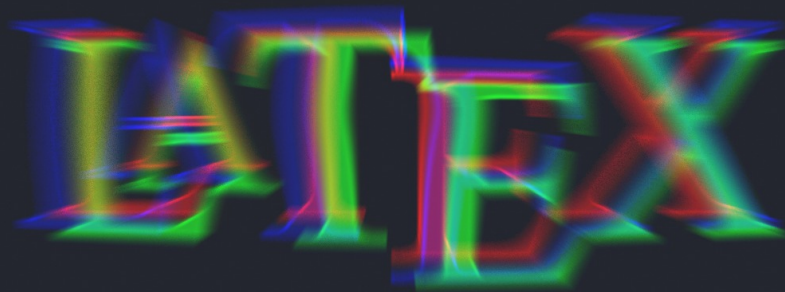


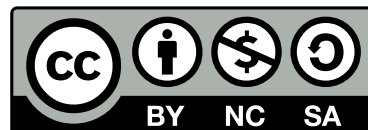
Latex in Examples



Thanks to me

Examples in this book is updated
every week.

This work is licensed under a [Creative Commons “Attribution-NonCommercial-ShareAlike 3.0 Unported”](#) license.



Contents

1	Math Tips	6
1.1	Auto-resizing equation	6
1.2	Form for simplest calculation	6
1.3	Equation in the form of steps	7
1.4	One number for multiline equation	7
1.5	Matrix in standalone documentclass	7
1.6	Multiple lines, one centered label	8
1.7	Array as a fraction	8
1.8	Aligning equations inbetween text	8
2	Text, Symbols	9
2.1	New section symbol	9
2.2	Wireframe rendering	9
2.3	Justified text	9
2.4	Text under an underline	10
2.5	Bullets Style	10
3	Code, listings, minted . . .	12
3.1	Code listing using <code>minted</code> in <code>beamer</code>	12
3.2	"Zebra" style listing	13
3.3	Listing with russian language	13
3.4	Listing with <code>minted</code>	14
4	Tables, boxes and so on	15
4.1	Nice tcolorbox	15
4.2	Color box with yellow border	15
4.3	A drop capital in a tcolorbox	16
4.4	<i>Table with the desired length.</i>	16
4.5	bclogo – Creating colourful boxes with logos	17
4.6	Warning banner	18
4.7	Photo positioning	18
4.8	Absolutely centered cells (vertically and horisontally)	19
4.9	Martix made of table	19

4.10	Centering cells with <code>NiceTabular</code>	20
4.11	Centered cells in <code>longtable</code>	20
4.12	If table is not wide enough	21
4.13	Text next to a table	21
4.14	Text next to a table	22
4.15	Hand Drawn <code>tcolorbox</code>	23
4.16	<code>Halfframed</code> boxes	25
5	Figures	26
5.1	Comment to figure	26
5.2	Positioning 1 2	26
5.3	Placing image <code>anywhere</code> You want	27
5.4	Italic sabfigure references	27
5.5	<code>Wrapfigure</code>	27
5.6	Figures in landscape mode	27
6	Numbering, enumeration, itemizing	29
6.1	Numbering in few columns	29
6.2	Enumeration environment with position number in the format (i, j)	29
6.3	Colored enumeration	30
6.4	Leveled arabic enumeration	30
6.5	Change footnote symbol	31
6.6	Bullets Style	31
7	Plots, tikz, pie charts ...	33
7.1	Simple pie chart	33
7.2	Circled arrows with text	33
7.3	Diamond with text	34
7.4	Levels of skills	34
7.5	Round levels of skills	35
8	Highlighting	36
8.1	Words highlighting <code>1</code>	36
8.2	Unusual words highlighting	36
8.3	Colored circles	37
8.4	Whole line colored	37
9	For Fun	38
9.1	LaTeX Coffee Stains	38
9.2	Sticky notes	38
9.3		39
9.4	Single Watermark	40

9.5 Full page of Watermarks 40

9.6 Generating QR code 41

9.7 Gradient QR code 42

<pre> \begin{equation*}\label{eq1} \resizebox{.4\textwidth}{!}{ \$\dot{\rho}=\dfrac{x^3}{45a ,\rightarrow^9-23b}\\$} \end{equation*} </pre>	<pre> \begin{equation*}\label{eq1} \resizebox{.4\textwidth}{!}{ \$\dot{\rho}=\dfrac{x^3}{45a ,\rightarrow^9-23b}\\$} \end{equation*} </pre>	<pre> \begin{equation*}\label{eq1} \resizebox{.4\textwidth}{!}{ \$\dot{\rho}=\dfrac{x^3}{45a ^9-23b}\\$} \end{equation*} </pre>
---------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------

how

CORRECT paste code from examples

Chapter 1

Math Tips

1.1 Auto-resizing equation

$$\dot{\rho} = \frac{x^3}{45a^9 - 23b}$$

```
\begin{equation*}\label{eq1}  
\resizebox{.4\textwidth}{!}{ % change .4 to 0.5...  
$\dot{\rho}=\dfrac{x^3}{45a^9-23b}$}  
\end{equation*}
```

1.2 Form for simplest calculation

Fill with number
if it doesn't work try another PDF viewer

a:

b:

c:

$\Sigma =$

```
\documentclass{article}  
\usepackage{hyperref}  
\begin{document}  
\newcommand{\sss}[1]{this.getField("#1").value}  
\begin{Form}  
\noindent%  
Fill with number\\  
  
\TextField[name=a]{a:} \\  
  
\TextField[name=b]{b:} \\  
  
\TextField[name=c]{c:} \\  
\noindent%  
$\sum = $ \TextField[name=AvgStat, calculate={  
event.value = (  
  \sss{a} +  
  \sss{b} +  
  \sss{c}) ;  
}, readonly, value=0]{}  
\end{Form}  
\end{document}
```

1.3 Equation in the form of steps

$$\frac{n_0}{n_1} = q_1 + \frac{1}{q_2 + \frac{1}{q_3 + \frac{1}{q_4 + \dots + \frac{1}{q_{k-1} + \frac{1}{q_k}}}}}$$

```

\documentclass{article}
\usepackage{amsmath}
\def\mywd{35pt}
\begin{document}
\[
\frac{n_0}{n_1} = q_1 + \dfrac{\makebox[\mywd][l]{
\hspace{1pt}
}}{
\makebox[\mywd][l]{q_2 + \dfrac{\makebox[\mywd][l]{
\hspace{1pt}
}}{
\makebox[\mywd][l]{q_3 + \dfrac{\makebox[\mywd][l]{
\hspace{1pt}
}}{
\makebox[\mywd][l]{q_4 +
\raisebox{-6pt}{\hspace{\ddots}}
\raisebox{-12pt}{\hspace{+\dfrac{\makebox[\mywd][l]{\hspace{1pt}}{
\hspace{30pt}}
}}{
q_{k-1} + \dfrac{1}{
q_k
}}
}}
}}
}}
\]
\end{document}

```

1.4 One number for multiline equation

$$\begin{aligned} x_{ij} &= d_{ijk} E_k, \\ x_{ij} &= \varsigma_{ijk} H_k, \\ x_{ij} &= s_{ijkl} X_{kl}, \\ x_{ij} &= \xi_{ij} \delta p, \\ x_{ij} &= \alpha_{ij} \delta T \end{aligned} \quad (1.1)$$

```
\documentclass{article}
\usepackage{amsmath}
\begin{document}
\begin{equation}
\begin{aligned}
x_{ij} &= d_{ijk}E_k, \\
x_{ij} &= \text{varsigma}_{ijk}H_k, \\
x_{ij} &= s_{ijkl}X_{kl}, \\
x_{ij} &= \text{xi}_{ij}\delta p, \\
x_{ij} &= \alpha_{ij}\delta T
\end{aligned}
\end{equation}
\end{document}
```

1.5 Matrix in standalone documentclass

$$\begin{matrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{matrix}$$

```
\documentclass[preview,border={-5cm 0cm -5cm -0.1cm}]{
  ↪ standalone}
\usepackage{amsmath}
\begin{document}
\begin{equation*}
\begin{matrix}
a_{11} & a_{12} & a_{13} \\
a_{21} & a_{22} & a_{23} \\
a_{31} & a_{32} & a_{33}
\end{matrix}
\end{matrix}
\end{equation*}
\end{document}
```


1.6 Multiple lines, one centered label

$$A = \frac{\pi r^2}{2} = \frac{1}{2} \pi r^2 \quad (1.2)$$

```
\begin{equation} \label{eq1}
\begin{split}
A &= \frac{\pi r^2}{2} \\
&= \frac{1}{2} \pi r^2
\end{split}
\end{equation}
```

1.7 Array as a fraction

$$I - IV - V^{\frac{6-4}{4-3}} - I - cadence$$

$$I - IV - V^{\frac{6-4}{4-3}} - I - cadence$$

$$I - IV - V^{\frac{6-4}{4-3}} - I - cadence$$

```
\documentclass{article}
\usepackage{amsmath}

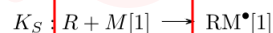
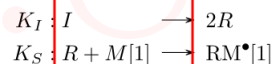
\begin{document}
$I-IV-V^{\substack{6-4\\4-3}}-I-cadence$ \\
$I-IV-V^{\genfrac{}{}{0pt}{}{6-4}{4-3}}-I-cadence$ \\
$I-IV-V^{\begin{array}{c}6-4\\4-3\end{array}}-I-\\
\rightarrow cadence$
\end{document}
```

