

# *LaTeX eBook*



IN

*Examples*

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# 1 Math Tips

## 1.1 Auto-resizing equation

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

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

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

## 1.2 Form for simplest calculation

Fill with number

if it doesn't work try another PDF viewer

a:

1.2

b:

c:

$\sum =$

```
\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}
\[
\frac{n_0}{n_1} = q_1 + \frac{\text{\raisebox{-6pt}{$\frac{}{}$}}}{q_2 + \frac{\text{\raisebox{-6pt}{$\frac{}{}$}}}{q_3 + \frac{\text{\raisebox{-6pt}{$\frac{}{}$}}}{q_4 + \dots + \frac{\text{\raisebox{-12pt}{$\frac{}{}$}}}{q_{k-1} + \frac{\text{\raisebox{-6pt}{$\frac{}{}$}}}{q_k}}}}}}
\]
\end{document}
```

## 1.4 One number for multiline equation

$$\begin{aligned} x_{ij} &= d_{ijk} E_k, \\ x_{ij} &= \varsigma_{ijk} H_k, \\ x_{ij} &= s_{ijkl} X_{kl}, \\ x_{ij} &= \xi_{ij} \delta p, \\ x_{ij} &= \alpha_{ij} \delta T \end{aligned} \tag{1}$$

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

\begin{document}
\begin{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}
\end{equation}
\end{document}
```

## 1.5 Matrix in standalone documentclass

$$\begin{matrix} 1 & 5 \\ \begin{matrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{matrix} \end{matrix}$$

```
\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{equation*}
\end{document}
```

## 1.6 Multiple lines, one centered label

$$\begin{matrix} 1 & 6 \\ A = \frac{\pi r^2}{2} \\ = \frac{1}{2}\pi r^2 \end{matrix} \quad (2)$$

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

## 1.7 Array as a fraction

$$\begin{matrix} 1 & 7 \\ I - IV - V^{6-4 \atop 4-3} - I - cadence \\ I - IV - V^{6-4 \atop 4-3} - I - cadence \\ 6 - 4 \\ I - IV - V^{4-3 \atop 6-4} - I - cadence \end{matrix}$$

```
\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-cadence $
\end{document}
```

## 1.8 Aligning equations inbetween text

qqq

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

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

## 1.9 Equation: boxed split inside align

$$A = B + C + D$$

$$A = \boxed{B\_is\_long \\ + C\_is\_long\_too \\ + D\_is\_long\_too}$$

(1)

9

```
\begin{document}
\begin{align}
\begin{split}
A &= {} & B + C + D \\
\end{split} \nonumber \\
\mathrlap{\boxed{\phantom{\begin{gathered}A = {} + C\_is\_long\_long\_too\\ + C\_is\_long\_too\\ + D\_is\_long\_too\end{gathered}}}} \\
\hspace{\dimexpr\fboxsep+\fboxrule-0.4pt} \\
\begin{split}
A &= {} & \phantom{B+C+D} B\_is\_long \\
& & + C\_is\_long\_too \\
& & + D\_is\_long\_too
\end{split}
\end{align}
\end{document}
```

## 1.10 Multiline text above arrow or relation symbol

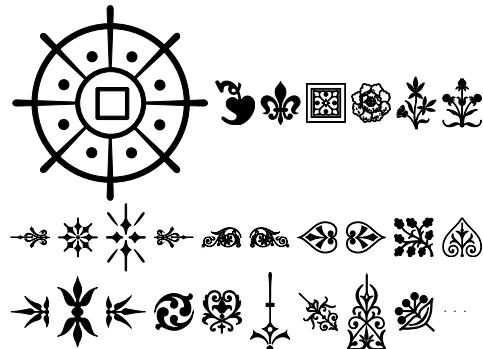
$$\frac{x+1}{x} \xrightarrow{\text{Euclidean division}} 1 + \frac{1}{x}$$

```
\documentclass[a4paper, 12pt]{article}
\usepackage{mathtools}
\newcommand{\twoline}[2]{\overset{\textup{\scriptsize #1}}{\textup{\scriptsize #2}}}

\begin{document}
\begin{equation*}
\frac{x+1}{x} \xrightarrow{\text{Euclidean division}} 1 + \frac{1}{x}
\end{equation*}
\end{document}
```

## 2 Text, Symbols

### 2.1 Ornaments from \pgfornament



```
\documentclass[varwidth]{standalone}
\usepackage[object=vectorian]{pgfornament}
\usepackage{tikz}

\begin{document}
\pgfornament[width=5cm]{4} \pgfornament[width=1cm]{5}
\pgfornament[width=1cm]{6} \pgfornament[width=1cm]{7}
\pgfornament[width=1cm]{8} \pgfornament[width=1cm]{9}
\pgfornament[width=1cm]{10} \pgfornament[width=1cm]{11}
\pgfornament[width=1cm]{12} \pgfornament[width=1cm]{13}
\pgfornament[width=1cm]{14} \pgfornament[width=1cm]{15}
\pgfornament[width=1cm]{16} \pgfornament[width=1cm]{17}
\pgfornament[width=1cm]{18} \pgfornament[width=1cm]{19}
\end{document}
```

### 2.2 Wireframe rendering

boxed boxed  
boxed

```
\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\blindenumerate[10]}
\end{document}
```

## 2.4 Text under an underline

text Some long Text text  
text under line

```
\documentclass{standalone}
\usepackage{array}
%\setlength\extrarowheight{2pt}
\newcommand{\mycommand}[2]{\begin{tabular}[t]{@{}c@{}}
#1\\ \hline
#2
\end{tabular}}
\begin{document}
text \mycommand{Some long Text}{text under line} text
\end{document}
```

## 2.5 Various types of underlining

Some important text  
Some urgent text  
Some boat text  
Some wrong text  
Some ~~removed~~ text  
Some dashing text  
Some dotty text

```
Some \uline{important} text\\
Some \uuuline{urgent} text\\
Some \uwave{boat} text\\
Some \sout{wrong} text\\
Some \xout{removed} text\\
Some \dashuline{dashing} text\\
Some \dotuline{dotty} text
```

```
\documentclass[14pt]{extreport}
\usepackage{ulem}

\begin{document}
\uline{important} \uuuline{urgent}
\ uwave{boat} \sout{wrong}
\xout{removed} \dashuline{dashing}
\dotuline{dotty}
\end{document}
```

## 2.6 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	
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
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}
```

## 2.7 Change the title of \tableofcontents

Whatever	
1 Section	
1.1 Subsection . . . . .	1
1 Section	
1.1 Subsection	

```
\documentclass{article}
\renewcommand{\contentsname}{Whatever}

\begin{document}
\tableofcontents

\subsection{\hll{Section}}
\subsection{\hll{Subsection}}
\end{document}
```

