customenvs [en]

Some custom environments,
or small patches.

Version 0.3.5 -- 05/05/2025

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2 The package customenvs

2.1 Idea

The idea is to propose some classics environments with customizations (some are, for the moment, only in french) :

- write in *multicols*, with spacings enhancements ;
- present answers for a *MCQ* ;
- create a list with *choosen items* (randomly or by numbers) ;
- present a skill table.

The globa idea is ti propose *user-friendly* environments, with explicit customizations, without using verbose syntax ; but there's other solutions, using for example `\vspace` ou `\setlength` or `spacingtricks` package.

2.2 Loading

The package loads within the preamble with `\usepackage{customenvs}`.
Loaded packages are

- `xstring`, `simplekv`, `listofitems`, `randomlist` and `xintexpr` ;
- `enumitem` ;
- `multicol` ;
- `tabularray` ;
- `fontawesome` ;

Due to limitations, `enumitem`/`multicol`/`tabularrayfontawesome5/6` can be *un*loaded by `customenvs` (user must load them manually) via options :

- ⟨`beamer`⟩ for using with beamer ;
- ⟨`noenum`⟩ ;
- ⟨`nomulticol`⟩ ;
- ⟨`notblr`⟩ ;
- ⟨`nofa`⟩.

```
%with all packages
\usepackage{customenvs}

%with option to no load some packages
\usepackage[option(s)]{customenvs}
```

3 Answers for a MCQ

3.1 Idea

The idea is to propose an environment to present answers for a MQC with `tabularray` (and not `multicols`). It's possible to use 2, 3 or 4 answers (and with 4 answers it's possible to use 2 columns.)

```
\AnswersMCQ[options]{list of answers}<tblr options>
```

The avalailable `options` are :

- `Width` : `0.99\linewidth` by default ;
- `Lines` : `false` by default ;
- `SpaceCR` for Columns/Rows spacing, within `col/row` or `global` : `6pt/2pt` by default ;
- `NumCols`, 2 or 4 : `4` by default ;
- `Labels` for the labels : `a.` by default ;
  - with `box` to use a *Box* ;
  - with `a` to *enumerate* `a b c d` ;
  - with `A` to *enumerate* `A B C D` ;
  - with `1` to *enumerate* `1 2 3 4` ;
- `FontLabels` : `\bfseries` by default ;
- `SpaceLabels` : `\kern5pt` by default ;
- `Shuffle`, for mixing answers : `false` by default ;
- `Swap`, for ACBD instead of ABCD : `false` by default.

The list of answers must be given within `answA § answB § ...`.
Specific options for `tblr` are given between last optionnal argument, between `<...>`.

3.2 Examples

```
%default output
\AnswersMCQ{Answer A § Answer B § Answer C § Answer D}
```

a. Answer A **b.** Answer B **c.** Answer C **d.** Answer D

```
\AnswersMCQ[Lines]{Answer A § Answer B § Answer C § Answer D}

\AnswersMCQ[Lines,Shuffle]{Answer A1 § Answer B1 § Answer C1 § Answer D1}

\AnswersMCQ[Lines,Shuffle]{Answer A2 § Answer B2 § Answer C2 § Answer D2}
```

a. Answer A	**b.** Answer B	**c.** Answer C	**d.** Answer D
a. Answer C1	**b.** Answer A1	**c.** Answer D1	**d.** Answer B1
a. Answer A2	**b.** Answer B2	**c.** Answer D2	**d.** Answer C2

```
\AnswersMCQ[Lines,Labels=(1.),SpaceLabels={~~~}]{Answer A § Answer B § Answer C}
```

(1.) Answer A	**(2.)** Answer B	**(3.)** Answer C

```
\AnswersMCQ[Labels={A.},FontLabels={\color{red}\bfseries}]%
    {Answer A § Answer B § Answer C § Answer D}
```

A. Answer A **B.** Answer B **C.** Answer C **D.** Answer D

```
\AnswersMCQ[Labels={1.},FontLabels={\color{red}\bfseries}]%
    {Answer A § Answer B § Answer C § Answer D}
```

1. Answer A **2.** Answer B **3.** Answer C **4.** Answer D

```
\AnswersMCQ[NumCols=2,Labels={A.},FontLabels={\color{red}\bfseries}]%
    {Answer A § Answer B § Answer C § Answer D}
```

