Writing a thesis with LaTeX

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Summary

Section 1

A little more about LaTeX

Font size

\tiny{sucre}	sucre
\scriptsize{sucre}	sucre
\footnotesize{sucre}	sucre
\normalsize{sucre}	sucre
\large{sucre}	sucre
\Large{sucre}	sucre
\LARGE{sucre}	sucre
\huge{sucre}	sucre
\Huge{sucre}	sucre

A little more about LaTeX: Font family and style

family	sherif	\rmfamily	\textrm{text}	roman
famille	sans sherif	\sffamily	\textsf{text}	sans serif
	type writer	\ttfamily	\texttt{text}	teletype
shape	normal	\upshape	\textup{text}	abcdef
forme	italic	\itshape	\textit{text}	
	slant	\slshape	\textsl{text}	
	small capital	\scshape	\textup{text}	
series	normal	\mdseries	\textmd{text}	
graisse	bold	\bfseries	\textbf{text}	

\textrm{text}	text	\textit{text}	*text*
\textsf{text}	text	\textbf{text}	**text**
\texttt{text}	text	\textsc{text}	TEXT

Changing the Font

\usepackage{kmath} in the preambule for example

or \fontfamily{qcr}\selectfont in the text

font name	some text	math mode
lmdh	Some text	$math\, x_\alpha = ar$
cmss	Some text	$math\, x_\alpha = ar$
lmtt	Some text	$math\, x_\alpha = ar$
put	Some text	$math\, x_\alpha = ar$
phv	Some text	$math\, x_\alpha = ar$

⚠ The mathematical mode is not adressed for these last ones

A little more about LaTeX: Center

\begin{center}
There is no space after an (opening parenthesis nor before a closing parenthesis).
\end{center}

  There is no space after an (opening parenthesis nor before a closing parenthesis).

{\centering some text\\}

  some text

Spaces/Espaces

command	space	sorting	
\quad	cadratin	aaa	aaa
\;	large	aaa	aaa
\:	moyen	aaa	aaa
\,	fine	aaa	aaa
~	non-breaking space	Fig. 1.	

fixing horizontal or vertical space	some lengths
\hspace{lenght}	1.2cm .7mm
\hspace*{lenght}	.2in
\vspace{lenght}	1em 1ex
\vspace*{lenght}	\textwidth

aaaa\hspace{1cm}aaaa ⟶ aaaa aaaa

Springs/Ressorts

a\hfill b   a   b

a\dotfill b   a . . . . b

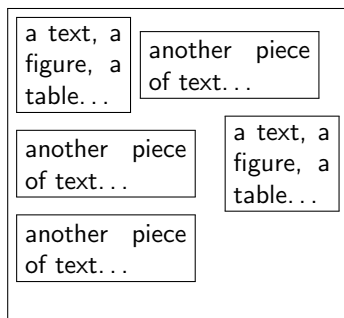a\hrulefill b   a———————————b

\vfill

Footnote

\footnote{texte}

ex. blablabla\footnote{This footnote will be written at the bottom of this page.}blablabla

☞ blablabla[1]blablabla

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[1]This footnote will be written at the bottom of this page.

Minipage

a text, a figure, a table...	another piece of text...
another piece of text...	a text, a figure, a table...
another piece of text...	

\hfill
\begin{minipage}{.3\textwidth}
a text, a figure, a table...
\end{minipage}
\hfill
\begin{minipage}{.5\textwidth}
another piece of text...
\end{minipage}
\hfill\null

Minipage and Figures

Figure 1: A rasperry pie.

Figure 2: A pink VW1200.

\begin{figure}
\begin{minipage}{.5\textwidth}
\includegraphics{width=\textwidth}{fig1.pdf}
\caption{A rasperry pie.}
\label{label-fig-1}
\end{minipage}
\hfill
\begin{minipage}{.5\textwidth}
\includegraphics{width=\textwidth}{fig2.pdf}
\caption{A pink VW1200.}
\label{label-fig-2}
\end{minipage}
\end{figure}

Figure with the subfig package

In the preamble : \usepackage{subfig}

\begin{figure}
  \subfloat[\label{subfig1}Lion]
                  {\includegraphics[width=.4\textwidth]{fig/latex_logo.png}}\quad
  \subfloat[Penguin]{\includegraphics[width=.4\textwidth]{fig/pingouin.png}}
  \caption{Several figures}\label{fig}
\end{figure}

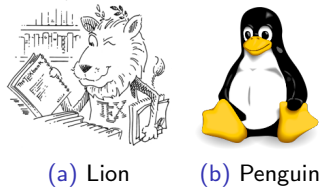Figure \ref{subfig1} represents a lion and figures \ref{fig} a lion and a penguin.