### 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}}%
    \begingroup
    \lst@basicstyle
    \ifodd\value{lstnumber}%
        \color{#1}%
    \else
        \color{#2}%
    \fi
    \rlap{\hspace*{\lst@numbersep}}%
    \color@block{\linewidth}{\ht\strutbox}{\dp\strutbox}%
    }%
    \endgroup
\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,
framexbottommargin=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}
```

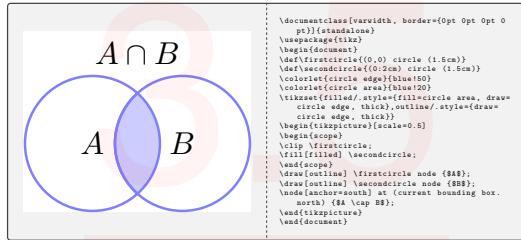
### 3.4 Listing with minted

```
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}
```

### 3.5 Run LaTeX code inside and show result



```
\documentclass[varwidth, border=0pt 0pt 0pt 0pt]{standalone}
\usepackage{tikz}
\begin{document}
\begin{tikzpicture}[scale=0.5]
\draw[fill=red!10] (0,0) circle (1.5cm);
\draw[fill=blue!10] (-0.8,-0.5) circle (1.5cm);
\draw[fill=blue!10] (0.8,-0.5) circle (1.5cm);
\fill[blue!20] (-0.8,-0.5) circle (1.5cm);
\fill[blue!20] (0.8,-0.5) circle (1.5cm);
\fill[blue!50] (-0.8,-0.5) circle (1.5cm) -- (0.8,-0.5) circle (1.5cm);
\node at (-0.8,-0.5) {A};
\node at (0.8,-0.5) {B};
\node at (0,-0.5) {$A \cap B$};
\end{tikzpicture}
\end{document}
```

```
\documentclass{standalone}
\usepackage[most]{tcolorbox}
\tcbset{sidebyside, width = 21cm, listing options={basicstyle=\small\ttfamily,breaklines=true}}
\begin{document}
\begin{tcblisting}[comment and listing, pdf comment, freeze pdf, compilable listing, run pdflatex, comment style={frame hidden,scale=2}]
\documentclass[varwidth, border={0pt 0pt 0pt 0pt}]{standalone}
\usepackage{tikz}
\begin{document}
\def\firstcircle{((0,0) circle (1.5cm))}
\def\secondcircle{((0:2cm) circle (1.5cm))}
\colorlet{circle edge}{blue!50}
\colorlet{circle area}{blue!20}
\tikzset{filled/.style={fill=circle area, draw=circle edge, thick},outline/.style={draw=circle edge, thick}}
\begin{tikzpicture}[scale=0.5]
\begin{scope}
\clip \firstcircle;
\fill[filled] \secondcircle;
\end{scope}
\draw[outline] \firstcircle node {$A$};
\draw[outline] \secondcircle node {$B$};
\node[anchor=south] at (current bounding box.north) {A \ cap B};
\end{tikzpicture}
\end{document}
\end{tcblisting}
\end{document}
```

### 3.6 Breaking code lines in a tcolorbox

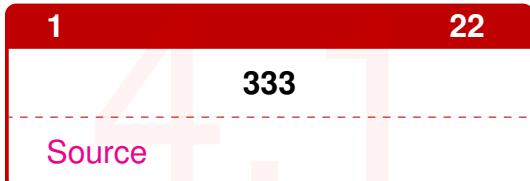
Code Snippet .1:

```
<?php  
  
function abc($file_name){  
  
    header('Content-Type: application/vnd.  
        ↪ openxmlformats-officedocument.  
        ↪ spreadsheetml.sheet');  
    header('Content-Disposition: attachment;  
        ↪ filename="'.$file_name.'");  
    header('Cache-Control: max-age=0');  
    $writer->save('php://output');  
}
```

```
\documentclass{book}  
\usepackage{hyperref}  
\usepackage[table]{xcolor}  
\usepackage{listings}  
\usepackage[most]{tcolorbox}  
\usepackage{inconsolata}  
\usepackage{graphicx}  
\tcbuselibrary{breakable}  
  
\newtcblisting[auto counter,number within=chapter]{  
    sourcecode}[2][]{sharp corners, breakable,  
    fonttitle=\bfseries, colframe=gray, listing only,  
    listing options={basicstyle=\ttfamily,language=php,  
        showstringspaces=false,  
        breaklines=true, postbreak={\raisebox{0ex}{\color{red}\hookrightarrow\space}}},  
    ensuremath{\color{red}\hookrightarrow\space}},  
    tabsize=4  
},  
    title=Code Snippet \thetcbcounter: #2, #1}  
  
\begin{document}  
  
\begin{sourcecode}{}  
<?php  
  
function abc($file_name){  
  
    header('Content-Type: application/vnd.openxmlformats  
        -officedocument.spreadsheetml.sheet');  
    header('Content-Disposition: attachment;filename=' .  
        $file_name.'');  
    header('Cache-Control: max-age=0');  
    $writer->save('php://output');  
}  
  
\end{sourcecode}  
  
\end{document}
```

## 4 Tables, boxes and so on

### 4.1 Nice tcolorbox



```
\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=0.5
cm, subtitle style={boxrule=0.4pt,colback=yellow!50!red!25!white},title=\bf{1}%
hfill \bf{22}]
\begin{center}\bf{333}\end{center}
\end{tcolorbox}
```

### 4.2 Color box with yellow border

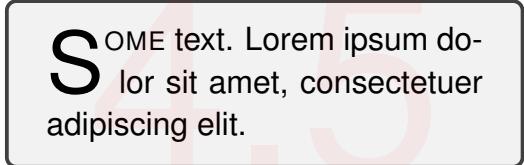


```
\documentclass[border=2mm]{standalone}
\usepackage[most]{tcolorbox}
\usepackage{lipsum}

\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



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

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

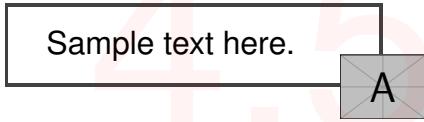
## 4.4 Table with the desired length.