A. Answer A
B. Answer B
C. Answer C
D. Answer D

```
\AnswersMCQ[NumCols=2,Swap,Labels={A.},FontLabels={\color{red}\bfseries}]%
    {Answer A § Answer B § Answer C § Answer D}
```

A. Answer A
B. Answer B
C. Answer C
D. Answer D

```
\AnswersMCQ[Lines,NumCols=2,SpaceCR=6pt/10pt,Labels=box]%
    {Answer A § Answer B § Answer C § Answer D}
```

☐ Answer A	☐ Answer C
☐ Answer B	☐ Answer D

```
% checkedbox is \def\MCQanswersbox{\raisebox{-0.2ex}{\faSquare[regular]}}
\AnswersMCQ[Width=10cm,NumCols=2,Lines]%
    {$\displaystyle\frac1x$ § $1+\displaystyle\frac1x$ § $-2x^2+5$ § $-\infty$}
    <rows={1.5cm}>
```

a. $\frac{1}{x}$	**c.** $-2x^2+5$
b. $1+\frac{1}{x}$	**d.** $-\infty$

4 List with picked elements (random or not)

4.1 Global use

The idea is to :

- create a list of items, the base for choices ;
- print the list with picked items.

```
\CreateItemsList{list}{macro}{listname}
```

```
\ListItemsChoice[keys]{macro}{listname}(numbers)<enumitem options>!beamer options!
```

The available `keys` are :

- `Type` : `enum` or `item` ;
- `Random` : `false` by default.

The second argument, mandatory and between `{...}` is the macro for the list.
The third argument, mandatory and between `{...}` is the name of the list.
The fourth argument, mandatory and between `(...)` give :

- the number of random items to display, with `Random=true` ;
- the numbers of picked itemps, within `num1,num2,...`.

The next argument, optional and between `<...>` gives specific options to `enumitem` environment.
The last argument, between `!..!` gives specific options to `enumitem` environment with `beamer`.

Controls are done :

- to verify that the list doesn't exist (for the creation) ;
- to verify that that the list still exist (for the display).

4.2 Examples

```
%creation of list ListItems, with macro \mylistofitems
\CreateItemsList%
    {Answer A,Answer B,Answer C,Answer D,Answer E,Answer F,Answer G,Answer H}%
    {\mylistofitems}{ListItems}
```

```
%items random
\ListItemsChoice[Random]{\mylistofitems}{ListItems}(5)
```

1. Answer H
2. Answer F
3. Answer G
4. Answer E
5. Answer B

```
%items picked
\ListItemsChoice{\mylistofitems}{ListItems}(1,4,3,8,2)
```

1. Answer A
2. Answer D
3. Answer C
4. Answer H
5. Answer B

```
%creation of list ListItemsB, with macro \mylistofitemsb
\CreateItemsList%
    {{$\int_0^1 x^2 dx$},{$\int_0^1 x^3 dx$},{$\int_0^1 x^4 dx$},...}%
    {\mylistofitemsb}{ListItemsB}
```

```
%items picked
\ListItemsChoice[Type=item]{\mylistofitemsb}{ListItemsB}(7,2,1,5,3)<label=$--$>
```

-- $\int_0^1 x^8 dx$

-- $\int_0^1 x^3 dx$

-- $\int_0^1 x^2 dx$

-- $\int_0^1 x^6 dx$

-- $\int_0^1 x^4 dx$

5 Pencil of skills

5.1 Global use

The idea is to :

- present of list of categories and skills ;
- presented like a pencil.

The code (within CC-BY-SA 4.0 license) is adapted from :
https://tex.stackexchange.com/questions/504092/replicating-a-fancy-bordered-text-style-in-latex/504145#504145

```
\PencilSkills[keys]<tikz options>{listofskills}
```

The style is globally fixed, but there's some customization available.

