<code>\</code>	<code>\textbackslash</code>
<code>%</code>	<code>\%</code>		<code>~</code>	<code>\~{}</code>		<code>#</code>	<code>\#</code>		<code>§</code>	<code>\S</code>

<code>ò</code>	<code>\`o</code>		<code>ó</code>	<code>\'o</code>		<code>ô</code>	<code>\^o</code>		<code>õ</code>	<code>\~o</code>		<code>ō</code>	<code>\=o</code>
<code>ó</code>	<code>\.o</code>		<code>ö</code>	<code>\"o</code>		<code>o</code>	<code>\c o</code>		<code>ö</code>	<code>\v o</code>		<code>ő</code>	<code>\H o</code>
<code>ç</code>	<code>\c c</code>		<code>ø</code>	<code>\d o</code>		<code>o</code>	<code>\b o</code>		<code>ô</code>	<code>\t oo</code>		<code>œ</code>	<code>\oe</code>
<code>Œ</code>	<code>\OE</code>		<code>æ</code>	<code>\ae</code>		<code>Æ</code>	<code>\AE</code>		<code>å</code>	<code>\aa</code>		<code>Å</code>	<code>\AA</code>
<code>ø</code>	<code>\o</code>		<code>Ø</code>	<code>\O</code>		<code>ł</code>	<code>\l</code>		<code>Ł</code>	<code>\L</code>		<code>ı</code>	<code>\i</code>
<code>J</code>	<code>\j</code>		<code>i</code>	<code>\i</code>		<code>ı</code>	<code>\i</code>						

<code>ˆ</code>	<code>\hat</code>		<code>{</code>	<code>\{</code>		<code>[</code>	<code>\[</code>		<code>(</code>	<code>\(</code>		<code><</code>	<code>\textless</code>
<code>˘</code>	<code>\grave</code>		<code>}</code>	<code>\}</code>		<code>]</code>	<code>\]</code>		<code>)</code>	<code>\)</code>		<code>></code>	<code>\textgreater</code>

hyphen		-		X-ray
en-dash		--		1–5
em-dash		---		Yes—or no?

\\		Begin new line without new paragraph.
\pagebreak		Start new page.

\today | 18th April 2024.

Syntax

Font size

<code>\tiny</code>	tiny	<code>\scriptsize</code>	scriptsize
<code>\footnotesize</code>	footnotesize	<code>\small</code>	small
<code>\normalsize</code>	normalsize	<code>\large</code>	large
<code>\Large</code>	large	<code>\LARGE</code>	large
<code>\huge</code>	huge	<code>\Huge</code>	huge

Paragraph alignment

Alignment	Environment	Switch
Left justified	<code>flushleft</code>	<code>\raggedright</code>
Right justified	<code>flushright</code>	<code>\raggedleft</code>
Center	<code>center</code>	<code>\centering</code>

Syntax

Font face

<i>Command</i>	<i>Switch</i>	<i>Effect</i>
<code>\textrm{text}</code>	<code>{\rmfamily text}</code>	Roman family
<code>\textsf{text}</code>	<code>{\sffamily text}</code>	Sans serif family
<code>\texttt{text}</code>	<code>{\ttfamily text}</code>	Typewriter family
<code>\textmd{text}</code>	<code>{\mdseries text}</code>	Medium series
<code>\textbf{text}</code>	<code>{\bfseries text}</code>	Bold series
<code>\textup{text}</code>	<code>{\upshape text}</code>	Upright shape
<code>\textit{text}</code>	<code>{\itshape text}</code>	<i>Italic shape</i>
<code>\textsl{text}</code>	<code>{\slshape text}</code>	<i>Slanted shape</i>
<code>\textsc{text}</code>	<code>{\scshape text}</code>	SMALL CAPS SHAPE
<code>\emph{text}</code>	<code>{\em text}</code>	<i>Emphasized</i>
<code>\textnormal{text}</code>	<code>{\normalfont text}</code>	Document font
<code>\underline{text}</code>		<u>Underline</u>

```
\usepackage[language1, language2]{babel}
```

Place it soon after `\documentclass`

```
\selectlanguage{language1}
```

```
\foreignlanguage{language1}{Text in another language.}
```

No spell checking!


```
\usepackage[utf8]{inputenc}
```

Footnotes

```
\footnote{text}
```

```
Creating a footnote is easy.\footnote{An example footnote.}
```

```
Creating a footnote is easy.1
```

¹An example footnote.

Author's affiliation

```
\usepackage[options]{authblk}
```

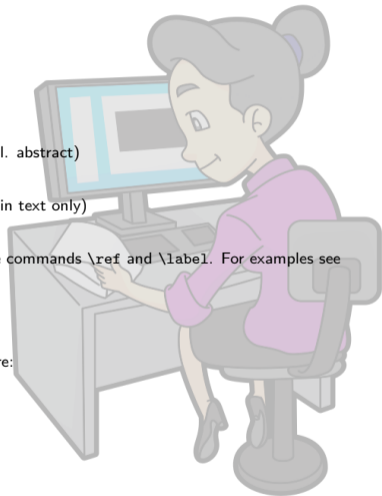
```
\documentclass{article}  
\usepackage{authblk}  
  
\title{Multiple Affiliation for Multiple Author}  
\date{\today}  
  
\author[1, 2]{Author1}  
\author[3, 5]{Author2}  
\author[1, 2, 4]{Author3}  
\author[1, 2, 4]{Author4}  
  
\affil[1]{Affiliation1}  
\affil[2]{Affiliation2}  
\affil[3]{Affiliation3}  
\affil[4]{Affiliation4}  
\affil[5]{Affiliation5}  
  
  
\begin{document}  
\maketitle  
\end{document}
```

Common file extensions

- .tex** L^AT_EX or T_EX input file
- .aux** Transport info from one compilation run to another (cross-references)
- .log** Compilation run log
- .toc** Stores section headers. Used to generate the table of contents
- .lof** As .toc for the list of figures
- .lot** As .toc for the list of tables
- .bib** **Bibliography database file**
- .bbi** Generated by BibT_EX/BibL^AT_EX to be used by L^AT_EX
- .blg** BibT_EX/BibL^AT_EX log file
- .cls** Document class definition
- .sty** Macro package
- .pdf** **The output document**

Exercise

- Open $\text{T}_{\text{E}}\text{X}$ studio and create a document with document class type "article"
- Create a title page (e.g., title, authors, date)
- Create the sections and subsections of one of your papers or your next planned paper (incl. abstract)
- Create a table of contents (use the command `\tableofcontents`)
- Add some text in one or more sections (copy paste from a ready document you have - plain text only)
- Include a subscript in your text (e.g., CO_2)
- In one of your paragraphs refer to the first section (load the package *hyperref* and use the commands `\ref` and `\label`. For examples see here: https://en.wikibooks.org/wiki/LaTeX/Labels_and_Cross-referencing)
- Adjust the position of your text to center alignment
- Use the babel language package to set you own mother language (or others)
- Try different options and classes for the command `\documentclass` (For examples see here: https://en.wikibooks.org/wiki/LaTeX/Document_Structure)



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