1.8 Aligning equations inbetween text

Photochemical:



Catalyzed:



```
\documentclass{article}
\usepackage{amsmath}

\begin{document}
\begin{alignat*}{2}
\intertext{Photochemical:}
K_{UV} & \&: M[1] \& \& \ch{->} M^{*}[1] \\
\intertext{Catalyzed:}
K_I & \&: I \& \& \ch{->} 2R \\
K_S & \&: R + M [1] \& \& \ch{->} RM^{*}[1]
\end{alignat*}
\end{document}
```

Chapter 2

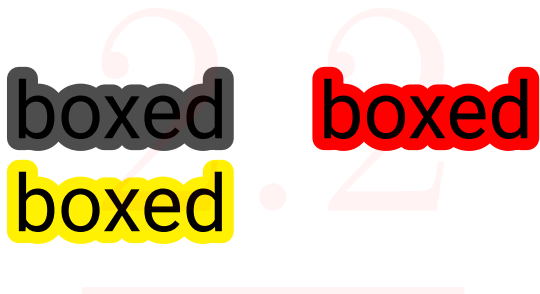
Text, Symbols

2.1 New section symbol



```
\usepackage[object=vectorian]{pgfornament}  
\usepackage{lipsum,tikz}  
\newcommand{\sectionlinetwo}[2]{%  
  \nointerlineskip \vspace{.5\baselineskip} \hspace{\fill}  
  {\color{#1}\resizebox{0.5\linewidth}{2ex}  
  {{{\begin{tikzpicture}  
    \node (C) at (0,0) {}; \node (D) at (9,0) {};  
    \path (C) to [ornament=#2] (D);  
    \end{tikzpicture}}}}}%  
  \hspace{\fill} \par \nointerlineskip  
  \vspace{.5\baselineskip}  
  %usage---> \sectionlinetwo{orange}{88}
```

2.2 Wireframe rendering



```
\documentclass{article}  
\usepackage{xcolor}  
\usepackage{roboto}  
\usepackage[outline]{contour}  
\begin{document}  
\roboto\huge\contourlength{.15em}  
\contour{gray}{boxed}  
\end{document}
```

2.3 Justified text

1. First item in a list
2. Second item in a list
3. Third item in a list
4. Fourth item in a list
5. Fifth item in a list
6. Sixth item in a list
7. Seventh item in a list
8. Eighth item in a list
9. Ninth item in a list
10. Tenth item in a list

```
\documentclass{article}
\usepackage{blindtext}
\newcommand*\justify{%
  \fontdimen2\font=0.4em% interword space
  \fontdimen3\font=0.2em% interword stretch
  \fontdimen4\font=0.1em% interword shrink
  \fontdimen7\font=0.1em% extra space
  \hyphenchar\font='- % allowing hyphenation
}

\begin{document}
\texttt{\justify\blindnumerate[10]}
\end{document}
```

2.4 Text under an underline

This is short text

 (some text)

```
\documentclass[12pt]{article}
\usepackage{amsmath,soul}
\usepackage{soulpos}
\ulposdef{\ulnumaux}{%
  $\underset{\saveulnum}{\rule[-.7ex]{\ulwidth}{.4pt}}$}
\newcommand{\ulnum}[2]{%
  \def\saveulnum{#1}%
  \ulnumaux{#2}}

\begin{document}
\ulnum{\text{(some text)}}{This is short text}
\end{document}
```

2.5 Bullets Style

32		33	↗	34	↖	35	↘	36	↙	37	⌘	38	⌚	39	⌛
40	➔	41	↻	42	⬛	43	⬜	44	⌘	45	⌚	46	⌛	47	⬛
48	⌘	49	↻	50	⬛	51	✓	52	✓	53	✕	54	✕	55	✕
56	✕	57	✕	58	✕	59	✕	60	✕	61	✕	62	✕	63	✕
64	✕	65	✕	66	✕	67	✕	68	✕	69	✕	70	✕	71	✕
72	★	73	☆	74	⊙	75	★	76	★	77	★	78	★	79	★
80	☆	81	★	82	★	83	★	84	★	85	★	86	★	87	★
88	★	89	★	90	★	91	★	92	★	93	★	94	★	95	★
96	★	97	★	98	★	99	★	100	★	101	★	102	★	103	★
104	★	105	★	106	★	107	★	108	★	109	★	110	★	111	★
112	□	113	□	114	□	115	▲	116	▼	117	◆	118	◆	119	◆
120	┆	121	┆	122	┆	123	┆	124	┆	125	┆	126	┆	127	┆
		161	⬛	162	⬛	163	⬛	164	⬛	165	⬛	166	⬛	167	⬛
168	▲	169	▲	170	▲	171	▲	172	▲	173	▲	174	▲	175	▲
176	⊙	177	⊙	178	⊙	179	⊙	180	⊙	181	⊙	182	⊙	183	⊙
184	⊙	185	⊙	186	⊙	187	⊙	188	⊙	189	⊙	190	⊙	191	⊙
192	⊙	193	⊙	194	⊙	195	⊙	196	⊙	197	⊙	198	⊙	199	⊙
200	⊙	201	⊙	202	⊙	203	⊙	204	⊙	205	⊙	206	⊙	207	⊙
208	⊙	209	⊙	210	⊙	211	⊙	212	→	213	→	214	→	215	→
216	↖	217	↗	218	↘	219	↙	220	→	221	→	222	→	223	→
224	→	225	→	226	→	227	→	228	→	229	→	230	→	231	→
232	→	233	→	234	→	235	→	236	→	237	→	238	→	239	→
		241	→	242	→	243	→	244	→	245	→	246	→	247	→
248	→	249	→	250	→	251	→	252	→	253	→	254	→		

```

\documentclass{article}
\usepackage{pifont}

\begin{document}
\begin{itemize}
  \item[\ding{51}] Code 51
  \item[\ding{56}] Code 56
  \item[\ding{43}] Code 43
  \item[\ding{118}] Code 118
  \item[\ding{170}] Code 170
\end{itemize}
\ding{46} \ding{70} \ding{57} \ding{98} \ding{96}
\end{document}

```

Chapter 3

Code, listings, minted ...

3.1 Code listing using *`minted`* in `beamer`

```
Python Code Example
1 import glob
2
```

```
\documentclass{beamer}
\usepackage{tcolorbox}
\tcbuselibrary{minted,skins,breakable}
\newtcblisting{pythoncode}[2][]{
  listing engine=minted, breakable, colback=bg,
  colframe=black!70, listing only,
  minted style=colorful, minted language=python,
  minted options={numbersep=3mm,texcl=true,#1},
  left=5mm,enhanced,
  overlay={\begin{tcbclipinterior}\fill[black!25] (frame.south west)
rectangle ([xshift=5mm]frame.north west);\end{tcbclipinterior}}},
#2,}
\begin{document}
\begin{frame}[fragile]
\frametitle{Premature Optimization}
\begin{pythoncode}[linenos=true,]{title=Python Code
  ↪ Example}
import glob
\end{pythoncode}
\end{frame}
\end{document}
```

3.2 "Zebra" style listing

```
/**
 * Prints Hello World.
 **/
#include <stdio.h>

int main(void) {
    printf("Hello World!");
    return 0;
}
```

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{beramono}
\usepackage{listings}
\usepackage{xcolor}
\newcommand\realnumberstyle[1]{%
\makeatletter
\newcommand{\zebra}[3]{%
  {\realnumberstyle{#3}}%
  \begin{group}
  \lst@basicstyle
  \ifodd\value{lstnumber}%
    \color{#1}%
  \else
    \color{#2}%
  \fi
  \rlap{\hspace*{\lst@numbersep}%
    \color@block{\linewidth}{\ht\strutbox}{\dp\strutbox}%
  }%
  \end{group}
\makeatother
\begin{document}
\begin{lstlisting}[language=C, basicstyle=\ttfamily,
numberstyle=\zebra{green!35}{yellow!35}, numbers=left]
/**
 * Prints Hello World.
 **/
#include <stdio.h>
int main(void) {
    printf("Hello World!");
    return 0;
}
\end{lstlisting}
\end{document}
```

3.3 Listing with russian language

```
print("English comment"); // English comment
print("Russian comment"); // Русский комментарий
```

```
\documentclass{article}
\usepackage[T2A]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage[russian]{babel}
\usepackage{listings}
\usepackage{xcolor}

\begin{document}
\lstset{ keepspaces=true,
backgroundcolor=\color{blue},
showstringspaces=false,
language=C,
extendedchars=true,
framexrightmargin=0pt,
framexleftmargin=0pt,
framextopmargin=15pt,
framebottommargin=15pt,
frame=tb, framerule=0pt,
basicstyle=\color{yellow}\ttfamily\small}

\begin{lstlisting}% <<<<<<<<< add "/"
print("English comment"); // English comment
print("Russian comment"); // %here can be russian words
\end{lstlisting}% <<<<<<<<< add "/"
\end{document}
```

3.4 Listing with `minted`

```
1 int main(int ac, char *av[])
2 {
3     printf("Hello, World");
4     return 0;
5 }
```

```
\documentclass{article}
\usepackage[many]{tcolorbox}
\tcbuselibrary{minted}
\newtcblisting{mylisting}{
  colframe=cyan,
  colback=cyan!10,
  listing only,
  listing engine=minted,
  minted language=cpp,
  minted options={fontsize=\small,linenos,numbersep=3mm},
}

\begin{document}
\begin{mylisting}
some code
\end{mylisting}
\end{document}
```

Chapter 4

Tables, boxes and so on

4.1 Nice tcolorbox

1	22
333	
Source	