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

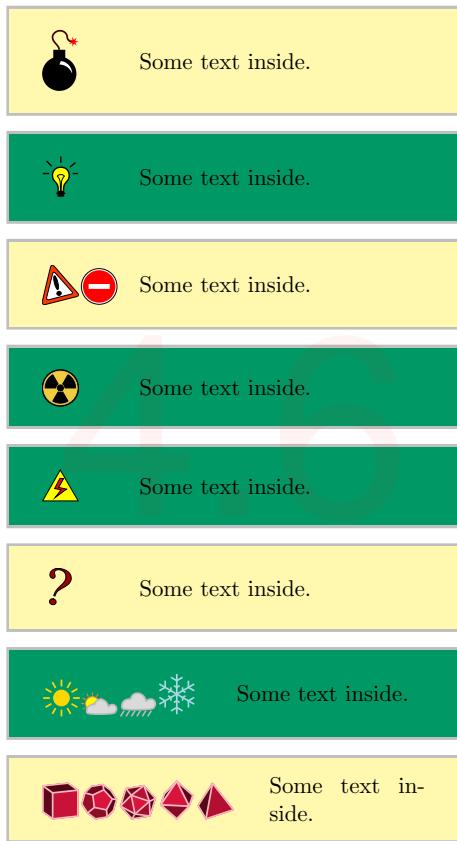
```
\usepackage{graphicx}
\usepackage{tabularx}
\newcolumntype{Y}{>{\centering\arraybackslash}X}
\begin{document}
\begin{table}[h!]
\begin{center}
\caption{\textbf{Caption}}
\begin{tabularx}{14cm}{|Y|Y|c|Y|Y|}
\hline
Variant & res & Veriaty of waters $f_0$ , res & C, res & L, res\\
\hline
5 & 1 & 2 &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

## 4.5 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}
```

## 4.6 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}
\bc bombe \tc blower Some text inside.
\end{framedd}

\begin{framedd}[colback=blue!40!green]
\bc lampe \tc blower Some text inside.
\end{framedd}

\begin{framedd}
\bc attention \bc interdit \tc blower
Some text inside.
\end{framedd}

\begin{framedd}[colback=blue!40!green]
\bc nucleaire \tc blower
Some text inside.
\end{framedd}

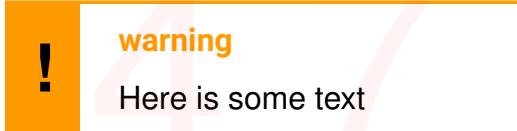
\begin{framedd}[colback=blue!40!green]
\bc danger \tc blower
Some text inside.
\end{framedd}

\begin{framedd}
\bc question \tc blower
Some text inside.
\end{framedd}

\begin{framedd}[colback=blue!40!green, lefthand width=2.5cm]
\bc soleil \bc claircie \bc pluie \bc neige \tc blower
Some text inside.
\end{framedd}

\begin{framedd}[lefthand width=3cm]
\bc cube \bc dodcaedre \bc cicosaedre \bc octaedre \bc tetraedre \tc blower
Some text inside.
\end{framedd}
\end{document}
```

## 4.7 Warning banner



## warning

Here is some text

```

\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,
leftrule=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={\ifdef\empty{\tcbtitle}{\tcbset{before upper={\tcbtitle\par\medskip}}}},}
\begin{document}
\begin{caja}[title=warning]
The vertical alignment settings
\end{caja}
\end{document}

```

## 4.8 Absolutely centered cells (vertically and horizontally)

all	in	cells
are	centered	vertically
and	horisontally	$\Sigma$

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

\begin{document}
\begin{table}[H]
\center
\makegapedcells
\begin{tabular}{|c|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

$$\begin{array}{c|ccccc}
 & a_{1,1} & \dots & a_{1,n} & 0 \\
 d_{n+1} & a_{1,1} & \dots & a_{1,n} & 0 \\
 & \dots & \dots & \dots & \dots \\
 & a_{1,1} & \dots & a_{1,n} & 0 \\
 & a_{1,1} & \dots & a_{1,n} & 0 \\
 & a_{1,1} & \dots & a_{1,n} & 0 \\
 & \dots & \dots & \dots & \dots \\
 & a_{1,1} & \dots & a_{1,n} & 0
 \end{array} = 0$$

```
\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{pdflscape}
\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}
\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 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}}
\newtcboxtheorem{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}
```

## 4.15 Text next to a table

without shadow

with shadow

with shadow

with shadow

without pattern

\*\*\*\*\*

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

\makeatletter
\tikzset% customization of pattern
  % based on <m.wiborg@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
{\pgfqpoint{-1pt}{-1pt}}% below left
{\pgfqpoint{\hatchdistance}{\hatchdistance}}% above right
{\pgfpoint{\hatchdistance-1pt}{\hatchdistance-1pt}}%
{
  \pgfsetcolor{\tikz@pattern@color}
  \pgfsetlinewidth{\hatchthickness}
  \pgfpathmoveto{\pgfqpoint{0pt}{0pt}}
  \pgfpathlineto{\pgfqpoint{\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}
```

## 4.16 Halfframed boxes

<b>Title 1</b>	<b>Title 2</b>	<b>Title 3</b>
some text in the first box some text in the first box	some text in the second box some text in the first box	some text in the third box blabla some text in the first box some text in the first box

```
\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{\color@endbox\tcbdimto\myheight{\wd\z@+3mm}},minimum for equal height group=\tcb@ehgid:\myheight, }}}
\makeatother

\begin{document}
\begin{frame}
\begin{tcbraster}[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{tcbraster}
\end{frame}
\end{document}
```

# 5 Figures

## 5.1 Comment to figure

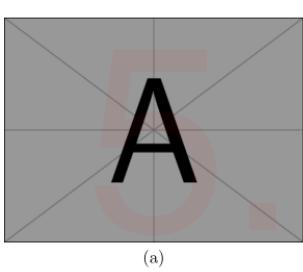


This is an example.

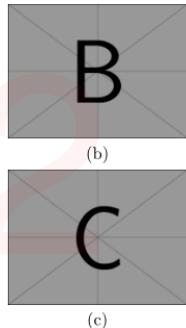
```
\documentclass{article}
\usepackage{tikz}
\usetikzlibrary{shapes.callouts}

\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}
```

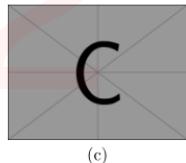
## 5.2 Positioning 1 | 2



(a)



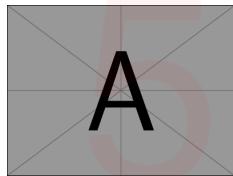
(b)



(c)

```
\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 \quad \quad
\begin{tabular}{@{}c@{}}
\subfloat[\includegraphics[width=0.3\linewidth]{example-image-b.png}]{(b)}\quad [0.1cm]\\
\subfloat[\includegraphics[width=0.3\linewidth]{example-image-c.png}]{(c)}
\end{tabular}
\end{figure}
\caption{Caption.}
\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 **sabfigure** references

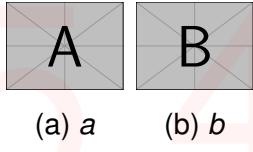


Fig. 1a ← a in ***italic*** style

