

# customenvs [en]

Some custom environments,  
or small patches.

Version 0.2.2 -- 09/09/2024

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# 1 History

v0.2.2 : Flared arrow, with *TikZ*  
v0.2.1 : Enhancements for *stars skills* + AutoGrid for *TikZ* (see [fr] doc)  
v0.2.0 : Skills with stars (*fontawesome5* or *TikZ*)  
v0.1.9 : Title banner  
v0.1.8 : Score banner  
v0.1.7 : Small patch for *Vignette* macro (see [fr] documentation)  
v0.1.6 : Small patches for *displayskip* + *pas-tableur* (see [fr] documentation)  
v0.1.5 : New macros for boxes with *tcolorbox* (see [fr] documentation)  
v0.1.4 : Create a SMS conversation  
v0.1.3 : Environment for exercise(s) (in french doc)  
v0.1.2 : Pencil of skills  
v0.1.1 : Skills table (only french for the moment...)  
v0.1.0 : Initial version

## 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 *chosen items* (randomly or by numbers) ;
- present a skill table.

The global idea is to 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` ;
- `fontawesome5` ;

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

- `<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 MCQ 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 available 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 `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 ;
- `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}
```

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| a. Answer A | b. Answer B | c. Answer C | d. Answer D |
|-------------|-------------|-------------|-------------|

```
\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}
```

- |                    |                    |
|--------------------|--------------------|
| <b>A.</b> Answer A | <b>C.</b> Answer C |
| <b>B.</b> Answer B | <b>D.</b> Answer D |

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

- |                    |                    |
|--------------------|--------------------|
| <b>A.</b> Answer A | <b>B.</b> Answer B |
| <b>C.</b> Answer C | <b>D.</b> Answer D |

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

|             |             |
|-------------|-------------|
| a. Answer A | c. Answer C |
| b. Answer B | d. Answer D |

```
\AnswersMCQ[Width=10cm,NumCols=2,Lines]%
{\displaystyle\frac{1}{x} § 1+\displaystyle\frac{1}{x} § -2x^2+5 § -\infty}
<rows={1.5cm}>
```

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

## 4 List avec 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>
```

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 items, within **num1,num2,...**.

The last argument, optional and between `<...>` gives specific options to **enumitem** environment.

Controls are done :

- to verify that the liste 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 C
3. Answer A
4. Answer G
5. Answer F

```
%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.

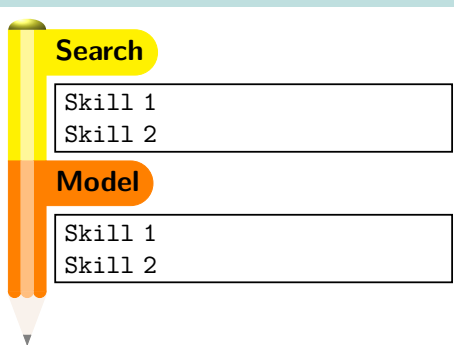
The second argument, optional and between `<...>` gives specific options to `enumitem` environment.

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}}
```