(a) Lion   (b) Penguin

Figure 3: Several figures

Figure 3a represents a lion and figures 3 a lion and a penguin.

Include pdf files

\usepackage{pdfpages}

\includepdf[pages=1,scale=.9]{file.pdf}

Possible options :

- pages=2-5
- scale=.9
- width=.5\textwidth
- pagecommand=\subsection{a subsection name}

Verbatim

- \begin{verbatim}
  Embedded into Verbatim environment commands or characters are not interpreted
  \end{verbatim}

ex. \begin{verbatim}
  reserved characters:
  ! @ # $ % { } [ ] > < " ' ~
  \end{verbatim}

☞ r e s e r v e d   c h a r a c t e r s:
  ! @ # $ % { } [ ] > < " ' ~

- \verb+these characters are not interpreted+

ex. \verb+! @ # $ % { } [ ] > < " ' ~+

☞ ! @ # $ % { } [ ] > < " ' ~

Section 2

Writting my Thesis with LaTeX

Template

A template for front and back pages is provided by the BU:
site UO/Bibliothèques/Services& Infos
Pratiques/Services/Déposer votre thèse/Modèles au format
LaTeX

https://scd.univ-orleans.fr/depot-theses-electroniques

contains:

- ✔ `OrleansLatex.tex` — *main file*
- ✔ `orlecouv.tex` — *cover page*
- ✔ `orlecouv_cotutelle.tex` — *cover page*
- ✔ `these.tex` — *structuration example*
- ✔ `orledos.tex` — *back page*
- ✔ `uarial.sty` — *font package*
- ✔ `biblio.bib` — *bibliography file example*

Thesis Structure

\include{orlecouv-utf8}

\frontmatter

\include{remerciements/acknowledgments}

\tableofcontents

\listoffigures

\listoftables

\mainmatter

\include{corps-du-texte/text body}

\appendix

\include{appendices/appendix}

\bibliographystyle{plain}

\bibliography{biblio}

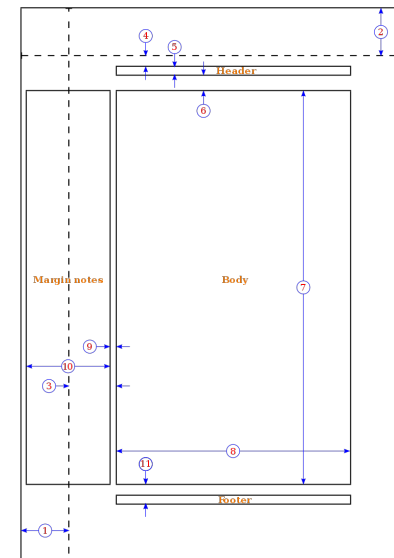\printindex

\include{orledos-utf8}

Split Your Document

\newpage — *starts a new page, or new column*

\clearpage — *starts a new page and flush floating objects*

\input{fichier.tex}

\include{fichier.tex} ≡ \clearpage\input{fichier.tex}\clearpage
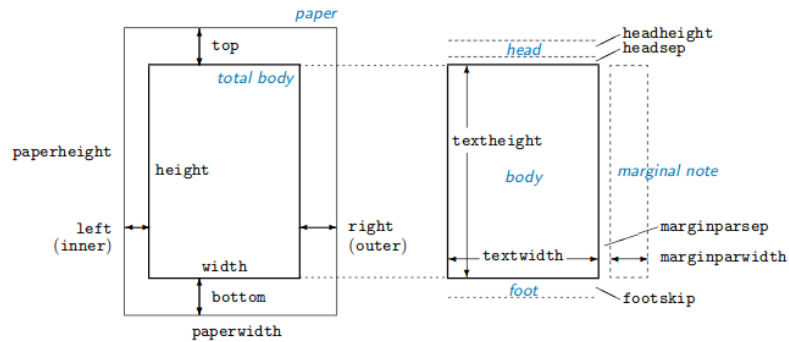
Page Dimensions