```
\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 \textbf{\textit{italic}} style
\end{document}
```

## 5.5 Wrapfigure



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

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 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 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}
```

## 5.6 Figures in landscape mode

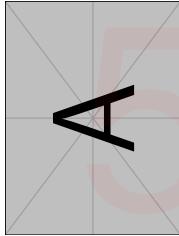


Table 2

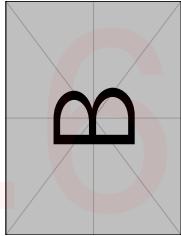


Table 3

```
\documentclass[12pt]{report}
\usepackage{graphicx}
\usepackage{lipsum}
\begin{document}
qqqqqq
\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}
```

## 5.7 Three figures in a row



Figure 1: Caption



Figure 2: Caption



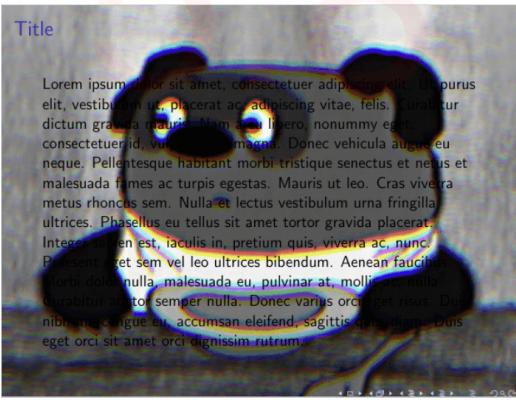
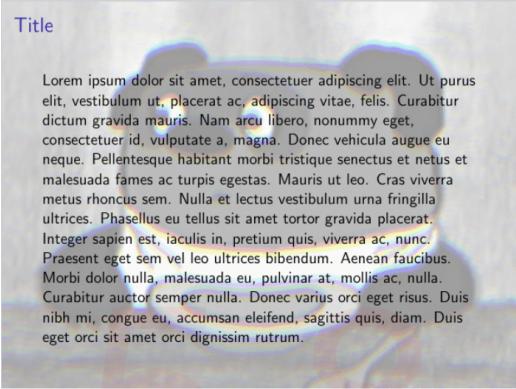
Figure 3: Caption

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[english]{article}
\usepackage[demo]{graphicx}
\usepackage[babel,blindtext]{}

\begin{document}
\blindtext
\begin{figure}[]htb]
\minipage{0.32\textwidth}
\includegraphics[width=\linewidth]{delete_gesture.png}
\caption{Caption}\label{fig:awesome_image1}
\endminipage\hfill
\minipage{0.32\textwidth}
\includegraphics[width=\linewidth]{ok_gesture.png}
\caption{Caption}\label{fig:awesome_image2}
\endminipage\hfill
\minipage{0.32\textwidth}%
\includegraphics[width=\linewidth]{settings_gesture.png}
\caption{Caption}\label{fig:awesome_image3}
\endminipage
\end{figure}
\blindtext
\end{document}
```

## 5.8 Image as a background in a presentation



```
\documentclass{beamer}
\usepackage{transparent}
\usepackage{lipsum}

\begin{document}
\usebackgroundtemplate{\transparent{0.4}\includegraphics[width=\paperwidth
, height=\paperheight]{example-image-a}}
\begin{frame}{Title}
\lipsum[1]
\end{frame}
\usebackgroundtemplate{\includegraphics[width=\paperwidth, height=\
paperheight]{example-image-a}}
\begin{frame}{Title}
\lipsum[1]
\end{frame}
\end{document}
```

# 6 Numbering, enumeration, itemizing

## 6.1 Numbering in few columns

1. c

2. g

3. d

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

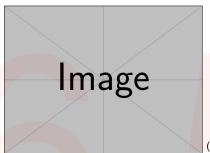
6)

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 Change footnote symbol

Sample frame title



Just by changing the value of the number you can insert the symbol of your choice.

1. asterisk \*
2. dagger †
3. double dagger ‡
4. section symbol §
5. paragraph ¶
6. parallel lines ||
7. two asterisks \*\*

```
\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}
```

## 6.5 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}
```

## 6.6 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 I	121 I	122 I	123 •	124 •	125 •	126 ■	127 ■
161 ♣	162 ♣	163 ♣	164 ♣	165 ♣	166 ♣	167 ♣	168 ♣

✓ 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 ✷
241 ✸	242 ✹	243 ✺	244 ✻	245 ✼	246 ✽	247 ✶	248 ✷
249 ✸	250 ✹	251 ✺	252 ✻	253 ✼	254 ✽	255 ✶	256 ✷

```
\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}
```

## 6.7 Split itemize into multiple columns

Two columns:

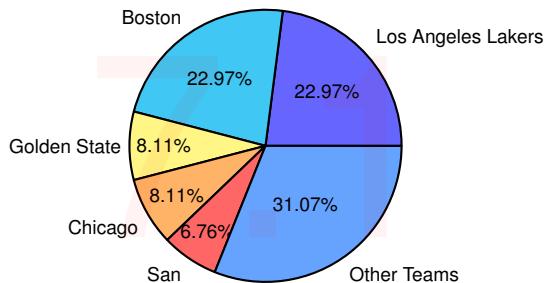
- item 1
  - item 2
  - item 3
- item 4
  - item 5
  - item 6

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

\begin{document}
Three columns:
\begin{multicols}{3}
\begin{itemize}
\item item 1
\item item 2
\item item 3
\item item 4
\item item 5
\item item 6
\end{itemize}
\end{multicols}
\end{document}
```

# 7 Plots, tikz, pie charts ...

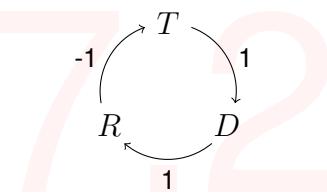
## 7.1 Simple pie chart



```
\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}
```

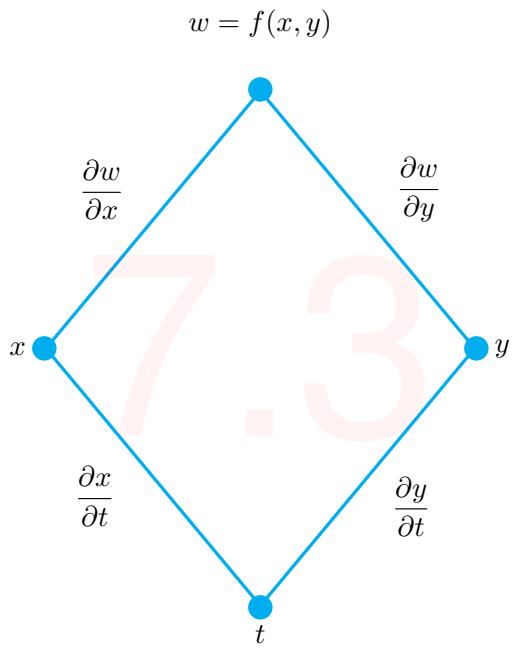
## 7.2 Circled arrows with text