5.2 The macro

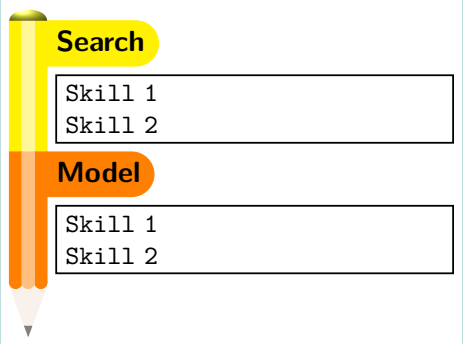
Available `keys` are :

- `FontCateg` : font for the categories ;
- `FontBlock` : font for the skills ;
- `Colors` : list of category's colors
  `BgCateg1/FgCateg1,BgCateg1/FgCateg1,...`
  (if `FgCateg1` est missing, `black` is used)
- `BlockWidth` : width of skill's block ;
- `Scale` : global scale
- `BlackWhite` : boolean for B&W.

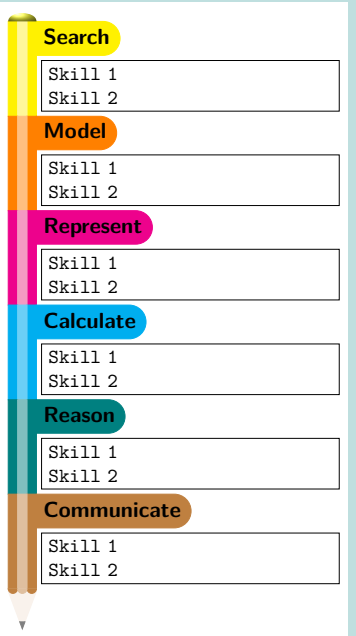
The second argument, optional and between `<...>` gives specific options to `enumitem` environment.
The last argument, mandatory and between `(...)` give the list of categories/skills, within `Categ1/ListSkills1,Categ2/ListSkills2,...`.

5.3 Examples

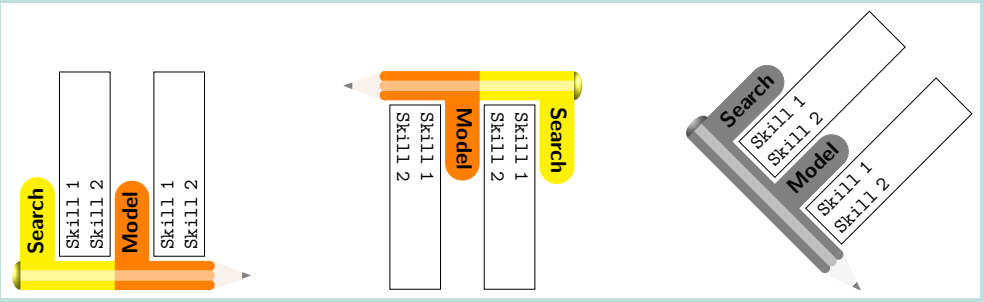
```
%default output
\PencilSkills{Search/Skill 1\\ Skill 2,Model/{Skill 1\\ Skill 2}}
```



```
\PencilSkills[Scale=0.75]%
    {Search/Skill 1\\Skill 2,Model/{Skill 1\\Skill 2},%
    Represent/{Skill 1\\Skill 2},Calculate/{Skill 1\\Skill 2},%
    Reason/{Skill 1\\Skill 2},Communicate/{Skill 1\\Skill 2}}
```




```
\PencilSkills[Scale=0.75,BlockWidth=3cm]<rotate=90>{
    Search/Skill 1\\Skill 2,Model/{Skill 1\\Skill 2}}
\hspace{1cm}
\PencilSkills[Scale=0.75,BlockWidth=3cm]<rotate=-90>{
    Search/Skill 1\\Skill 2,Model/{Skill 1\\Skill 2}}
\hspace{1cm}
\PencilSkills[Scale=0.75,BlockWidth=3cm,BlackWhite]<rotate=45>{
    Search/Skill 1\\Skill 2,Model/{Skill 1\\Skill 2}}
```



6 Score banner

6.1 Global use

The idea is to insert a score banner, with customization.

```
ScoreBanner[keys]{number}
```

```
%default output
\ScoreBanner{}
```

6.2 The macro

Available `keys` are :

- `Height` : height of the banner (without the legend) ; `1` by default
- `Ratio` : ratio of boxes ; `0.6` by default
- `Symbols` : labels ; `A,B,C,D,E` by default
- `Legend` : legend (uppercase) ; `score` by default ;
- `Font` : global font ; `\bfseries\sffamily` by default
- `ShowLegend` : boolean for the legend ; `false` by default ;
- `Colors` : colors for boxes ; `colorNS1,colorNS2,colorNS3,colorNS4,colorNS5` by default ;
- `ScaleSymbols` : scale H/V of labels ; `1.25,1.65` by default ;
- `Colbg` : background color for select box ; `white` by default.