#### Search

Skill 1  
Skill 2

#### Model

Skill 1  
Skill 2

#### Represent

Skill 1  
Skill 2

#### Calculate

Skill 1  
Skill 2

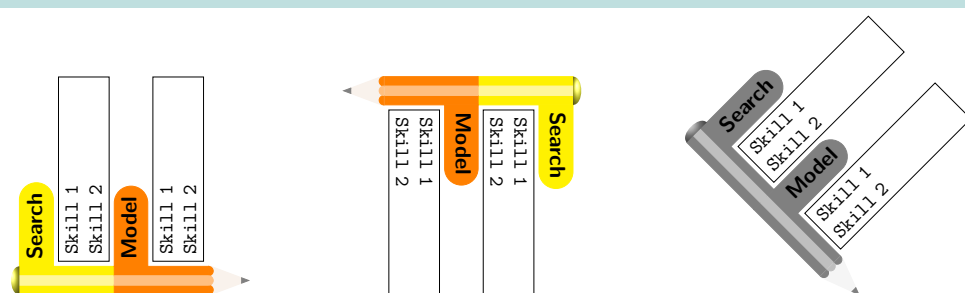
#### Reason

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 customizations.

```
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 outgoing 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.

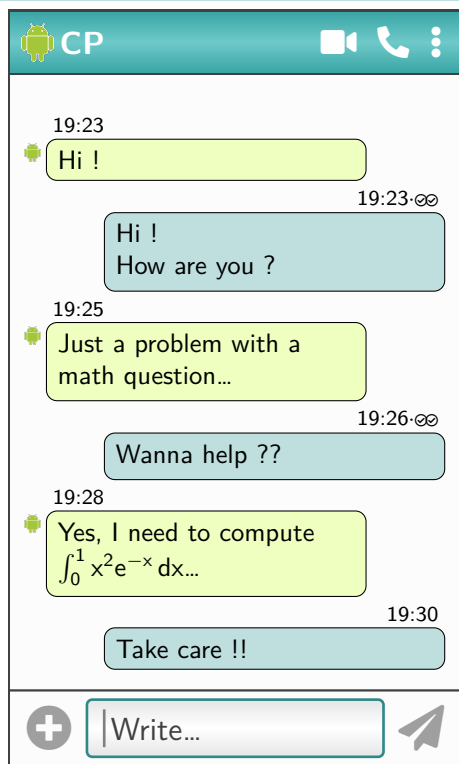
### 7.3 Macros for the bubbles

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

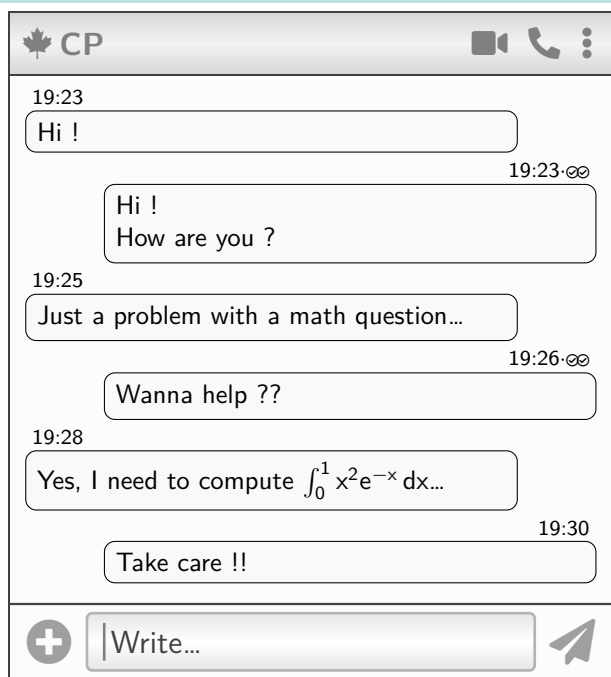
```
%with a personal image
\begin{ChatSMS}%
  [width=6cm,fonttxt=\sffamily,height=10cm,avatar=img/android,dispavatar]{CP}
  \InSMS{19:23}{Hi !}
  \OutSMS{19:23}{Hi !\ How are you ?}
  \InSMS{19:25}{Just a problem with a math question\ldots}
  \OutSMS{19:26}{Wanna help ??}
  \InSMS{19:28}{Yes, I need to compute  $\int_0^1 x^2 e^{-x} dx$ \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 TikZ, to present for example a title. The global style is fixed, but few customizations are possible.

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

```
\tkzBannerTri{01}{Titre du 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`

### 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}
```

EXERCISES

07

My doc



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

My doc



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

TP

My doc



It's possible to redefine `\part` (for example).

## 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}
```

★★★  
We ty inline ★★☆☆ with score 2.25  
We ty inline ★★☆☆ with score 1.75  
★★★★☆☆

### 9.3 Flared arrow

```
\tkzFlaredArrow[%
  color=...,           %color of arrow
  arrowsize=...,       %size (auto or H/W )
  bend=...,            %empty for straighth 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}

```