```
\PassOptionsToPackage{svgnames}{xcolor}
\documentclass[twocolumn,a4paper]{article}
\usepackage{tcolorbox}
\tcbuselibrary{skins,breakable}
\usetikzlibrary{shadings,shadows}%preamble
\begin{tcolorbox}[colback=white!100,colframe=red!75!black,width=7cm,
  ↳ righttitle=0.5cm, subtitle style={boxrule=0.4pt,colback=yellow!50!red
  ↳ !25!white},title= \bf{1}\hfill \bf{22}]
  \begin{center}\bf{333}\end{center}
  \tcblower
  \href{https://tools.ietf.org/doc/texlive-doc/latex/tcolorbox/tcolorbox.
    ↳ pdf}{URL}
\end{tcolorbox}
```

4.2 Color box with yellow border

Remarque
Some text inside

```
\documentclass[border=2mm]{standalone}
\usepackage[most]{tcolorbox}
\usepackage{lipsum}

\newtcolorbox{mycolorbox}[1]{
  enhanced, breakable,
  title=#1, colback=white,
  colbacktitle=green!20!white,
  coltitle=black,
  fonttitle=\bfseries,
  boxrule=.5pt, arc=0pt,
  outer arc=0pt,
  colframe=yellow!80!orange,
  borderline west={2pt}{0pt}{red} }

\begin{document}
\begin{mycolorbox}{Remarque}
\lipsum[1]
\end{mycolorbox}
\end{document}
```


4.3 A drop capital in a tcolorbox

SOME text. Lorem ipsum
dolor sit amet, consec-
tetuer adipiscing elit.

```
\documentclass{article}
\usepackage{lettrine}
\usepackage{tcolorbox}
\usepackage{lipsum}

\begin{document}
\begin{tcolorbox}
\lettrine{S}{ome} text. \lipsum[1]
\end{tcolorbox}
\end{document}
```

4.4 Table with the desired length.

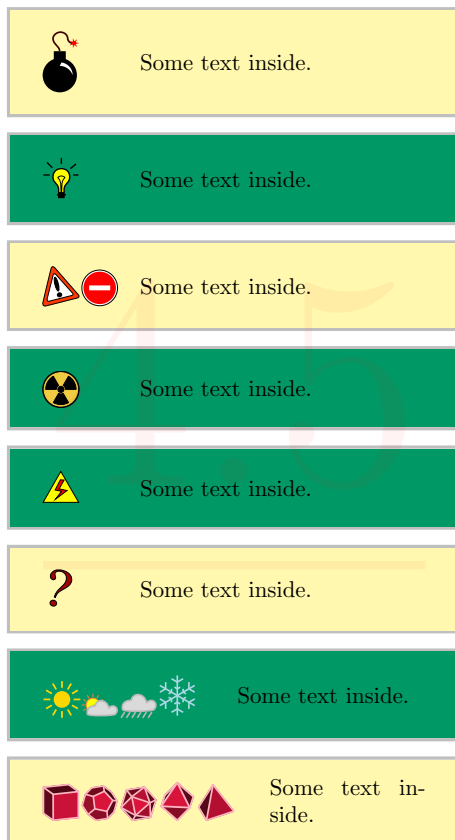
Table 1: Caption

Variant	res	Veriaty of waters f_0 , res	C, res	L, res
5	1	2	1.26	5

*a command was also created to
make a new cell view in the table*

```
\usepackage{graphicx}
\usepackage{tabularx}
\newcolumntype{Y}{>{\centering\arraybackslash}X}
\begin{document}
\begin{table}[h!]
\begin{center}
\caption{\textbf{Caption}}
\begin{tabularx}{14cm}{|Y|Y|c|Y|Y|}
\hline
Variant & res & Veriaty of waters  $f_0$ , res & C, res & L, res \\
\hline
5 & 1 & 2 & 1.26 & 5 \\
\hline
\end{tabularx}
\end{center}
\end{table}
```

4.5 bclogo – Creating colourful boxes with logos



```
\documentclass{article}
\usepackage{geometry}
\geometry{
paperwidth=8cm,
paperheight=14cm,
margin=0.5cm
}
\usepackage{xcolor}
\usepackage[most]{tcolorbox}
\usepackage{tikz}{bclogo}

\newtcolorbox{framedd}[1][{}{
colframe=lightgray,
colback=yellow!40!white,
enhanced jigsaw,
sharp corners,
lower separated=false,
lefthand width=1cm,
sidebyside gap=0.5cm,
sidebyside,#1}

\begin{document}
\begin{framedd}
\bcbombe \tcblower Some text inside.
\end{framedd}

\begin{framedd}[colback=blue!40!green]
\bcclampe \tcblower Some text inside.
\end{framedd}

\begin{framedd}
\bcattention \bcinterdit \tcblower
Some text inside.
\end{framedd}

\begin{framedd}[colback=blue!40!green]
\bcnucleaire \tcblower
Some text inside.
\end{framedd}

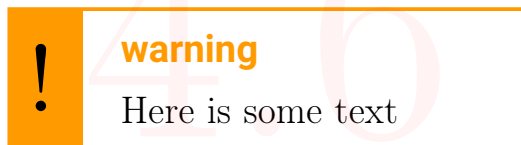
\begin{framedd}[colback=blue!40!green]
\bcdanger \tcblower
Some text inside.
\end{framedd}

\begin{framedd}
\bcquestion \tcblower
Some text inside.
\end{framedd}

\begin{framedd}[colback=blue!40!green, lefthand width=2.5cm]
\bcsoleil \bceclaircie \bcpluie \bcneige \tcblower
Some text inside.
\end{framedd}

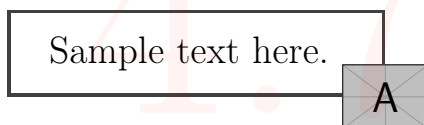
\begin{framedd}[lefthand width=3cm]
\bccube \bcdodecaedre \bcicosaedre \bcocetaedre \bctetraedre \tcblower
Some text inside.
\end{framedd}
\end{document}
```

4.6 Warning banner



```
\usepackage[utf8]{inputenc}
\usepackage[T1]{fontenc}
\usepackage[most]{tcolorbox}
\definecolor{orang}{RGB}{255,155,0}
\newtcolorbox[auto counter,number within=section]{caja}[1][]{
enhanced jigsaw,colback=white,colframe=orang,coltitle=orang,
fonttitle=\bfseries\sffamily,
sharp corners,
detach title,
lefrule=10mm,
% What you need %%%%%%%%%%%
underlay unbroken and first={\node[below,text=black,anchor=east]
at ([xshift=-5.5pt]interior.base west) {\Huge \textbf{!}};},
%%%%%%%%%%
breakable,pad at break=1mm,
#1,
code={\ifdefempty{\tcbtitletext}{\tcbset{before upper={\
    ↳ tcbtitle\par\medskip}}},}
\begin{document}
\begin{caja}[title=warning]
The vertical alignment settings
\end{caja}
\end{document}
```

4.7 Photo positioning



```
\documentclass{article}
\usepackage[most]{tcolorbox}
\usepackage{graphicx}
\begin{document}
\begin{tcolorbox}[enhanced,sharp corners,
width={5cm},
colback=white,
overlay={\node at (frame.south east) {\includegraphics[scale=0.1]{
    ↳ example-image-a}};}]
Sample text here.
\end{tcolorbox}
\end{document}
```

4.8 Absolutely centered cells (vertically and horison- tally)

all	in	cells
are	centered	vertically
and	horisontally	Σ

```

\documentclass{article}
\usepackage{float}
\usepackage{array, makecell}
\setcellgapes{5pt}

\begin{document}
\begin{table}[H]
\center
\makegapedcells
\begin{tabular}{|c|c|c|c|}
\hline
1&1&1&1 \\ \hline
1&1&1&1 \\ \hline
1&1&1&1 \\ \hline
\end{tabular}
\end{table}

\end{document}

```

4.9 Martix made of table

$$d_{n+1} \begin{vmatrix} a_{1,1} & \dots, a_{1,n} & 0 \\ a_{1,1} & \dots, a_{1,n} & 0 \\ \dots\dots\dots \\ a_{1,1} & \dots, a_{1,n} & 0 \\ a_{1,1} & \dots, a_{1,n} & 0 \\ a_{1,1} & \dots, a_{1,n} & 0 \\ \dots\dots\dots \\ a_{1,1} & \dots, a_{1,n} & 0 \end{vmatrix} = 0$$

```

\documentclass[a4paper,14pt]{extreport}
\begin{document}
\begin{table}[]
\begin{tabular}{|l|l c r|l}
& \$a_{1,1}$ & \$\dots, a_{1,n}$ & 0 & & \\
& \$a_{1,1}$ & \$\dots, a_{1,n}$ & 0 & & \\
& \multicolumn{3}{|l|}{\dotfill} & & \\
& \$a_{1,1}$ & \$\dots, a_{1,n}$ & 0 & & \\
& \$d_{n+1}$ & & & = & \$\pm 2ad_n$ = 0 & \\
& \$a_{1,1}$ & \$\dots, a_{1,n}$ & 0 & & \\
& \$a_{1,1}$ & \$\dots, a_{1,n}$ & 0 & & \\
& \multicolumn{3}{|l|}{\dotfill} & & \\
& \$a_{1,1}$ & \$\dots, a_{1,n}$ & 0 & & \\
\end{tabular}
\end{table}
\end{document}

```

4.10 Centering cells with NiceTabular

1	1	EVERY
1	1	CELL
1	1	CENTERED