If the list of colors doesn't fill all the boxes, `lightgray` color is used.

```
\ScoreBanner[Legend=Geometry,Height=2]{4}
```


```
%bg of lower part is yellow!25
\def\lstcouleurs{colorNS1,colorNS2,colorNS3,colorNS4,colorNS5,purple}
\ScoreBanner%
  [ScaleSymbols={1.33,2},Height=3.25,ShowLegend=false,Ratio=0.75,
  Symbols={1,2,3,4,5,6},Colors=\lstcouleurs,
  Colbg=yellow!25]{1}
```

7 SMS conversation

7.1 Global use

The idea is to present a conversation of SMS.

```
\begin{ChatSMS}[keys]{name}
  \InSMS(*){time}{msg}
  \OutSMS*(*){time}{msg}
\end{ChatSMS}
```

The style is globally fixed, but there's some customization available.

7.2 The environment

Available `keys` are :

- `height` : height of the window (auto or specific) ; `auto` by default
- `width` : width of the window ; `7cm` by default
- `margin` : margin (L or R) for the bubble `1.5cm` by default
- `color` : *main* color (banner) ; `teal!75!cyan!75!white` by default ;
- `colback` : color for background ; `lightgray!5` by default
- `colorin` : color for incoming SMS ; `lime!25` by default
- `colorout` : color for outcoming SMS ; `teal!25` by default
- `writetxt` : text of sending zone ; `Write` by default
- `fonttxt` : bubble's font ; `\normalfont` by default
- `avatar` : avatar of contact ; `\faAddressCard` by default
- `dispavatar` : boolean for displaying avatar near the bubbles ; `false` by default
- `blackwhite` : boolean pour black&white. `false` by default

The argument, mandatory and between `(...)` give the name of the contact.

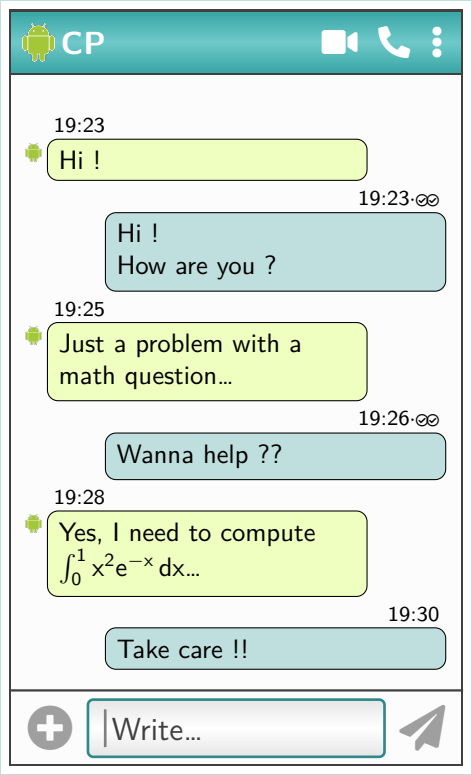
7.3 Macros for the bubbles

Regarding the bubble creation commands, `\InSMS` and `\OutSMS`:

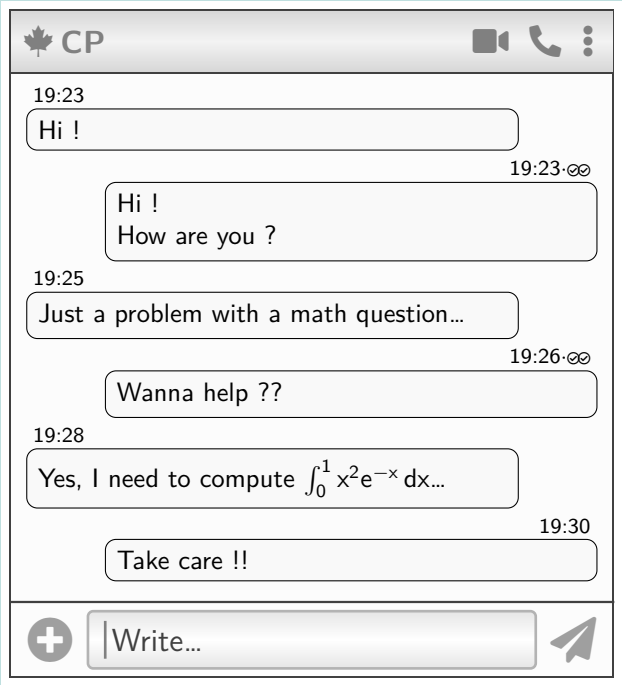
- the *starred* version does not display the *checkmarks* of *good reception*;
- the first mandatory argument is the time to display ;
- the second mandatory argument is the message to display (including multi-lines).