```
\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=0cm
]{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) {$\frac{\partial w}{\partial y}$};
\node [above=0.5cm,left=0.1cm] (c) at (d.135) {$\frac{\partial w}{\partial x}$};
\node [left=0.1cm] (dd) at (d.180) {$\frac{\partial x}{\partial t}$};
\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) {$\frac{\partial y}{\partial t}$};
\node [below=0.5cm,left=0.1cm] (h) at (d.220) {$\frac{\partial x}{\partial t}$};
\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

### 7.5 Round levels of skills

### 7.6 Huge margin line



Word



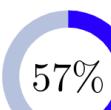
LaTeX



C++



Python

**Skill #1**  
info



**Skill #2**  
info



**Skill #3**  
info

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

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

```
\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-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];
}}]

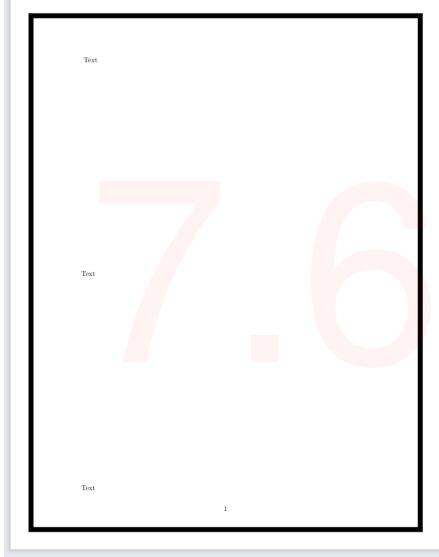
\newlist{achievements}{itemize}{1}
\setlist[achievements]{
before=\let\item\percentageItem,%make \item = \percentageItem
leftmargin=*, 
label={},
itemsep=3mm,
}

\begin{document}

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

\end{document}
```

## 7.7 Aligning anything to a corner



```
\documentclass{article}
\usepackage[margin=3cm]{geometry}
\usepackage{tikz}

\begin{document}
\tikz[overlay, remember picture] \draw[line width=2.5mm] ([xshift=1cm,
yshift=-1cm]current page.north west) rectangle ([xshift=-1cm, yshift
=1cm]current page.south east);
Text
\fill
Text
\fill
Text
\end{document}
```



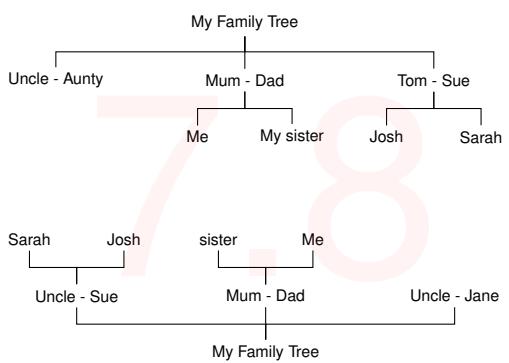
```
\documentclass[14pt]{extreport}
\usepackage{tikz}
\usepackage{qrcode}

\begin{document}
\begin{tikzpicture}[remember picture,overlay]
\node[anchor=north west,yshift=0pt,xshift=0pt]%
at (current page.north west)
{\qrcode[height=0.5cm]{https://github.com/AnMnv/eBook}%; --- put here anything
};
\end{tikzpicture}
\end{document}

OR the rainbow variant (see example 9.7)

\begin{tikzpicture}[remember picture,overlay]
\node at ($(current page.north west)+(.70cm,-.75cm)$)
{\fadingtext[scale=0.5]{path picture shading=rainbow}
{\qrcode[height=3cm]{https://github.com/AnMnv/eBook}}};
\end{tikzpicture}
```

## 7.8 Family tree

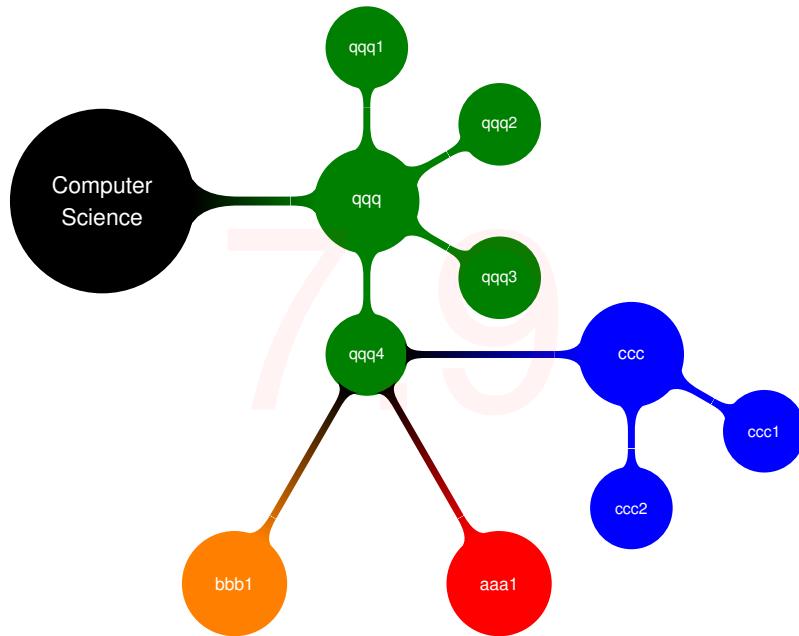


```

\documentclass{article}
\usepackage{tikz}
\usetikzlibrary{trees}

\begin{document}
\begin{tikzpicture}[level 1/.style={sibling distance=5cm},level 2/.style={sibling distance=2.5cm}]
\node {My Family Tree}[edge from parent fork down]
    child { node {Uncle John - Aunty Jane}}
    child { node {Mum - Dad}
        child {node{Me}}
        child {node{My sister}}
    }
    child { node {Uncle Tom - Aunty Sue}
        child {node{Cousin Josh}}
        child {node{Cousin Sarah}}
    };
\end{tikzpicture}
\end{document}
  