```

\documentclass{article}
\usepackage[table]{xcolor}
\usepackage{nicematrix}
\NiceMatrixOptions{cell-space-top-limit=5pt,cell-space-bottom-
    ↪ limit=5pt}

\begin{document}
\begin{table}[htbp]
\centering
\begin{NiceTabular}{|c|c|c|}
\hline
\cellcolor{red}1&\cellcolor{green}1&1 \\ \hline
\cellcolor{orange}1&\cellcolor{red!35}1&1 \\ \hline
\cellcolor{green!35}1&\cellcolor{blue!45}1&1 \\ \hline
\end{NiceTabular}
\end{table}
\end{document}

```

4.11 Centered cells in longtable

Enum	Example	Description
1	test	Quisque facilisis auctor sapien. Pellentesque gravida hendrerit lectus. Mauris rutrum sodales sapien. Fusce hendrerit sem vel lorem. Integer pellentesque massa vel augue. Integer elit tortor, feugiat quis, sagittis et, ornare non, lacus. Vestibulum posuere pellentesque eros. Quisque venenatis ipsum dictum nulla. Aliquam quis quam non metus eleifend interdum. Nam eget sapien ac mauris malesuada adipiscing. Etiam eleifend neque sed quam. Nulla facilisi. Proin a ligula. Sed id dui eu nibh egestas tincidunt. Suspendisse arcu.
2a	test	Quisque facilisis auctor sapien. Pellentesque gravida hendrerit lectus. Mauris rutrum sodales sapien. Fusce hendrerit sem vel lorem. Integer pellentesque massa vel augue. Integer elit tortor, feugiat quis, sagittis et, ornare non, lacus. Vestibulum posuere pellentesque eros. Quisque venenatis ipsum dictum nulla. Aliquam quis quam non metus eleifend interdum. Nam eget sapien ac mauris malesuada adipiscing. Etiam eleifend neque sed quam. Nulla facilisi. Proin a ligula. Sed id dui eu nibh egestas tincidunt. Suspendisse arcu.
2b	test	Quisque facilisis auctor sapien. Pellentesque gravida hendrerit lectus. Mauris rutrum sodales sapien. Fusce hendrerit sem vel lorem. Integer pellentesque massa vel augue. Integer elit tortor, feugiat quis, sagittis et, ornare non, lacus. Vestibulum posuere pellentesque eros. Quisque venenatis ipsum dictum nulla. Aliquam quis quam non metus eleifend interdum. Nam eget sapien ac mauris malesuada adipiscing. Etiam eleifend neque sed quam. Nulla facilisi. Proin a ligula. Sed id dui eu nibh egestas tincidunt. Suspendisse arcu.

```

\documentclass{article}
\usepackage[left=1.5cm,right=1.5cm,
top=1.5cm,bottom=2cm,bindingoffset=0cm]{geometry}
\usepackage{float}
\usepackage{array, makecell}
\usepackage{utf8}{inputenc}
\usepackage{lipsum}
\usepackage{booktabs}
\usepackage{multirow}
\usepackage{pdfscape}
\usepackage{longtable, array}

\begin{document}
\begin{landscape}
\begin{longtable}{@{} *{2}{m{.15\paperwidth}} *{1}{m{.40\paperwidth}} @{}}
\endfirsthead
\endhead
\toprule
\textbf{Enum} & \textbf{Example} & \textbf{Description} \\
\midrule
1 & test & \lipsum[50] \\
\midrule
2a & test & \lipsum[50] \\
2b & test & \lipsum[50] \\
\bottomrule
\end{longtable}
\end{landscape}
\end{document}

```

4.12 If table is not wide enough

	Item1	Item2	Item3
Group1	0.8	0.1	0.1
Group2	0.1	0.8	0.1
Group3	0.1	0.1	0.8
Group4	0.34	0.33	0.33

```

\documentclass{article}
\usepackage[left=1.5cm,right=1.5cm,
top=1.5cm,bottom=2cm,bindingoffset=0cm]{geometry}
\usepackage{graphicx}
\usepackage{booktabs}
\usepackage{tabularx}

\begin{document}

\begin{table}[!ht]
\caption{Vertical and lateral stresses of mortar.}
\vspace{0.5cm}
\begin{tabularx}{\textwidth}{X X X X}
& Item1 & Item2 & Item3 \\ \midrule
Group1 & 0.8 & 0.1 & 0.1 \\
Group2 & 0.1 & 0.8 & 0.1 \\
Group3 & 0.1 & 0.1 & 0.8 \\
Group4 & 0.34 & 0.33 & 0.33 \\ \bottomrule
\end{tabularx}
\label{c}
\end{table}

\end{document}

```

4.13 Text next to a table

text text text

1	22	333

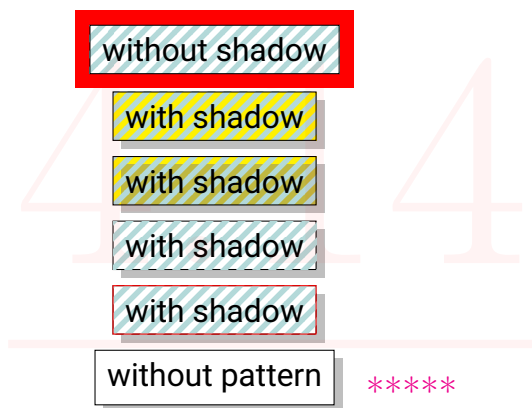
```

\documentclass[a4paper,14pt]{extreport}
\usepackage[left=1.5cm,right=1.5cm,top=1.5cm,bottom=2cm,
↪ bindingoffset=0cm]{geometry}
\usepackage{lipsum}

\begin{document}
\begin{minipage}[m]{0.58\textwidth}
text text text
\end{minipage}
\hspace{0.2cm}
\begin{minipage}[m]{0.40\textwidth}
\begin{tabular}{|c|c|c|}
\hline
1 & 22 & 333 \\ \hline
& & \\ \hline
& & \\ \hline
& & \\ \hline
\end{tabular}
\end{minipage}
\end{document}

```

4.14 Text next to a table



```

\documentclass[tikz,border=5mm]{standalone}
\usetikzlibrary{chains,patterns,shadows,fit,backgrounds}

\makeatletter
\tikzset{% customization of pattern
  % based on <m.wibrow@gm...> - 2013-03-24 07:20:
  hatch distance/.store in=\hatchdistance,
  hatch distance=5pt,
  hatch thickness/.store in=\hatchthickness,
  hatch thickness=5pt
}
\pgfdeclarepatternformonly[\hatchdistance,\hatchthickness]{north east hatch
  ↪ }% name
{
  \pgfpoint{-1pt}{-1pt}}% below left
{
  \pgfpoint{\hatchdistance}{\hatchdistance}}% above right
{
  \pgfpoint{\hatchdistance-1pt}{\hatchdistance-1pt}}%
{
  \pgfsetcolor{\tikz@pattern@color}
  \pgfsetlinewidth{\hatchthickness}
  \pgfpathmoveto{\pgfpoint{0pt}{0pt}}
  \pgfpathlineto{\pgfpoint{\hatchdistance}{\hatchdistance}}
  \pgfusepath{stroke}
}
\makeatother

\begin{document}
\begin{tikzpicture}
  start chain=going below,
  node distance=2mm,
  Node/.style = {minimum width=#1,
    shape=rectangle,
    draw, fill=white,
    on chain},
  Pattern/.style = {pattern=north east hatch,
    pattern color=teal!30,
    hatch distance=7pt,
    hatch thickness=2pt},
  font=\small\sffamily
%-----
  \node[Node=24mm, Pattern,
    preaction={fill=white}] (a) {without shadow};
  \begin{scope}[on background layer]
    \node[fit=(a),fill=red] {};
  \end{scope}

  \node[Node=24mm, drop shadow,
    preaction={fill=yellow}, Pattern] (b) {with shadow};

  \node[Node=24mm, preaction={fill=yellow},
    drop shadow, Pattern] (b) {with shadow};

  \node[Node=24mm, postaction={Pattern},
    drop shadow] (b) {with shadow};

  \node[Node=24mm, postaction={draw=red, Pattern},
    drop shadow] (b) {with shadow};

  \node[Node=24mm, drop shadow] (c) {without pattern};
%---
\end{tikzpicture}
\end{document}

```

4.15 Hand Drawn tcolorbox



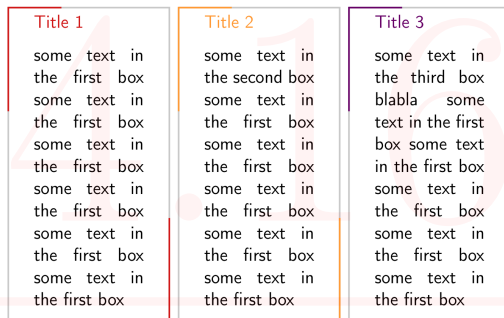
```