- some variables:
  1. one inch + \hoffset
  2. one inch + \voffset
  3. \oddsidemargin
  4. \topmargin
  5. \headheight
  6. \headsep
  7. \textheight
  8. \textwidth
  9. \marginparsep
  10. \marginparwidth
  11. \footskip
  12. \hoffset
  13. \voffset
  14. \paperwidth
  15. \paperheight

\setlength{\textwidth}{12cm}

⚠ You have to compute all dimensions

Geometry

\usepackage[inner=2cm,outer=4cm,top=2cm,bottom=2cm]{geometry}

\geometry{a4paper}

Customazing the Document: Top and Bottom

\pagestyle{StyleType}

- plain — *Top: empty, Bottom: page number, article and report defaults*
- headings — *Top: page number, Bottom: empty, book defaults*
- empty — *Top and Bottom: empty, no page number written although computed*
- myheadings — *same as headings, informations are provided by \markboth and \markright*

\markboth{text for even pages}{text for odd pages}
\markright{text for odd pages}

\leftmark — *contain the first argument of \markboth*
\rightmark — *contain the second argument of \markboth*

Customazing the Document: Top and Bottom
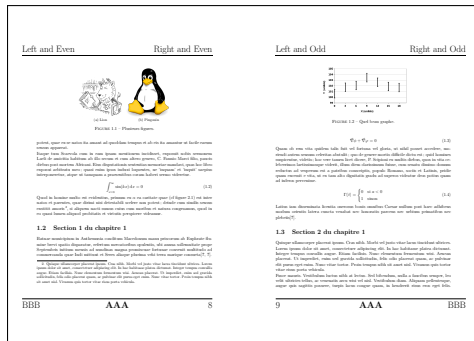
\usepackage{fancyhdr}
\pagestyle{fancy}
\fancyhf{}
\fancyhead[LE]{Left and Even}
\fancyhead[RO]{Right and Odd}
\fancyhead[RE]{Right and Even}
\fancyhead[LO]{Left and Odd}
\fancyfoot[CE,CO]{\bfseries{AAA}}
\fancyfoot[LE,RO]{BBB}
\fancyfoot[RE,LO]{\thepage}

\begin{document}

- How page numbers are written ?
- How to have more interesting informations ?
- ☞ Wait and see. . .

Writting Your Own Commands

\newcommand{\MyCommand}{instructions}

ex. \newcommand{\MyCommand}{\textbf{AAA}}

☞ aaaaa\MyCommand aaaa   aaaaa**AAA**aaaa

☞ aaaaa\MyCommand{ }aaaa   aaaaa**AAA** aaaa

\newcommand{\dd}{\text{d}}

☞ $\frac{\dd x}{\dd t}$ $\dfrac{\mathrm{d}x}{\mathrm{d}t}$

\newcommand{\commande}[n]{instructions#1. . . #**n**}

ex. \newcommand{\rouge}[1]{\textcolor{red}{#1}}

☞ aaaaa\rouge{bbbb}aaaa   aaaaabbbbaaaa

- if \MyCommand already exists, use \renewcommand{}{}

Counters

- Create your own counter

  \newcounter{CPT}   *in preamble, create the counter CPT (=0)*
  \newcounter{CPT}[counter]   *counter CPT depends on counter*
  \the**CPT**   *gives CPT value*
  \stepcounter{CPT}   *add 1 to CPT*
  \addtocounter{CPT}{12}   *add 12 to CPT*

- Already defined counters
  - equation   *\theequation gives equation value*
  - section   *\thesection gives section value*
  - figure   *\thefigure gives figure value*
  - . . .

- Customazing counters
  - \arabic{CPT}   *1, 2, 3, 4. . .*
  - \roman{chapter}   *i, ii, iii, iv. . .*
  - \Roman{table}   *I, II, III, IV. . .*
  - \alph{enumi}   *a, b, c, d. . .*
  - \Alph{footnote}   *A, B, C, D. . .*

Counters: example

counter CPT = 0

counter CPT = 1

counter CPT = 3

counter CPT = C

counter section = 2

Chapter: 2-**CPT**

Figure: 2-**CPT**

2–Section:::: 2-**CPT**

counter CPT = \theCPT

\stepcounter{CPT}

\addtocounter{CPT}{2}

\renewcommand{\theCPT}{\Alph{CPT}}

counter section = \thesection

\renewcommand{\theCPT}
  {**chaptername**:\ \thesection-\textbf{CPT}}

\renewcommand{\theCPT}
    {**figurename**:\ \thesection-\textbf{CPT}}

☞ But what are \chaptername and \figurename?