```

## 7.9 Mind map



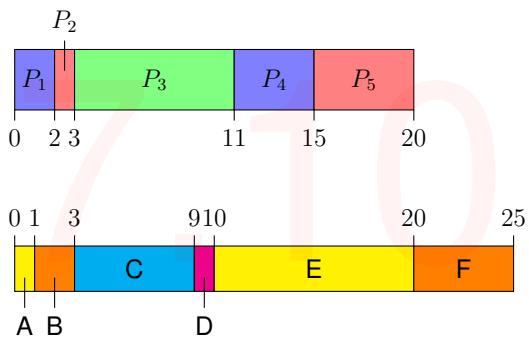
```
\documentclass{article}
\usepackage[utf8]{inputenc}
\usepackage{tikz}
\usetikzlibrary{mindmap}
\usetikzlibrary[mindmap]

\begin{document}

\begin{tikzpicture}
\path[mindmap,concept color=black,text=white]
node[concept] {Computer Science}
[clockwise from=0]
% note that 'sibling angle' can only be defined in
% 'level 1 concept/.append style={}'
child[concept color=green!50!black] {
    node[concept] {practical}
    [clockwise from=90]
    child[concept] {algorithms} }
    child[concept] {data structures} }
    child[concept] {pro\text{-}gramming languages} }
    child[concept] {software engineer\text{-}ing} }
}
% note that the 'concept color' is passed to the 'child'(!)
child[concept color=blue] {
    node[concept] {applied}
    [clockwise from=-30]
    child[concept] {databases} }
    child[concept] {WWW} }
}
child[concept color=red] { node[concept] {technical} }
child[concept color=orange] { node[concept] {theoretical} };
\end{tikzpicture}

\end{document}
```

## 7.10 Gantt chart

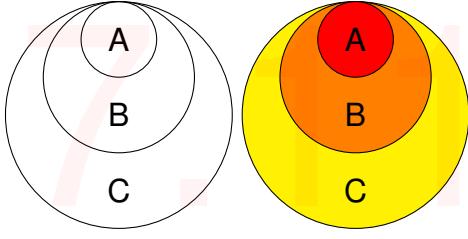


```
\documentclass[border=10pt]{standalone}
\usepackage{tikz}

\newif\ifsimplegantttickpositionbelow
\tikzset{
  pics/simple gantt/.style={
    code={
      \ifsimplegantttickpositionbelow
        \path[/tikz/simple gantt/tick] (0,0) --
          +(0,{1*\pgfkeysvalueof{/tikz/simple gantt/tick length}}) node[/tikz/simple gantt/tick label] {\pgfmathprintnumber{0}};
      \else
        \path[/tikz/simple gantt/tick] (0,{\pgfkeysvalueof{/tikz/simple gantt/height}}) --
          +(0,{\pgfkeysvalueof{/tikz/simple gantt/tick length}}) node[/tikz/simple gantt/tick label] {\pgfmathprintnumber{0}};
      \fi
      \foreach \n/\x [count=\i, remember=\x as \lastx (initially 0)] in {#1} {
        \ifsimplegantttickpositionbelow
          \path[/tikz/simple gantt/tick] ({\x*\pgfkeysvalueof{/tikz/simple gantt/width unit}},0) --
            +(0,{1*\pgfkeysvalueof{/tikz/simple gantt/tick length}}) node[/tikz/simple gantt/tick label] {\pgfmathprintnumber{\x}};
        \else
          \path[/tikz/simple gantt/tick] ({\x*\pgfkeysvalueof{/tikz/simple gantt/width unit}},\pgfkeysvalueof{/tikz/simple gantt/height}) --
            +(0,{\pgfkeysvalueof{/tikz/simple gantt/tick length}}) node[/tikz/simple gantt/tick label] {\pgfmathprintnumber{\x}};
        \fi
        \pgfmathparse{int(mod(\i - 1, \pgfkeysvalueof{/tikz/simple gantt/color cycle length}) + 1)}
        \global\pgfkeyslet{/tikz/simple gantt/color cycle step}{\pgfmathresult}
        \path[
          /tikz/simple gantt/box,
          fill={simple gantt color \pgfkeysvalueof{/tikz/simple gantt/color cycle step}},
        ]
        ({\lastx*\pgfkeysvalueof{/tikz/simple gantt/width unit}},0) rectangle
        ({\x*\pgfkeysvalueof{/tikz/simple gantt/width unit}},\pgfkeysvalueof{/tikz/simple gantt/height})
        \pgfextra{\pgfmathparse{\x - \lastx}}
        \ifdim\pgfmathresult pt < \pgfkeysvalueof{/tikz/simple gantt/label as pin if value below} pt\relax
          node[/tikz/simple gantt/label, pin={/\tikz/simple gantt/label pin}\pgfkeysvalueof{/tikz/simple gantt/label pin angle}:\n] {}
        \else
          node[/tikz/simple gantt/label] {\n}
        \fi ;
      }
      simple gantt/color cycle length/.initial={0},
      simple gantt/color cycle step/.initial={1},
      simple gantt/color cycle/.code={
        \foreach \c [count=\i] in {#1} {
          \xglobal\colorlet{simple gantt color \i}{\c}
          \global\pgfkeyslet{/tikz/simple gantt/color cycle length}{\i},
          simple gantt/height/.initial={1cm},
          simple gantt/width unit/.initial={1cm},
          simple gantt/box/.style={},
          simple gantt/label/.style={pos=0.5},
          simple gantt/label pin/.style={above, pin edge={black, thin}, pin distance=0.5cm},
          simple gantt/label pin angle/.initial={90},
          simple gantt/label as pin if value below/.initial={1.5},
          simple gantt/tick/.style={draw},
          simple gantt/tick label/.style={below},
          simple gantt/tick position/.is choice,
          simple gantt/tick position/above/.code={\simplegantttickpositionbelowfalse},
          simple gantt/tick position/below/.code={\simplegantttickpositionbelowtrue},
          simple gantt/tick position/.initial={below},
          simple gantt/tick length/.initial={5pt},
          simple gantt/color cycle={blue!50, red!50, green!50},}
      }
    }
  }
  \begin{document}
  \begin{tikzpicture}
  \tikzset{simple gantt/.cd, width unit=0.33cm, box/.style={draw}}
  \pic at (0,0) {simple gantt={$P_1$/$2$, $P_2$/$3$, $P_3$/$11$, $P_4$/$15$, $P_5$/$20$}};

  \tikzset{simple gantt/.cd, height=0.75cm, color cycle={yellow, orange, cyan, magenta}, label pin angle={270}, label pin/.append style={below}, tick position={above}, tick label/.append style={above}, label as pin if value below={4}}
  \pic at (0,-3) {simple gantt={A/$1$, B/$3$, C/$9$, D/$10$, E/$20$, F/$25$}};
  \end{tikzpicture}
  \end{document}
```

## 7.11 Drawing a stacked venn diagram



```
\documentclass[border=10pt]{standalone}
\usepackage{tikz}

\begin{document}
\begin{tikzpicture}[scale=0.5]
\foreach \x [count=\y] in {A,B,C} {
    \draw (0,-\y) circle[radius=\y];
    \node at (0,-2*\y+1) {\x};
}
\end{tikzpicture}
\begin{tikzpicture}[scale=0.5]
\foreach \x/\z [count=\y] in {C/yellow,B/orange,A/red} {
    \draw[fill=\z] (0,\y-4) circle[radius={4-\y}];
    \node at (0,-2*(4-\y)+1) {\x};
}
\end{tikzpicture}
\end{document}
```

# 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}
\newtcbox{\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}
\newtcbox{\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[red]{fox}... \par
The \xmybox[green]{quick} brown \xmybox[red]{fox} ...
\end{document}
```

## 8.2 Unusual words highlighting

Here You can see TYP more examples and learn something new.