\documentclass{article}
\usepackage{most}{tcolorbox}
\usepackage{emerald}
\usetikzlibrary{decorations.pathmorphing}
\usetikzlibrary{shadows}
\tikzset{decoration={random steps,segment length=2mm,
    ↪ amplitude=0.6pt}}
\newtcbtheorem{mytheo}{Theorem}{
  coltitle=green!80!black,
  colback=lightgray!20,
  colbacktitle=lightgray!20,
  fonttitle=\bfseries\ECFAugie,
  enhanced,
  attach boxed title to top left={yshift=-0.18cm,xshift=-0.5mm},
  boxed title style={
    tikz={rotate=4,transform shape},
    frame code={
      \draw[decorate,fill=lightgray!20] (frame.south west) rectangle
        ↪ (frame.north east);
    } },
    frame code={
      \draw[decorate,fill=lightgray!20,drop shadow] (frame.north east
        ↪ ) rectangle (frame.south west);
    } },{th}

\begin{document}
\begin{mytheo}{}{theoexample}
content...
\end{mytheo}
\end{document}

```


4.16 Halfframed boxes



```

\documentclass{beamer}
\usepackage[english]{babel}
\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage{tikz}
\usepackage{tcolorbox}
\usetikzlibrary{calc}
\tcbuselibrary{skins,breakable,raster}
\makeatletter
\definecolor{myred}{RGB}{209,23,23}
\definecolor{myorange}{RGB}{255,153,51}
\definecolor{mypurple}{RGB}{102,0,102}
\definecolor{mygrey}{RGB}{200,200,200}

\newtcolorbox{mybox}[2]{%
empty,
coltitle = #1,
title = #2,
overlay = {
\draw[mygrey,line width=1pt]
(frame.north west)--(frame.north east)--(frame.south east)--(frame.
↪ south west)--(frame.north west);
\draw[#1,line width=1pt]
($ (frame.north west)!0.33!(frame.south west)$)
--(frame.north west)
--($ (frame.north west)!0.33!(frame.north east)$);
\draw[#1,line width=1pt]
($ (frame.south east)!0.33!(frame.south west)$)
--(frame.south east)
--($ (frame.south east)!0.33!(frame.north east)$);}}

\tcbset{marktext/.style={%
overlay={\node[rotate=90,text=black,anchor=north east] at (
↪ frame.north west){#1}};},
code={\setbox\z@=\color@hbox#1\color@endbox\tcbdimto\
↪ myheight{\wd\z@+3mm}},
minimum for equal height group=\tcb@ehgid:\myheight,}}
\makeatother

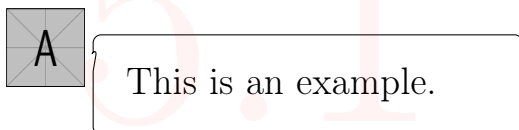
\begin{document}
\begin{frame}
\begin{tcbrafter}[%
raster columns=3,
raster equal height=rows
]
\begin{mybox}{myred}{Title 1}
some text in the first box
\end{mybox}
\begin{mybox}{myorange}{Title 2}
some text in the second box
\end{mybox}
\begin{mybox}{mypurple}{Title 3}
some text in the third box blabla
\end{mybox}
\end{tcbrafter}
\end{frame}
\end{document}

```

Chapter 5

Figures

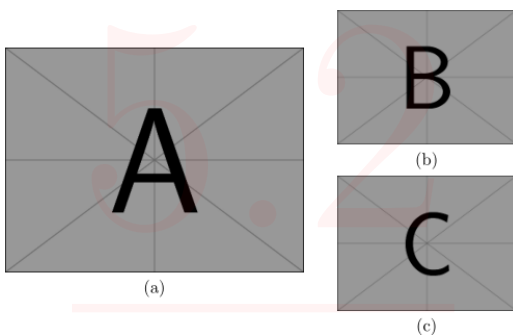
5.1 Comment to figure



```
\documentclass{article}
\usepackage{tikz}
\usetikzlibrary{shapes.callouts}

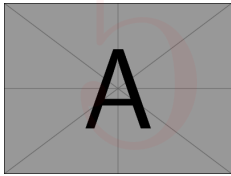
\begin{document}
\begin{tikzpicture}
  \node [anchor=south west] at (0,0) (cartoon) {\includegraphics[width
    ↳=.15\textwidth,height=.15\textwidth]{example-image-a}};
  \node [anchor=north west,rectangle callout,draw=black,
    ↳callout absolute pointer=(cartoon.east),
    ↳rounded corners=3pt,text width=0.7\textwidth,inner sep=2ex] at (.19\
    ↳textwidth,.125\textwidth) {This is an example.};
\end{tikzpicture}
\end{document}
```

5.2 Positioning 1 | 2



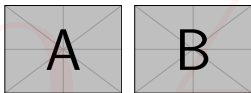
```
\documentclass{article}
\usepackage{graphicx}
\usepackage{subfig}
\begin{document}
\begin{figure}[htp]
\centering
\begin{tabular}{@{}c@{}}
\subfloat{\includegraphics[width=0.5\linewidth]{example-image-a.png}}\\ (a)
\end{tabular}
\quad % some space
\begin{tabular}{@{}c@{}}
\subfloat{\includegraphics[width=0.3\linewidth]{example-image-b.png}}\\ (b)
\subfloat{\includegraphics[width=0.3\linewidth]{example-image-c.png}}\\ (c)
\end{tabular}
\caption{Caption.}
\end{figure}
\end{document}
```

5.3 Placing image anywhere You want



```
\usepackage{graphicx}
\usepackage{tikz}
\begin{document}
\begin{tikzpicture}[overlay, remember picture]
\node[anchor=north west,xshift=4cm,yshift=-11cm]
at (current page.north west)
{\includegraphics[width=5.5cm]{example-image-a.png}};
\end{tikzpicture}
\end{document}
```

5.4 Italic subfigure references



(a) *a* (b) *b*
Fig. 1 *a* ← *a* in *italic* style

```
\documentclass{article}
\usepackage{graphicx}
\usepackage{subcaption}
\renewcommand\thesubfigure{\itshape\alph{subfigure}} %<--- added

\begin{document}
\begin{figure}
\centering
\begin{subfigure}{.25\textwidth}
\centering
\includegraphics[width=.6\linewidth]{example-image-a}
\caption{\textit{a}}
\label{1a}
\end{subfigure}%
\begin{subfigure}{.25\textwidth}
\centering
\includegraphics[width=.715\linewidth]{example-image-b}
\caption{\textit{b}}
\label{1b}
\end{subfigure}
\caption{}
\label{fig1}
\end{figure}
Fig. \ref{1a} $\leftarrow$ a in italic style
\end{document}
```

5.5 Wrapfigure

5.6 Figures in landscape mode



Figure 1: FIG 1

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift - not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.



Figure 2: FIG 2



Figure 3: FIG 3

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like "Huardest gefburn"? Kjift - not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

```
\documentclass[11pt]{scrartcl}
\usepackage[english]{babel}
\usepackage[utf8]{inputenc}
\usepackage{blindtext}
\usepackage[demo]{graphicx}
\usepackage{wrapfig}
\setlength{\parindent}{0pt}

\begin{document}
\begin{wrapfigure}[11]{l}{0.4\textwidth}
\centering
\includegraphics[scale=0.1]{Bild}
\caption{FIG 1}
\end{wrapfigure}
\blindtext

\begin{wrapfigure}[11]{r}{0.4\textwidth}
\centering
\includegraphics[scale=0.1]{Bild}
\caption{FIG 2}
\end{wrapfigure}
\blindtext

\begin{wrapfigure}[11]{l}{0.4\textwidth}
\centering
\includegraphics[scale=0.1]{Bild}
\caption{FIG 3}
\end{wrapfigure}
\blindtext
\blindtext
\end{document}
```

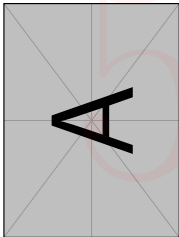


Table 5.2

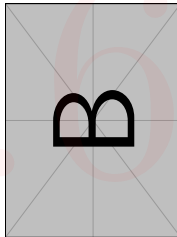


Table 5.3

```
\documentclass[12pt]{report}
\usepackage{graphicx}
\usepackage{lipsum}
\begin{document}
qqqqqqq
\begin{figure}[htb]
\hfill
\rotatebox{90}{%
\begin{minipage}{0.45\linewidth}
\includegraphics[width=\linewidth]{example-image-a}
\caption{Caption1}
\label{fig:First}
\end{minipage}
}\hfill
\rotatebox{90}{%
\begin{minipage}{0.45\linewidth}
\includegraphics[width=\linewidth]{example-image-b}
\caption{Caption2}
\label{fig:First}
\end{minipage}
}\hfill\strut
\end{figure}

\end{document}
```

Chapter 6

Numbering, enumeration, itemizing

6.1 Numbering in few columns

- 
1. c 3. d
2. g 4. f
-

```
\documentclass{article}
\usepackage{multicol}

\begin{document}
\begin{multicols}{2}%change to have more columns
\begin{enumerate}
\item c
\item g
\item d
\item f
\end{enumerate}
\end{multicols}
\end{document}
```

6.2 Enumeration environment with position number in the format (i, j)

- (1) First level-one item
 - (1,1) First level-two item
 - (1,2) Second level-two item
- (2) Second level-one item
 - (2,1) Still another level-two item

```

\documentclass{article}
\renewcommand{\theenumi}{(\arabic{enumi})}
\renewcommand{\theenumii}{(\arabic{enumi},\arabic{enumii})}
\renewcommand{\labelenumi}{\theenumi}
\renewcommand{\labelenumii}{\theenumii}
\makeatletter \renewcommand{\p@enumii}{} \makeatother

\begin{document}
\begin{enumerate}
\item First level-one item
  \begin{enumerate}
\item First level-two item
\item Second level-two item
\end{enumerate}
\item Second level-one item
  \begin{enumerate}
\item Still another level-two item
\end{enumerate}
\end{enumerate}
\end{document}

```

6.3 Colored enumeration

- 1) item
- 2)
- 3) item
- 4)
- 5) special item
- 6)
- 7) item