More about variables

Commande	defaults	with {french}{babel}
\abstractname	Abstract	Résumé
\alsoname	see also	voir aussi
\appendixname	Appendix	Annexe
\bibname	Bibliography	Bibliographie
\ccname	cc	Copie à
\chaptername	Chapter	Chapitre
\contentsname	Contents	Table des matières
\enclname	encl	P.J.
\figurename	Figure	Figure
\glossaryname	Glossary	Glossaire
\indexname	Index	Index
\listfigurename	List of Figures	Table des figures
\listtablename	List of Tables	Liste des tableaux
\pagename	Page	page
\partname	Part	partie
\prefacename	Preface	Préface
\proofname	Proof	Démonstration
\refname	References	Références
\seename	see	voir
\tablename	Table	Table

From Bertrand Masson, "les fiches à Bébert"

Section 3

Write it in French

Writing in French/francisation

\usepackage[french]{babel}

\addto\captionsfrench{\renewcommand{\contentsname}Sommaire}

\addto\captionsfrench{
            \renewcommand{\listfigurename}Liste des figures}

Bibliothèque "french" de babel

Dans l'entête
\usepackage[french]{babel}

\og babel\fg	"babel"	\no+	n^{o}
\primo	1°	\No+	N^{o}
\secundo	2°	30\,\degres C	30 °C
\tertio	3°	45\degre	45 ˚
\quarto	4°	\textsc{SNCF}	SCNF
\FrenchEnumerate{8}	8°	\textsc{U}nesco	Unesco
1\ier, 1\iers	1er, 1ers	\textsc{cf.}	cf.
1\iere, 1\ieres	1re, 1res	M\up{me}	Mme
2\ieme, 2\iemes	2e, 2es	M.	M.
2\ieme, 2\iemes	2e, 2es	30\,kg	30 kg
		128\,Go	128 Go

Some Typographical Rules/Quelques règles typographiques

ponctuation	français	anglais	
point	a.␣a	a.␣a	
virgule	a,␣a	a,␣a	
…	a…␣a	a…␣a	
2 points	a␣:␣a	a:␣a	
point-virgule	a␣;␣a	a;␣a	␣: espace
!	a␣!␣a	a!␣a	
?	a␣?␣a	a?␣a	
guillemet	a␣"aaa"␣a	a␣"aaa"␣a	
parenthèse	a␣(aaa)␣a	a␣(aaa)␣a	
crochet	a␣(aaa)␣a	a␣(aaa)␣a	

Some Typographical Rules/Quelques règles typographiques

	français	anglais
abréviations		
Monsieur, Madame	M. Mme	Mr Mrs Mr. Mrs. (U.S.)
Docteur, Professeur	Dr, Pr	Dr, Dr. (U.S.), Prof.
chiffre		
millier	10 000	10,000
décimale	0,01	0.01
numération		
	1er, 2e, 3e…	1st 2sd, 3rd, 4th, 5th …

Index

Le latex \index{latex} est un matériau élastique élaboré par transformation d'un suc végétal (également appelé latex produit par l'hévéa \index{hevea@arbre!hévéa}. Il peut aussi être synthétisé par polymérisation à partir de dérivés pétroliers.

Index
arbre, hévéa, 21
latex, 21

Dans le préambule

\usepackage{makeidx}

\makeindex

Dans le texte

\index{entry}

\index{entry!sub-entry}   up to 3 levels

\index{entry position@text of entry}

\printindex

compilation
PDFLaTex+Makeindex+PDFLaTex

And more

- customazing lists: \usepackage{enumitem}
- color with LaTeX
  - text color
  - table color
- changing font
- reading csv to built tables automatically

On-line help/aides en lignes

- The Comprehensive TeX Archive Network https://www.ctan.org/
- Overleaf site
  https://fr.overleaf.com/learn/latex/Learn_LaTeX_in_30_minutes
- Site de science de Thierry Masson
  http://science.thilucmic.fr/index.php
  le créateur des fiches à Bébert, hélas plus maintenu !
- Groupe des enseignants chercheurs de l'Université de Lille 3
  membres du CRIStAL
  http://www.grappa.univ-lille3.fr/FAQ-LaTeX/
- Site des tuteurs informatique de l'ENS
  http://www.tuteurs.ens.fr/logiciels/latex/
- OpenClassrooms - ex-Site du Zéro