7.4 Examples

```
%with a personal image
\begin{ChatSMS}%
  [width=6cm,fonttxt=\sffamily,height=10cm,avatar=img/android,dispavatar]{CP}
  \InSMS{19:23}{Hi !}
  \OutSMS{19:23}{Hi !\\ How are you ?}
  \InSMS{19:25}{Just a problem with a math question\ldots}
  \OutSMS{19:26}{Wanna help ??}
  \InSMS{19:28}{Yes, I need to compute $\mathsf{\int_{0}^{1} x^2e^{-x}\,dx}$\ldots}
  \OutSMS*{19:30}{Take care !!}
\end{ChatSMS}
```



```
\begin{ChatSMS}%
  [width=8cm,fonttxt=\sffamily,avatar=\faCanadianMapleLeaf,blackwhite]{CP}
  \InSMS{19:23}{Hi !}
  \OutSMS{19:23}{Hi !\\ How are you ?}
  \InSMS{19:25}{Just a problem with a math question\ldots}
  \OutSMS{19:26}{Wanna help ??}
  \InSMS{19:28}{Yes, I need to compute $\mathsf{\int_{0}^{1} x^2e^{-x}\,dx}$\ldots}
  \OutSMS*{19:30}{Take care !!}
\end{ChatSMS}
```



8 Title banner

8.1 Global usage

The idea is to propose a banner, made with Ti*k*Z, to present for example a title.
The global style is fixed, but few customization are possible.

```
\tkzBannerTri[keys]{number}{title}
```

```
\tkzBannerTri{01}{Title of document}
```

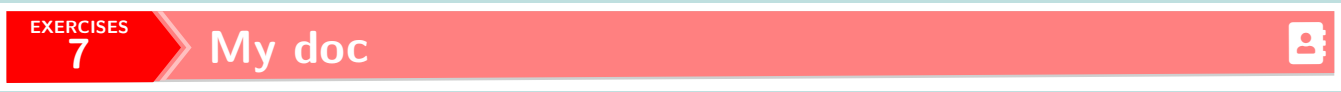
Available `keys` are :

- `height` (`2.5em` by default)
- `width` (`\linewidth` by default)
- `blockwidth` (`2.75em` by default, but can be set to `auto`)
- `coltxt` (`white` by default)
- `fonttxt`
- `swap` (`false` by default, for an other style)
- `maincolor` (`darkgray` by default)
- `collight` (`darkgray!25` by default)
- `colmedium` (`darkgray!50` by default)
- `coldark` (`darkgray` by default)
- `logo`
- `type`
- `dispblock` (`true` by default)
- `num` (`true` by default)
- `customtype`
- `custommulti` (`false` by default)

8.2 Examples

```
\tkzBannerTri
  [maincolor=red,type=EXERCISES,blockwidth=auto,logo=\faAddressBook]
  {7}{My doc}
```


```
\tkzBannerTri
  [maincolor=red,type=EXERCISES,blockwidth=5em,logo=\faAddressBook]
  {7}{My doc}
```



```
\tkzBannerTri
  [maincolor=red,type=EXERCISES,blockwidth=auto,logo=\faAddressBook,swap]
  {07}{My doc}
```


```
\tkzBannerTri
  [dispblock=false,maincolor=teal,logo=\faSchool]
  {}{My doc}
```


```
\tkzBannerTri
  [maincolor=olive,customtype=TP,blockwidth=4em,logo=\faAddressBook,height=4em]
  {7}{My doc}
```


```
\tkzBannerTriAlt
  [maincolor=violet,type=UE3.1,blockwidth=1.25cm,logo=\faGraduationCap,height=1.25cm]
  {TP}{My doc}
```