```

\documentclass{article}
\usepackage{tikz}
\definecolor{amethyst}{rgb}{0.6, 0.4, 0.8}
\definecolor{applegreen}{rgb}{0.55, 0.71, 0.0}
\definecolor{arylideyellow}{rgb}{0.91, 0.84, 0.42}
\definecolor{asparagus}{rgb}{0.53, 0.66, 0.42}
\definecolor{atomictangerine}{rgb}{1.0, 0.6, 0.4}
\definecolor{bananayellow}{rgb}{1.0, 0.88, 0.21}
\definecolor{brightgreen}{rgb}{0.4, 1.0, 0.0}
\definecolor{cambridgeblue}{rgb}{0.64, 0.76, 0.68}
\definecolor{capri}{rgb}{0.0, 0.75, 1.0}
\definecolor{carnationpink}{rgb}{1.0, 0.65, 0.79}
\newcommand{\ClaudioList}{red,applegreen,amethyst,carnationpink,blue!50!
  ↪ cyan,arylideyellow,asparagus,atomictangerine,bananayellow,brightgreen
  ↪ ,cambridgeblue,capri}
\newcommand{\SebastianoItem}[1]{\foreach \X[count=\Y] in \ClaudioList
\ifnum\Y=#1\relax
\edef\SebastianoColor{\X}
\fi}
\tikz[baseline=(SebastianoItem.base),remember
picture]{%
\node[fill=\SebastianoColor,inner sep=4pt,font=\sffamily,fill opacity=0.5] (
  ↪ SebastianoItem){#1};}
\newcommand{\SebastianoHighlight}{\tikz[overlay,remember picture]{%
\fill[\SebastianoColor,fill opacity=0.5] ([yshift=4pt,xshift=-\pgflinewidth]
  ↪ SebastianoItem.east) -- ++(4pt,-4pt)
-- ++(-4pt,-4pt) -- cycle;}}
\begin{document}
\renewcommand{\labelenumi}{\SebastianoItem{\arabic{enumi}}}
\begin{enumerate}
\item item
\item special item \SebastianoHighlight
\item item
\end{enumerate}
\end{document}

```

6.4 Leveled arabic enumeration

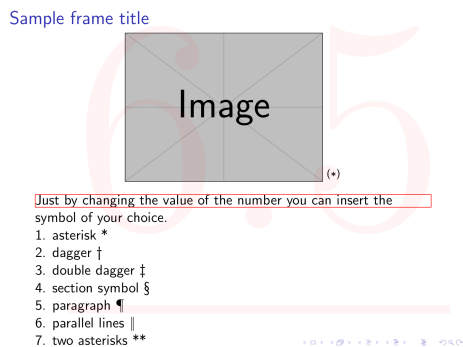
- (1) First level-one item
 - (1,1) First level-two item
 - (1,2) Second level-two item
- (2) Second level-one item
 - (2,1) Still another level-two item

```

\documentclass{article}
\renewcommand{\theenumi}{(\arabic{enumi})}
\renewcommand{\theenumii}{(\arabic{enumi},\arabic{enumii})}
\renewcommand{\labelenumi}{\theenumi}
\renewcommand{\labelenumii}{\theenumii}
\makeatletter
\renewcommand{\p@enumii}{}
\makeatother
\begin{document}
\begin{enumerate}
\item First level-one item
  \begin{enumerate}
\item First level-two item
\item Second level-two item
\end{enumerate}
\item Second level-one item
  \begin{enumerate}
\item Still another level-two item
\end{enumerate}
\end{enumerate}
\end{document}

```

6.5 Change footnote symbol



```

\documentclass{beamer}
\renewcommand{\thefootnote}{(\fnsymbol{footnote})}

\begin{document}
\begin{frame}
\frametitle{Sample frame title}
\begin{figure}
\includegraphics[width=0.5\linewidth]{example-image}\footnote[1]{image
  ↪ description}
\end{figure}
\end{frame}
\end{document}

```

6.6 Bullets Style

32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71
72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87
88	89	90	91	92	93	94	95
96	97	98	99	100	101	102	103
104	105	106	107	108	109	110	111
112	113	114	115	116	117	118	119
120	121	122	123	124	125	126	127






✓ Code 51

✗ Code 56

👉 Code 43

◆ Code 118

♥ Code 170

							
168 ♀	169 ♀	170 ♀	171 ♀	172 ♀	173 ♀	174 ♀	175 ♀
176 ♀	177 ♀	178 ♀	179 ♀	180 ♀	181 ♀	182 ♀	183 ♀
184 ♀	185 ♀	186 ♀	187 ♀	188 ♀	189 ♀	190 ♀	191 ♀
192 ♀	193 ♀	194 ♀	195 ♀	196 ♀	197 ♀	198 ♀	199 ♀
200 ♀	201 ♀	202 ♀	203 ♀	204 ♀	205 ♀	206 ♀	207 ♀
208 ♀	209 ♀	210 ♀	211 ♀	212 ♀	213 ♀	214 ♀	215 ♀
216 ♀	217 ♀	218 ♀	219 ♀	220 ♀	221 ♀	222 ♀	223 ♀
224 ♀	225 ♀	226 ♀	227 ♀	228 ♀	229 ♀	230 ♀	231 ♀
232 ♀	233 ♀	234 ♀	235 ♀	236 ♀	237 ♀	238 ♀	239 ♀
240 ♀	241 ♀	242 ♀	243 ♀	244 ♀	245 ♀	246 ♀	247 ♀
248 ♀	249 ♀	250 ♀	251 ♀	252 ♀	253 ♀	254 ♀	255 ♀

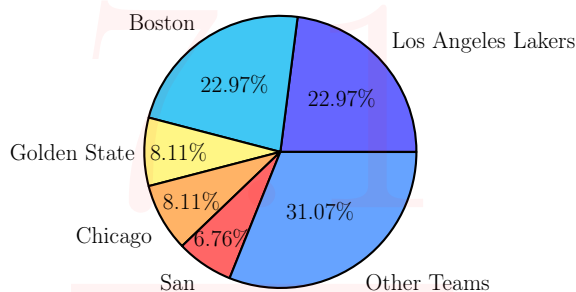
```
\documentclass{article}
\usepackage{pifont}

\begin{document}
\begin{itemize}
  \item[\ding{51}] Code 51
  \item[\ding{56}] Code 56
  \item[\ding{43}] Code 43
  \item[\ding{118}] Code 118
  \item[\ding{170}] Code 170
\end{itemize}
\par
\ding{46} \ding{70} \ding{57} \ding{98} \ding{96}
\end{document}
```

Chapter 7

Plots, tikz, pie charts ...

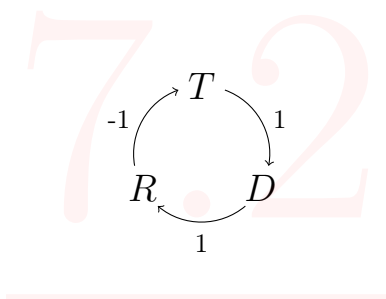
7.1 Simple pie chart



```
\documentclass[border=0.2cm]{standalone}
\usepackage{pgf-pie}

\begin{document}
\begin{tikzpicture}
\pie{22.97/Los Angeles Lakers,
22.97/Boston Celtics,
8.11/Golden State Warriors,
8.11/Chicago Bulls,
6.76/San Antonio Spurs,
31.07/Other Teams}
\end{tikzpicture}
\end{document}
```

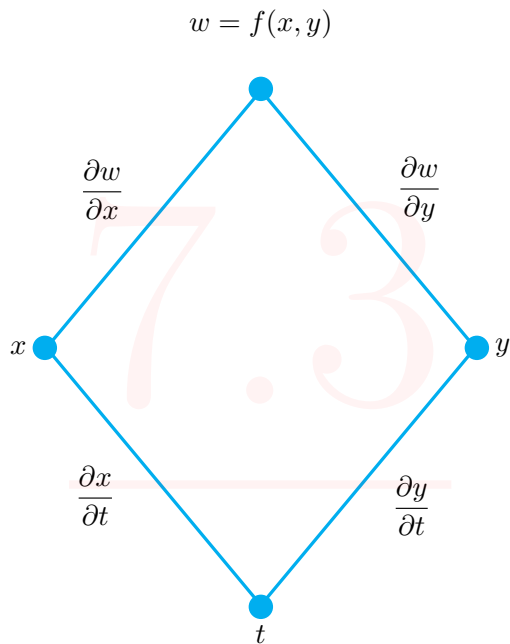
7.2 Circled arrows with text



```
\documentclass{article}
\usepackage{tikz}

\begin{document}
\begin{tikzpicture}[>,>,scale=.7]
\node (i) at (90:1cm) {$T$};
\node (j) at (-30:1cm) {$D$};
\node (k) at (210:1cm) {$R$};
\draw (70:1cm) arc (70:-10:1cm) node[midway, right] {\footnotesize 1};
\draw (-50:1cm) arc (-50:-130:1cm) node[midway, below] {\footnotesize 1};
\draw (190:1cm) arc (190:110:1cm) node[midway, left] {\footnotesize -1};
\end{tikzpicture}
\end{document}
```

7.3 Diamond with text