```
\usepackage[many]{tcolorbox}
\newtcbox{\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{WL1
    /}#1}}\setlength{\mylength}{\dimexpr\CircleFactor\dimexpr\ht\mybox+\dp\mybox\relax\relax}\tikzset{mystyle/.style={circle,#1,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

some text  
some text  
some text

```
\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}
```

## 8.5 Circle text in points to other text

This is just some text that I will repeat for this section again and again.  
This is just some text that I will repeat for this section again and again.

your comment here

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

\begin{document}
\tikzset{mynode/.style={inner sep=2pt,fill=cyan!50,draw=blue,line width=1pt,rounded corners}}


This is just some \tikzmarknode[mynode]{A}{text that} I will repeat for
this section again and again. This is just some text that I will
repeat for this section again and again.

\begin{tikzpicture}[remember picture, overlay]
\draw[->,line width=1pt,blue] (A) --+(1,1) node[above right] {your
comment here};
\end{tikzpicture}

\end{document}
```

## 8.6 Keybutton

Press **alt** + **F4** for help !

```
\documentclass[10pt]{article}
\usepackage{tikz}
\usetikzlibrary{shadows}
\tikzstyle{buttonstyle} = [rectangle, fill = black!30, draw = black!80,
    drop shadow, font={\sffamily\bfseries}, text=white]
\newcommand*\button[1]{\tikz{\node[buttonstyle] {#1};}}
\begin{document}
Press \button{F5} for help !
\end{document}
```

## 8.7 Colorful \tableofcontents

Press **alt** + **F4** for help !

```
\documentclass{article}
\usepackage{tocloft}
\usepackage{xcolor}
\usepackage{tikz}
\usetikzlibrary{backgrounds}
\usetikzlibrary{calc}
\newcounter{seccntr}
\setcounter{seccntr}{-1}
\newcommand*\hnode[1]{%
\tikz[remember picture] \node[minimum size=0pt,inner sep=0pt,outer sep=4.5
    pt] (#1) {};}
\renewcommand{\cftsecfont}{\hnode{P1}\bfseries\Large
\stepcounter{seccntr}%
\ifcase\value{seccntr}%
\tikz[remember picture,overlay] \draw (P1.north west) [line width={17pt},
    red,opacity=0.3] -- ++($(\textwidth,0) + (1ex,0)$);
\or\tikz[remember picture,overlay] \draw (P1.north west) [line width={17pt
    }, green,opacity=0.4] -- ++($(\textwidth,0) + (1ex,0)$);
\or\tikz[remember picture,overlay] \draw (P1.north west) [line width={17pt
    }, yellow,opacity=1] -- ++($(\textwidth,0) + (1ex,0)$);
\or\tikz[remember picture,overlay] \draw (P1.north west) [line width={17pt
    }, blue,opacity=0.6] -- ++($(\textwidth,0) + (1ex,0)$);
\or\tikz[remember picture,overlay] \draw (P1.north west) [line width={17pt
    }, orange,opacity=0.7] -- ++($(\textwidth,0) + (1ex,0)$);
\else\tikz[remember picture,overlay] \draw (P1.north west) [line width={17
    pt}, gray,opacity=0.8] -- ++($(\textwidth,0) + (1ex,0)$);-- default
\fi %
}
\renewcommand{\cftsecpagefont}{\bfseries}

\begin{document}
\tableofcontents
\section{First Section}\subsection{\hll{A} su
bsubsection}\subsection{\hll{A} su
bsubsection}
\section{Second Section}\subsection{\hll{A} su
bsubsection}
\section{Third Section}
\end{document}
```

# 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

- first
- second

```
\documentclass{article}
\usepackage{xparse}
\usepackage{fancyvrb}
\usetikzlibrary{calc, shadows}
\NewDocumentCommand{\StickyNoteP}{O{6cm}mO{6cm}}{%
\begin{tikzpicture}[remember picture]
\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\Large second }}[6.5cm]
\end{document}
```

# 9.3

```

\documentclass{article}
\usepackage{tikz}
\usetikzlibrary{fadings, shadings}
\newcounter{fadcnt}\setcounter{fadcnt}{0}
\newcommand\fadingtext[3][]{%
\stepcounter{fadcnt}
\begin{tikzfadingfrompicture}[name=fading letter\thefadcnt]
\node[text=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{\pgfuseshading{#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}

```



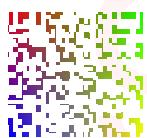
## 9.6 Generating QR code



```
\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



7

```
\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{\pgfuseshading{\#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}
```

## 9.8 Lobsrets



1

2

```
\documentclass[14pt]{extreport}
\usepackage[left=1.5cm,right=3cm,top=1.5cm,
bottom=1.5cm,bindingoffset=0cm]{geometry}
\usepackage{loblib}

\begin{document}
\lob{1} \lob{12}
\lob{2} \lob{20}
\lob{3} \lob{21}
\lob{4} \lob{22}
\lob{5} \lob{28}
\lob{6} \lob{32}
\lob{7} \lob{33}
\lob{8} \lob{74}
\lob{9} \lob{76}

\vspace*{2cm}
\hspace*{-2.8cm}
\definecolor{shadow}{rgb}{0.85,0.85,0.85}
\lob[rotate=-90,shadow,xscale=-1.2,yscale=1.2]{77}

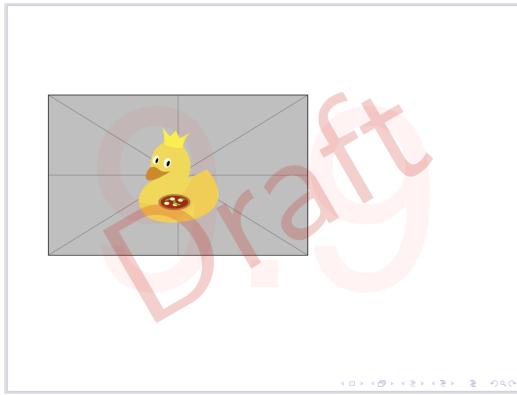
\lobwatermark
\end{document}
```

LobLib documentation on [GitHub](#) in [LobLib-package](#) folder.