9 Various commands

9.1 Difficulty levels with stars (fontawesome5)

```
\DiffLevelStars[max level (3)]{level}
```

```
\DiffLevelStars{0}\par
\DiffLevelStars{2.5}\par
\textcolor{teal}{\LARGE\DiffLevelStars[5]{4}}\par
\DiffLevelStars[5]{1.5}\par
```

9.2 Difficulty levels with stars (tikz)

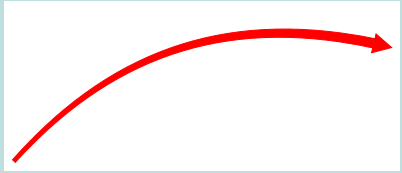
```
\tkzLevelStars[colframe=...,colback=...,offset=...,maxlevel=...,valign=...]{level}
```

```
\tkzLevelStars{2.5}\par
{\LARGE We ty inline \tkzLevelStars{2.25} with score 2.25}\par
{\LARGE We ty inline \tkzLevelStars[valign=false]{1.75} with score 1.75}\par
\tkzLevelStars[colframe=red,colback=yellow,maxlevel=5]{3}
```

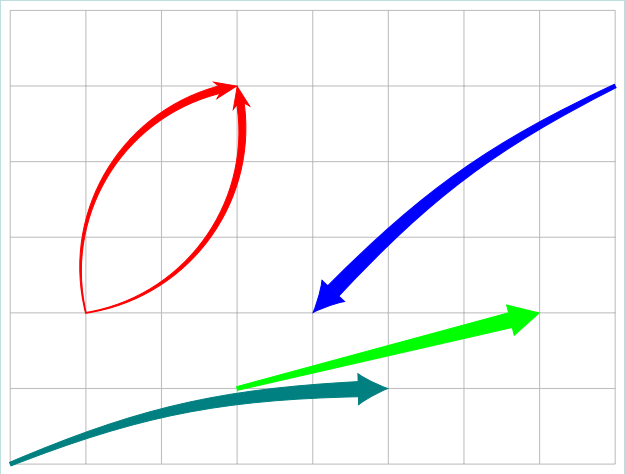
9.3 Flared arrow

```
\tkzFlaredArrow[%
  color=...,            %color of arrow
  arrowsize=...,        %size (auto or H/W )
  bend=...,             %empty for straigth or left/... or right/...
  thickness=...,        %size for the beginning
  factor=...,           %factor for calculing size for ending
  arrowstyle=...,       %style (arrows.meta)
  move=...              %boolean for moving instead coordinates
  ]%
  {begin}{end or move}
```

```
%arrow 0.5mm -> 1.25mm
\begin{tikzpicture}
\tkzFlaredArrow%
  [thickness=0.5mm,factor=2.5,bend=left/30,color=red,arrowstyle=Triangle]%
  {0,0}{5,1.5}
\end{tikzpicture}
```



```
\begin{tikzpicture}
  \draw[thin,lightgray] (-3,-1) grid (5,5) ;
  \coordinate (A) at (0,0) ; \coordinate (B) at (4,1) ;
  \coordinate (C) at (1,1) ; \coordinate (D) at (5,4) ;
  \coordinate (E) at (0,1) ; \coordinate (F) at (0,5) ;
  \coordinate (G) at (-2,0) ;
  \tkzFlaredArrow[color=green,arrowstyle=Triangle]{A}{B}
  \tkzFlaredArrow[color=blue,bend=right/10]{D}{C}
  \tkzFlaredArrow%
    [color=red,bend=left/45,arrowstyle=Stealth,thickness=0.1mm,factor=10]%
    {-2,1}{0,4}
  \tkzFlaredArrow%
    [color=red,bend=right/45,thickness=0.1mm,factor=10,arrowstyle=Stealth]%
    {-2,1}{0,4}
  \tkzFlaredArrow[color=teal,move,bend=left/10]{-3,-1}{5,1}
  \end{tikzpicture}
```



