KU LEUVEN

Introduction to LaTeX

text layout

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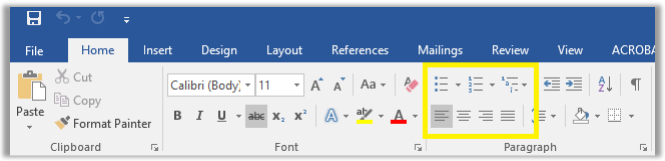

Text alignment

- Default: LaTeX justifies text.
- Encapsulate the text to align in an environment
  - left (`flushleft`): left align
  - center (`center`): center
  - right (`flushright`): right align
  - Create an additional spacing between the paragraphs
- *File: demo_justif_1.tex*

Text alignment

- Use switch commands `raggedright, raggedleft, centering`
- `\raggedright` will produce left-aligned text, but the behaviour is different; in this case the text will be left-aligned from the point where the command is declared till another switch command is used. This is more suitable to align long blocks of text or the whole document.
- *File: demo_justif_2.tex*
- LaTeX default text alignment is fully-justified, but often left-justified text may be a more suitable format. This left-alignment can be easily accomplished by importing the ragged2e package
- *File: demo_ragged2e.tex*

Hands-on

- Use *handson_justif.tex*
- Play around with the justification options and check the result.

Lists

- Different possiblities to make a list in LaTeX:
  - unnumbered list.
  - numbered items.
  - A list with labeled items.
- The corresponding environments are:
  - `itemize`
  - `enumerate`
  - `description`
- Lists can be nested (up to 4 levels)

itemize

- ```
  \begin{itemize}
  \item …
  \end{itemize}
  ```
- Each entry must be preceded by the control sequence `\item`.
- Can be nested (4 levels)
- Bullets can be changed for each level using the following command:
- ```
  \renewcommand{\labelitemi}{$\bullet$}
  \renewcommand{\labelitemii}{$\cdot$}
  \renewcommand{\labelitemiii}{$\diamond$}
  \renewcommand{\labelitemiv}{$\ast$}
  ```
- *File: demo_itemize.tex*

enumerate

- ```
  \begin{enumerate}
  \item …
  \end{enumerate}
  ```
- *File: demo_enumerate.tex*
- Changing the format of the numbering can be done with the the enumerate package or enumitem
- ```
  \usepackage{enumerate}
  …
  \begin{enumerate}[I]%for capital roman numbers.
  \item
  \end{enumerate}
  \begin{enumerate}[(a)]%for small alpha-characters within brackets.
  \item
  \end{enumerate}
  ```
- *File: demo_enumerate_2.tex*

enumerate

Level	Numbering
1	1. 2. 3. etc.
2	(a) (b) (c) etc.
3	i. ii. iii. etc.
4	A. B. C. etc.

description

- `\begin{description}`
  `\item[] …`
  `\end{description}`
- Very handy when explaining notations or terms.
- `\begin{description}`
  `\item[Cost] Freeware.`
  `\item[Implementation] Easy: download the executable and click on it.`
  `\item[Maintenance] None.`
  `\end{description}`
- *File: demo_description.tex*

enumitem

- Package `enumitem`
- Provides user control over the layout of the three basic list environments: enumerate, itemize and description
- Aim for uniformity

Hands-on

- Generate some text, and use the different list commands:
  - itemize
  - enumerate
  - description
- Try to build a nested list
- *File: handson_lists.tex*

Horizontal fills and spaces

- *you should never use spacing commands because you should use only logical markup of the document.*
- `\hfill`: Inserts a blank space that will stretch accordingly to fill the space available.
- `\hspace{width}`: Insert a horizontal space *width*; has no effect at the end of the line
- `\hspace*{width}`: Insert a horizontal white space *width*; even at the end of the line
- `\enspace, \quad, \qquad`: Insert a horizontal space of 1/2em, 1em, or 2em. The em is a length defined by a font designer, often thought of as being the width of a capital M.
- `\hrulefill` and `\dotfill` do the same as `\hfill` but instead of blank spaces they insert a horizontal ruler and a string of dots, respectively.
- *File: demo_horizontal_space.tex*

Vertical fills and spaces

- `\vspace{height}`: Creates a vertical white space with the chosen height; has no effect at the beginning and at the end of a page
- `\vspace*{height}`: Creates a vertical white space with the chosen height; even at the beginning and at the end of a page
- `\vfill`: Inserts a blank space that will stretch accordingly to fill the vertical space available.
- Other commands to insert vertical blank spaces
  - `\smallskip`
  - `\medskip`
  - `\bigskip`
- *File: demo_space_2.tex*

Keeping words together

- The command `\mbox{`*`text`*`}` causes its argument to be kept together: an invisible box is drawn a just wide enough to hold the text created by its argument.
- The command `\fbox` is similar to `\mbox`, but in addition there will be a visible box drawn around the content.
- `\makebox, \framebox` are extensions of these commands

```
\makebox[width][pos]{text}
```

- *File: demo_mbox.tex*

Non-breaking space

- To generate a space where you do **not** want to allow a new line break, use **~**
  - `Table~2`
  - `Fig.~3`
  - `P.~Harwin.`

Spacing rules

1. All consecutive spaces and TAB characters are treated as if they were a single space during typesetting.
2. All consecutive newlines (linebreaks) are treated as if they were just two newlines (a paragraph break).
3. Any white-space after a command ending in a letter is discarded when there is no argument present.

- *File: demo_space_1.tex*

White space

- Space after a period
  - a period ends a sentence unless it follows an uppercase letter
  - Extra space is put after a period
  - Not necessary for etc.
- LaTeX ignores whitespace after commands. If you want to get a space after a command, you have to put {}. The {} stops LaTeX from eating up all the space after the command name.
- \ (backslash + space): the backslash-space command creates a fixed amount of horizontal space.
- *File: demo_space_1.tex*

Text in columns

- use `twocolumn` option to your document class, which splits everything in two
- Package multicol: flexible tool to handle multicolumn documents
- Environment: enclosed inside the tags `\begin{multicols}` and `\end{multicols}`
- Parameters:
  - Number of columns
  - Header text, in between []. This is optional and will be displayed on top of the multicolumn text.
- *File:column_layout.tex*
- See also: https://www.overleaf.com/learn/latex/Multiple_columns