```
\documentclass[a4paper,14pt]{extreport}
\usepackage[left=1.5cm,right=1.5cm,top=1.5cm,bottom=2cm,bindingoffset=0
  \rightarrow cm]{geometry}
\usepackage{amsmath}
\usepackage{tikz}
\usetikzlibrary{shapes.geometric}

\begin{document}
\begin{tikzpicture}
\node[diamond,font=\small,
line width=0.4mm,scale=0.7,
draw = cyan, minimum width = 7.5cm, %text = red,
minimum height = 9cm] (d) at (0,0) { };
\node [above=0.5cm] (a) at (d.90) {$w = f(x,y)$};
\node [above=0.5cm,right=0.1cm] (b) at (d.45) {$\dfrac{\partial w}{\partial x}$};
\node [above=0.5cm,left=0.1cm] (c) at (d.135) {$\dfrac{\partial w}{\partial y}$};
\node [left=0.1cm] (dd) at (d.180) {$x$};
\node [right=0.1cm] (e) at (d.0) {$y$};
\node [below=0.1cm] (f) at (d.270) {$t$};
\node [below=0.9cm,right=-0.3cm] (g) at (d.-30) {$\dfrac{\partial x}{\partial t}$};
\node [below=0.5cm,left=-0.1cm] (h) at (d.220) {$\dfrac{\partial y}{\partial t}$};
\node at (d.90) [cyan,circle,fill,inner sep=3pt]{};
\node at (d.180) [cyan,circle,fill,inner sep=3pt]{};
\node at (d.0) [cyan,circle,fill,inner sep=3pt]{};
\node at (d.270) [cyan,circle,fill,inner sep=3pt]{};
\end{tikzpicture}
\end{document}
```

7.4 Levels of skills



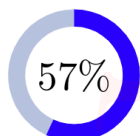
```
\documentclass{report}
\usepackage[T1]{fontenc}
\usepackage{tikz}
\usepackage{xcolor}

\definecolor{white}{RGB}{255,255,255}
\definecolor{gray}{HTML}{4D4D4D}
\definecolor{maingray}{HTML}{B9B9B9}

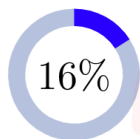
\newcommand\skills[1]{
\begin{tikzpicture}
\foreach [count=\i] \x/\y in {#1}{
\draw[fill=maingray,maingray] (0,\i) rectangle (6,\i+0.4);
\draw[fill=white,gray](0,\i) rectangle (\x,\i+0.4);
\node[above right] at (0,\i+0.4) {\x};
}
\end{tikzpicture}
}

\begin{document}
\skills{{b/2}}
\skills{{a/1}}
\end{document}
```

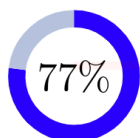
7.5 Round levels of skills



Skill #1
info



Skill #2
info



Skill #3
info

```
\documentclass[svgnames]{article}
\usepackage{tikz}
\usetikzlibrary{calc}
\usepackage{siunitx}% only to force percentages to be integers
\usepackage{enumitem}

\let\realItem\item% save for later use
\newcommand\percentageItem[1][10]{%
\realItem[\smash{\tikz[baseline]{%
\node[minimum width=4em] at (0,0) {\num[round-mode=places,round-
\rightarrow precision=0]{#1}\%}};
\draw[thick,line width=1.5mm,Blue](90:5mm)
arc [radius=5mm, start angle=90, delta angle=-#1*3.6];
\draw[thick,line width=1.5mm,LightSteelBlue](90-#1*3.6:5mm)
arc [radius=5mm, start angle=90-#1*3.6, end angle=-270];
}}}%
}
\newlist{achievements}{itemize}{1}
\setlist[achievements]{
before=\let\item\percentageItem,%make \item = \percentageItem
leftmargin=*,
label={},
itemsep=3mm,
}

\begin{document}

\begin{achievements}
\item[57]\textbf{Skill \#1}\info
\item[16]\textbf{Skill \#2}\info
\item[77]\textbf{Skill \#3}\info
\end{achievements}

\end{document}
```

Chapter 8

Highlighting

8.1 Words highlighting 1

The quick brown fox jumps over the lazy dog.
 The quick brown fox jumps over the lazy dog.

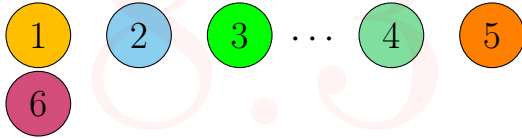
```
\documentclass{article}
\usepackage{tcolorbox}
\newtcbbox{\mybox}[1][red]{on line,
arc=0pt,outer arc=0pt,colback=#1!10!white,colframe=#1!50!black,
boxsep=0pt,left=1pt,right=1pt,top=2pt,bottom=2pt,
boxrule=0pt,bottomrule=1pt,toprule=1pt}
\newtcbbox{\xmybox}[1][red]{on line,
arc=7pt,colback=#1!10!white,colframe=#1!50!black,
before upper={\rule[-3pt]{0pt}{10pt}},boxrule=1pt,
boxsep=0pt,left=6pt,right=6pt,top=2pt,bottom=2pt}
\begin{document}
The \mybox[green]{quick} brown \mybox{fox}...\par
The \xmybox[green]{quick} brown \xmybox{fox} ...
\end{document}
```

8.2 Unusual words highlighting

Here You can see
 more examples and learn
 something new.

```
\usepackage[many]{tcolorbox}
\newtcbbox{\mylib}{enhanced,nobeforeafter, tcbox raise base, boxrule=0.4pt,
→ top=0mm, bottom=0mm,
right=0mm, left=4mm, arc=1pt, boxsep=2pt, before upper={\vphantom{dlg
→ }}, colframe=green!50!black, coltext=green!25!black, colback=green
→ !10!white, overlay={\begin{tcbclipinterior} \fill[green!75!blue!50!
→ white] (frame.south west) rectangle node[text=white,font=\sffamily\
→ bfseries\tiny,rotate=90] {TYP} ([xshift=4mm]frame.north west);\
→ end{tcbclipinterior}}}}
\begin{document}
\mylib{recieve}
\end{document}
```

8.3 Colored circles



```
\usepackage{tikz}
\usepackage[framemethod=TikZ]{mdframed}
\usepackage{xcolor}
\usetikzlibrary{calc}
\makeatletter
\newlength{\mylength}
\xdef\CircleFactor{1.1}
\setlength\mylength{\dimexpr\f@size pt}
\newsavebox{\mybox}
\newcommand*\circled[2][draw=blue]{\savebox\mybox{\vbox{\vphantom{
  \rightarrow WL1/}\#1}}\setlength\mylength{\dimexpr\CircleFactor\dimexpr\ht\
  \rightarrow mybox+\dp\mybox\relax\relax}\tikzset{mystyle/.style={circle,#1,
  \rightarrow minimum height={\mylength}}}\tikz[baseline=(char.base)]
\node[mystyle] (char) {\#2};}
\makeatother
\definecolor{amber}{rgb}{1.0, 0.75, 0.0}
\definecolor{babyblue}{rgb}{0.54, 0.81, 0.94}
usage --> \circled[fill=amber,draw=black]{1}
```

8.4 Whole line colored



```
\documentclass{article}
\usepackage{xcolor}
\newcommand{\hly}[2]{\colorbox{#1!80}{\parbox{\textwidth}{\#2}}}

\begin{document}
% \hly{YOURcolor}{some text}
\hly{green}{some text}
\hly{yellow}{some text}
\hly{red}{some text}
\end{document}
```

Chapter 9

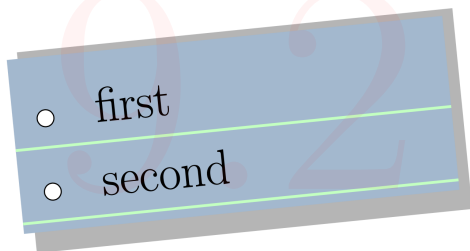
For Fun

9.1 LaTeX Coffee Stains

Download `coffee4.sty` and put in the same directory

```
\documentclass{article}
\usepackage{tikz}
\usetikzlibrary{arrows,shapes}
\usepackage{coffee4}
\enum{\cofeAm{1}{0.6}{0}{0.cm}{6cm}
\cofeCm{0.9}{0.5}{180}{-7.cm}{11cm}
\cofeDm{0.4}{0.2}{90}{1.0cm}{3.0cm}
\cofeBm{0.5}{0.5}{0}{-3.cm}{10cm}
%\cofeAm{alpha}{scale}{angle}{xoff}{yoff} <-- usage
\end{document}
```

9.2 Sticky notes



```
\documentclass{article}
\usepackage{xparse}
\usepackage{fancy par}
\usetikzlibrary{calc,shadows}
\NewDocumentCommand\StickyNoteP{O{6cm}mO{6cm}}{%
\begin{tikzpicture}
\node[
drop shadow={shadow xshift=3pt},
inner xsep=0pt,
xslant=-0.1,yslant=0.1,
inner ysep=0pt,
text depth=\the\dimexpr#1+2.5ex\relax
]{\parbox[t][#1][c]{#3}{#2}};
\end{tikzpicture}}

\begin{document}
\StickyNoteP[2.5cm]{%
\NotebookPar[spiral=false]{
\LARGE first\second }}[6.5cm]
\end{document}
```

9.3

9.3