9.4 Small markerbox

```
\tbcmarker[color=...,width=...,font=...]{text}
```

```
\tbcmarker{my text}
```

my text

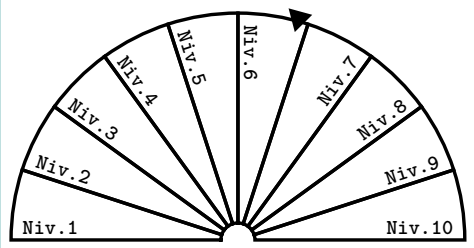
```
\tbcmarker[color=olive,font=\normalfont\normalsize]{my text}
```

my text

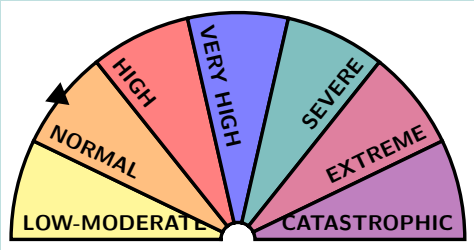
9.5 Wheel of skills / speedometer

```
\WheelOfSkills[%
    Radius=...,       %radius of wheel
    Mark=...,         %absolute position of optional marker
    Font=...,         %font of optional labels
    SkillsList=...,   %list of optional skill labels
    ]%
    {number of skills or list of colors}
```

```
\WheelOfSkills[%
    Radius=3cm,%
    Mark=5.85,%
    Font=\scriptsize\bfseries\ttfamily,%
    SkillsList={Niv.1,Niv.2,Niv.3,Niv.4,Niv.5,Niv.6,Niv.7,Niv.8,Niv.9,Niv.10}]%
    {10}%
```

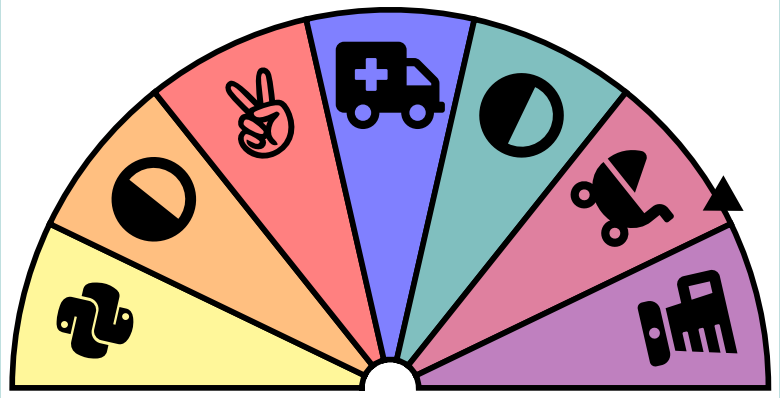



```
\WheelOfSkills[%
    Mark=1.5,%
    Font=\scriptsize\bfseries\sffamily,%
    SkillsList={LOW-MODERATE,NORMAL,HIGH,VERY HIGH,SEVERE,EXTREME,CATASTROPHIC}
    ]%
    {yellow!50,orange!50,red!50,blue!50,teal!50,purple!50,violet!50}%
```




```
\begin{SkillsWheel}[%
    Radius=...,      %radius of wheel
    Mark=...,        %absolute position of optional marker
    Font=...,        %font of optional labels
    SkillsList=...,  %list of optional skill labels
    ]{number of skills or list of colors}
    \PutIconsSkills[Pos=...,Scale=...]{list of icons}
\end{SkillsWheel}
```

```
\begin{SkillsWheel}[Radius=5cm,Mark=5.85]%
        {yellow!50,orange!50,red!50,blue!50,teal!50,purple!50,violet!50}
    \PutIconsSkills[Echelle=3]%
    {\faPython,\faAdjust,\faAngellist,\faAmbulance,\faAdjust,\faBabyCarriage,\faBlender}
\end{SkillsWheel}
```



```
%inline version, with automatic dimensions
\miniskillwheel[Colors=...,Mark=...]{nb of levels}

%normal version
\tkzspeedometer[Size=...,Mark=...,Colors=...]{nb levels}
```

```
%inline version, with automatic dimensions
\scalebox{2.25}[2.25]{\sffamily Small inline \textit{skillwheel}
\miniskillwheel[Colors=red/blue,Mark=4.33]{7} for testing.}

%normal version
\tkzspeedometer[Size=5cm,Mark=2.25,Colors=teal/magenta]{6}
```

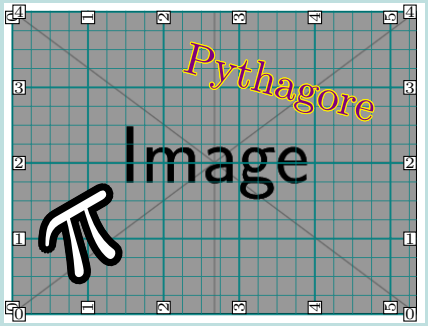
Small inline *skillwheel*  for testing.