Origins of the package <https://github.com/bryce-evans/LobLib>

However, to print lobsters put [objects](#) folder and [loblib.sty](#) from the [LobLib-package](#) folder into the same directory with your [.tex](#) file.

## 9.9 Watermark over everything



```
\documentclass{beamer}

\usepackage{tikz}
\AddToHook{shipout/foreground}{
\begin{tikzpicture}[remember picture,overlay]
\node[red,rotate=30,scale=10,opacity=0.2] at (current page.center) { Draft };
\end{tikzpicture}
}

\begin{document}
\begin{frame}
\includegraphics{example-image-duck}
\end{frame}
\end{document}
```

## 9.10 Simple Emoji by dilippuri

- ☞ copy [latexemoji.sty] file where your [\* .tex] is stored
- ☞ copy [latex\_emoji] folder where your [\* .tex] is stored
- ☞ include package by
  - \usepackage{latexemoji}

☞ To use any emoji just type \latexemoji{pray} that will print → ☮

emoji	Name	emoji	Name	emoji	Name
😡	angry	😊	anguished	🙏	bow
💔	broken.heart	👏	clap	♣	club
😓	cold.sweat	😢	confused	♦	diamond
😔	disappointed	😌	disappointed.relieved	🌐	expressionless
😨	fearful	🤗	hast	😳	flushed
👧	girl	😍	grinningacing	😁	grin
👤	hand	❤️	heart	😆	heart_eyes
😎	imp	😇	innocent	🤣	joy
😘	kiss	😗	kissing	😙	kissing.heart
😂	laughing	😘	mask	💪	muscle
😐	neutral.face	😶	no.mouth	👌	ok.hand
👋	open.hands	👋	open.month	🤔	pensive
⬇️	point.down	👉	point.left	👉	point.right
⬆️	point.up	👉	point.up.2	🛐	pray
👊	punch	😡	rage	🙌	raised.hands
😌	relaxed	😌	relieved	😢	sad
😱	scream	😊	simple.smile	😴	sleep
😪	sleepy	😊	smile	😉	smirk
😭	sob	♠	spade	😅	stuck.out.tongue
😅	stuck.out.tongue.closed.eyes	😅	stuck.out.tongue.wink.eye	😎	sunglasses
😅	sweat.smile	👉	thumbdown	😎	thumbsup
😫	tired.face	😊	triumph	✌️	victory.v
👋	wave	😊	wearily	😉	wink
😟	worried	😊	yum	-	-

```
\documentclass{article}
\title{This is an example tex file to include emoji in latex}
\author{Dilip Puri}

\begin{document}
\maketitle
Hi, I am (dilippuri) going to include emoji in latex. So I \latexemoji{heart} \LaTeX.\\
I just \latexemoji{stuck_out_tongue_wink_eye}.\\
Good bye! \latexemoji{wave}
\end{document}
```

## 10 Animation, videos, interaction

### 10.1 Video in PDF (okular as a .pdf viewer was used)



```

\documentclass{article}
%\input{embed_video.tex}
\usepackage{graphicx}
\usepackage[hidelinks]{hyperref}

%%%%%%%%%This is embed_video.tex (below till \begin{document})%%%%%%%%%
\usepackage[bigfiles]{pdfbase}
\ExplSyntaxOn
\NewDocumentCommand\embedvideo{smm} {
    \group_begin:
    \leavevmode
    \tl_if_exist:cTF{file_\file_mdfive_hash:n{#3}}{
        \tl_set_eq:Nc\video{file_\file_mdfive_hash:n{#3}}
    }{
        \IfFileExists{#3}{}{\GenericError{}{File~'#3'~not~found}{}{}}
        \pbs_pdfobj:nnn{fstream}{\file_mdfive_hash:n{#3}}
        \pbs_pdfobj:nnn{dict}{}{
            /Type/Filespec/F~(#3)/UF~(#3)
            /EF~<</F~\pbs_pdflastobj:>>
        }
        \tl_set:Nx\video{\pbs_pdflastobj:}
        \tl_gset_eq:cN{file_\file_mdfive_hash:n{#3}}\video
    }
    %
    \pbs_pdfobj:nnn{dict}{}{
        /Type/RichMediaInstance/Subtype/Video
        /Asset~\video
        /Params~<</FlashVars (
            source:#3&
            skinSkinOverAllNoFullNoCaption.swf&
            skinAutoHide=true&
            skinBackgroundColor=0x5F5F5F&
            skinBackgroundAlpha=0
        )>>
    }
    %
    \pbs_pdfobj:nnn{dict}{}{
        /Type/RichMediaConfiguration/Subtype/Video
        /Instances~[\pbs_pdflastobj:]
    }
    %
    \pbs_pdfobj:nnn{dict}{}{
        /Type/RichMediaContent
        /Assets~<<
            /Names~[(#3)~\video]
        >>
        /Configurations~[\pbs_pdflastobj:]
    }
    \tl_set:Nx\rmcontent{\pbs_pdflastobj:}
    %
    \pbs_pdfobj:nnn{dict}{}{
        /Activation~<<
            /Condition/\IfBooleanTF{#1}{PV}{XA}
            /Presentation~<</Style/Embedded>>
        >>
        /Deactivation~<</Condition/PI>>
    }
    %
    \hbox_set:Nn\l_tmpa_box{#2}
    \tl_set:Nx\l_box_wd_tl{\dim_use:N\box_wd:N\l_tmpa_box}
    \tl_set:Nx\l_box_ht_tl{\dim_use:N\box_ht:N\l_tmpa_box}
    \tl_set:Nx\l_box_dp_tl{\dim_use:N\box_dp:N\l_tmpa_box}
    \pbs_pdfform:nnnn{1}{1}{1}{1}\l_tmpa_box
    %
    \pbs_pfdannot:nnnn{\l_box_wd_tl}{\l_box_ht_tl}{\l_box_dp_tl}{%
        /Subtype/RichMedia
        /BS~<</W~0/S/S>>
        /Contents~(embedded~video~file:#3)
        /NM~(rma:#3)
        /AP~<</N~\pbs_pdflastxform:>>
        /RichMediaSettings~\pbs_pdflastobj:
        /RichMediaContent~\rmcontent
    }
    \phantom{#2}
    \group_end:
}
\ExplSyntaxOff
%%%%%%%%%source
%https://gist.github.com/FedericoTartarini/7af4eb6fc13b1cb9cc68b7e8ea823d50

\begin{document}
\begin{center}
    \embedvideo{\includegraphics[width=\textwidth]{ANY_IMAGE.jpg}}{ANY_VIDEO.mp4}
\end{center}
\end{document}

```