```

\documentclass{article}
\usepackage{tikz}
\usetikzlibrary{fadings, shadings}
\newcounter{fadcnt}\setcounter{fadcnt}{0}
\newcommand\fadingtext[3][l]{%
\stepcounter{fadcnt}
\begin{tikzfadingfrompicture}[name=fading letter\thefadcnt]
\node[transparent!0,inner xsep=0pt,outer xsep=0pt,#1]{#3};
\end{tikzfadingfrompicture}%
\begin{tikzpicture}[baseline=(textnode.base)]
\node[inner sep=0pt,outer sep=0pt,#1](textnode){\phantom{#3}};
\shade[path fading=fading letter\thefadcnt,#2,fit fading=false]
(textnode.south west) rectangle (textnode.north east);%
\end{tikzpicture}%
}
\usetikzlibrary{calc}
\newbox\shbox
\tikzset{%
path picture shading/.style={%
path picture={%
%
\pgfpointdiff{\pgfpointanchor{path picture bounding box}{south west}}{
\pgfpointanchor{path picture bounding box}{north east}}%
\pgfgetlastxy\pathwidth\pathheight%
\pgfinterruptpicture%
\global\setbox\shbox=\hbox{\pgfuses shading{#1}}%
\endpgfinterruptpicture%
\pgftransformshift{\pgfpointanchor{path picture bounding box}{center}}%
\pgftransformxscale{\pathwidth/(\wd\shbox)}%
\pgftransformyscale{\pathheight/(\ht\shbox)}% \dp will (should) be 0pt
\pgftext{\box\shbox}%
%
}
}
}
\pgfdeclarehorizontalshading{rainbow}{10bp}{color(0bp)=(violet);
color(1.6667bp)=(blue);
color(3.3333bp)=(cyan);
color(5bp)=(green);
color(6.6667bp)=(yellow);
color(8.3333bp)=(orange);
color(10bp)=(red)}
\begin{document}
\fadingtext[scale=10, font=\bfseries]{upper left=red, upper right=green,
↪ lower left=blue,lower right=yellow}{\LaTeX}

\fadingtext[scale=10, font=\bfseries]{path picture shading=rainbow}{\
↪ \LaTeX}

\noindent\fadingtext[scale=0.7, font=\bfseries]{path picture shading=
↪ rainbow}{\parbox[b]{1.5\linewidth}{\strut\lipsum[1]}}
\end{document}

```


9.4 Single Watermark

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nuncummy eget, consectetur id, volutate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi triistique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, laisid, in, porttiam quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean euismod. Morbi dolor nulla, malesuada eu, pulvinar at, nulla ac, nulla. Cras latur auctor semper nulla. Donec varius orci eget risus. Duis nulla, mi, congue eu, accumsan eielesid, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, peritiam ut, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit nulla. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turgis. Pellentesque viverra dicitur mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt triistique, libero. Vivamus viverra fermentum felis. Donec nuncummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas laisida. Nam ipsum ligula, eleifend at, augueam nec, nunciat a, ipsum. Morbi blandit ligula fengiat magna. Nunc eleifend consequent laisid. Sed laisida nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et nisl. Nisi volutate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibbi. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc eleifend fermentum wisi/Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibbi sit amet nisl. Vivamus quis tortor vitae tunc porta volutda.

Fusce mauris. Vestibulum luctus nibbi at lectus. Sed bibendum, nulla a fames ac, nunc. In volutate tellus, ac nunciat arcu nisl vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in laisid, ring eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilis. Sed a turpis eu lacus eros conuada facilisis. Morbi ligula, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui eros dui. Mauris tempus ligula sed laisid. Cras eros enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque aptus wisi eget nunc. Nam fringilla lacus vel leo. Curabitur consetetur. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nuncummy eget, consectetur id, volutate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi triistique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra

1

```
\documentclass[a4paper]{article}
\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage[pages=some]{background}% change "some" to "all" to see WM on
    ↪ all pages
\usepackage{lipsum}
\backgroundsetup{color=green, opacity=0.3, scale=10, contents={A n M n V
    ↪ }}

\begin{document}
\lipsum[1-5]
\BgThispage
\lipsum[1-5]
\end{document}
```

9.5 Full page of Watermarks

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nuncummy eget, consectetur id, volutate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi triistique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, laisid, in, porttiam quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean euismod. Morbi dolor nulla, malesuada eu, pulvinar at, nulla ac, nulla. Cras latur auctor semper nulla. Donec varius orci eget risus. Duis nulla, mi, congue eu, accumsan eielesid, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, peritiam ut, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit nulla. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turgis. Pellentesque viverra dicitur mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt triistique, libero. Vivamus viverra fermentum felis. Donec nuncummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas laisida. Nam ipsum ligula, eleifend at, accumsan nec, nunciat a, ipsum. Morbi blandit ligula fengiat magna. Nunc eleifend consequent laisid. Sed laisida nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et nisl. Nam volutate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibbi. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc eleifend fermentum wisi/Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibbi sit amet nisl. Vivamus quis tortor vitae tunc porta volutda.

Fusce mauris. Vestibulum luctus nibbi at lectus. Sed bibendum, nulla

```
\documentclass[12pt]{book}
\usepackage{graphicx}
\usepackage[pages=some]{background}
\usepackage{lipsum}
\newcommand\DupImage{%
    \includegraphics[width=5cm]{logo.jpeg}\hfill% YOUR IMAGE
    \includegraphics[width=5cm]{logo.jpeg}\hfill% YOUR IMAGE
    \includegraphics[width=5cm]{logo.jpeg}\hfill% YOUR IMAGE
    \includegraphics[width=5cm]{logo.jpeg}\hfill% YOUR IMAGE
    \includegraphics[width=5cm]{logo.jpeg}\hfill% YOUR IMAGE
    \includegraphics[width=5cm]{logo.jpeg}\hfill% YOUR IMAGE
    \includegraphics[width=5cm]{logo.jpeg}\hfill}
\newlength{\drop}
\backgroundsetup{ scale=1, angle=45, opacity=.3,
    contents={%
        \begin{minipage}{1.5\paperheight}
        \DupImage\|2ex|
        \DupImage\|2ex|
        \DupImage\|2ex|
        \DupImage\|2ex|
        \DupImage\|2ex|
        \DupImage\|2ex|
        \DupImage\|2ex|
        \DupImage\|2ex|
        \DupImage\|2ex|
        \DupImage\end{minipage} } }

\begin{document}
\drop=0.1\textheight \BgThispage \lipsum[1-8]
\end{document}
```

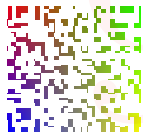
9.6 Generating QR code



```
\documentclass{article}
\usepackage{qrcode}

\begin{document}
\qrcode[height=0.5in]{https://github.com/AnMnv/eBook}
\textcolor{blue}{\qrcode[height=0.5in]{https://github.com/AnMnv/eBook}}
\textcolor{green}{\qrcode[height=0.5in]{https://github.com/AnMnv/eBook}}
\end{document}
```

9.7 Gradient QR code



```

\documentclass{article}
\usepackage{qrcode}[]
\usepackage{tikz}
\usetikzlibrary{fadings, shadings}
\newcounter{fadcnt}\setcounter{fadcnt}{0}
\newcommand\fadingtext[3][]{%
\stepcounter{fadcnt}
\begin{tikzfadingfrompicture}[name=fading letter\thefadcnt]
\node[transparent!0,inner xsep=0pt,outer xsep=0pt,#1] {\#3};
\end{tikzfadingfrompicture}%
\begin{tikzpicture}[baseline=(textnode.base)]
\node[inner sep=0pt,outer sep=0pt,#1](textnode){\phantom{\#3}};
\shade[path fading=fading letter\thefadcnt,#2,fit fading=false]
(textnode.south west) rectangle (textnode.north east);%
\end{tikzpicture}}
\usetikzlibrary{calc}
\newbox\shbox
\tikzset{%
path picture shading/.style={%
path picture={%
\pgfpointdiff{\pgfpointanchor{path picture bounding box}{south west}}%
{\pgfpointanchor{path picture bounding box}{north east}}}%
\pgfgetlastxy\pathwidth\pathheight%
\pgfinterruptpicture%
\global\setbox\shbox=\hbox{\pgfuses shading{\#1}}%
\endpgfinterruptpicture%
\pgftransformshift{\pgfpointanchor{path picture bounding box}{center}}}%
\pgftransformxscale{\pathwidth/(\wd\shbox)}%
\pgftransformyscale{\pathheight/(\ht\shbox)}% \dp will (should) be 0pt
\pgftext{\box\shbox}%
} } }
\pgfdeclarehorizontalshading{rainbow}{10bp}{color(0bp)=(violet);
color(1.6667bp)=(blue);
color(3.3333bp)=(cyan);
color(5bp)=(green);
color(6.6667bp)=(yellow);
color(8.3333bp)=(orange);
color(10bp)=(red)}
\pgfdeclareverticalshading{rainbow_vertical}{10bp}{color(0bp)=(violet);
color(1.6667bp)=(blue);
color(3.3333bp)=(cyan);
color(5bp)=(green);
color(6.6667bp)=(yellow);
color(8.3333bp)=(orange);
color(10bp)=(red)}

\begin{document}
\fadingtext[scale=0.5]{upper left=red, upper right=green, lower left=blue,lower
→ right=yellow}{\qrcode[height=5cm]{https://github.com/AnMnv/
→ eBook}}
\fadingtext[scale=0.5]{path picture shading=rainbow}{\qrcode[height=5cm]{
→ https://github.com/AnMnv/eBook}}
\fadingtext[scale=0.5]{path picture shading=rainbow_vertical}{\qrcode[height
→ =5cm]{https://github.com/AnMnv/eBook}}
\end{document}

```