9.6 Annotate an image

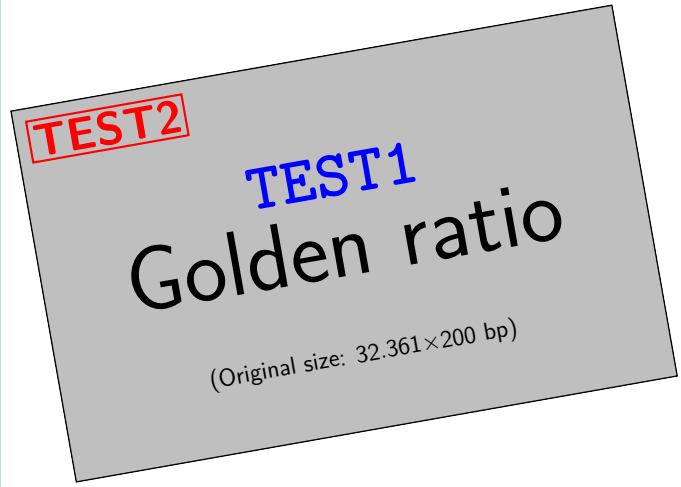
The idea is to provide a way of annotating an image, using an environment and a command which are linked to Ti*k*Z.

```
\begin{imgannotate}[keys][includegraphics options]{imagefile with extension}
  \puttxtonimg[tikz node options]{coordinates}{txt}
  \puttxtonimg*[tikz node options]{coordinates within percentage}{txt}
\end{imgannotate}
%====keys
%clip=...      : boolean for clipping img
%node=...      : node name for reusing (remember picture)
%grid=...      : optionnal value for showing helping grid
%subgrid=...   : integer value for subgrid
%gridcolor=...: grid color
```

```
%\usepackage[auto,outline]{contour}
\begin{imgannotate}[grid=1][height=4cm]{example-image.png}
  \puttxtonimg[scale=5,rotate=30]
    {1,1}{\contourlength{0.05em}\color{white}\contour{black}{$\pi$}}
  \puttxtonimg*[scale=1.5,rotate=-15]
    {0.66,0.75}{\contourlength{0.025em}\color{violet}\contour{yellow}{Pythagore}}
\end{imgannotate}
```




```
\begin{imgannotate}[node=IMGTEST][height=5cm]<rotate=10>{example-image-golden.pdf}
  %tikz usual commands
  \draw (IMGTEST.center) node[above=5mm,font=\Huge\ttfamily\bfseries,text=blue] {TEST1} ;
  \draw (IMGTEST.north west) node[draw,thick,red,inner sep=0.5mm,below
right=2.5mm,font=\LARGE\sffamily\bfseries,text=red] {TEST2} ;
\end{imgannotate}
```



9.7 Pictoskill

```
\pictoskill[%
  col=...,          %main color
  height=...,       %height (unit) or auto or dauto (with depth)
  hoffset=...,      %horizontal sep for bars
  opacity=...,      %opacty of light parts
  ]%
  {nb}
```

```
%with fixed height
\pictoskill[height=1cm]{1}
```

```
%with fixed height and color
\pictoskill[col=teal,height=2em]{2}
```

```
%automatic height, without depth
\begin{LARGE}
Inline, without depth, we get \pictoskill[col=skillorange]{2}
and \pictoskill[col=skillred,hoffset=0.1]{1}
\end{LARGE}
```

Inline, without depth, we get and

```
%automatic height, with depth
\begin{Huge}
\sffamily
Inline, with depth, we get \pictoskill[col=skillorange,height=dauto]{2}
and \pictoskill[col=skillred,hoffset=0.025,height=dauto]{1}
\end{Huge}
```

Inline, with depth, we get and