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lernkarten

Abstract

This is the documentation of the class `lernkarten`. I am writing this class to have an easy way to typeset my cards for learning for exams, especially diploma-exams. As I always loose and forget things, I wanted to have all important stuff on my computer so I will not forget it. – Just print and learn ☺

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Usage

The usage of this class is quite easy. Just load it with

```
\documentclass{lernkarten}
```

Class options are:

number The number of cards per page. This directly affects the size of each card. You must take care that none of your cards does exceed the given size! Else there will be huge damage and the sun will explode!

A reasonable number, and therefore preset, is 10.

noheader If you use sections and/or parts to structure your cards, they will be in the header. `noheader` will turn this off.

sectiononcards Prints the section on every card. So you always know what theme this cards belongs to. Default is off.

enumerate By default, all cards are enumerated. `enumerate=false` turns enumeration off. With value `section`, the cards will be enumerated section-wise.

Implementation

We begin with loading of options and setting of constants:

```
\cards@per@page      1 \def\cards@per@page{10}
\cards@enumerate@value 2 \def\cards@enumerate@value{}

\ifcards@header      3 \newif\ifcards@header
\ifcards@sections    4 \newif\ifcards@sections
\cards@sectioncards  5 \newif\ifcards@sectioncards
\ifcards@enumerate   6 \newif\ifcards@enumerate
\cards@enumerate@section 7 \newif\ifcards@enumerate@section
\cards@headertrue    8 \cards@headertrue
```

```

9 \cards@sectioncardsfalse
10 \cards@enumeratetrue
11 \cards@enumerate@sectionfalse
12 \RequirePackage{xkeyval}
anzahl 13 \DeclareOptionX{anzahl}{\def\cards@per@page{#1}}
\cards@per@page 14 \DeclareOptionX{number}{\def\cards@per@page{#1}}
number 15 \DeclareOptionX{noheader}{\cards@headerfalse}
\cards@per@page 16 \DeclareOptionX{enumerate}{\def\cards@enumerate@value{#1}}
noheader 17 \ProcessOptionsX
enumerate 18 \LoadClass[fleqn]{scrartcl}
\cards@enumerate@value 19 \RequirePackage{
20 boxedminipage,
21 calc,
22 geometry,
23 hyperref,
24 ifthen,
25 polyglossia,
26 scrpage2,
27 xltextra
28 }

```

For evaluation of the enumeration we need some booleans. First one: enumeration at all, second one: section-wise enumeration.

```

29 \ifthenelse{\equal{\cards@enumerate@value}{false}}{%
\cards@enumeratfalse}{%
30 \ifthenelse{\equal{\cards@enumerate@value}{section}}{%
\cards@enumerate@sectiontrue}{%
31 \geometry{
32 bindingoffset=0cm,
33 margin=1cm,
34 headsep=0.2cm
35 }
36 \setlength{\parindent}{0em}
\cards@answertext 37 \def\cards@answertext{Antwort}
\cards@part 38 \def\cards@part{}
\cards@sect 39 \def\cards@sect{}

```

Now, the pagelayout. `scrheadings` is used and `part:section` is written on top of every site. If option `noheader` is given, there will be no header. This might be useful for printing, while headers are useful for view on screen.

```

40 \pagestyle{scrheadings}
41 \setkomafont{pagehead}{\normalfont\bfseries}
42 \cfoot{}
43 \ifcards@header
44 \chead{\cards@part\cards@sect}
45 \else
46 \fi
47 \renewcommand\section[1]{

```

```

48 \ifnum\thequestion@page>\1
49 \set@answers
50 \fi
\cards@sect 51 \def\cards@sect{#1}
52 \ifcards@enumerate@section
53 \setcounter{total@question}{0}
54 \fi
55 }
56 \renewcommand\part[1]{
57 \ifnum\thequestion@page>\1
58 \set@answers
59 \fi
\cards@sect 60 \def\cards@sect{#1}
\cards@part 61 \def\cards@part{#1:~}
62 }

```

Need `\TeXeTstate=1` for the right-to-left typesetting of the answers

```

63 \TeXeTstate=1
\height@of@boxes 64 \def\height@of@boxes{\paperheight/(\cards@per@page)}
\lernkarte 65 \newcommand\lernkarte[1]{%
66 \boxedminipage{.5\textwidth}\textbf{#1}\[2ex]%
67 \vphantom{\rule[-\height@of@boxes]{0pt}{\height@of@boxes}}
68 \minipage[t]{\textwidth}%
69 }
\endlernkarte 70 \def\endlernkarte{
71 \endminipage
72 \endboxedminipage\kern-1em
73 }

```

Now setup some counter. They will be used to number the cards. So you might sort your cards and you can see how far you come on one day ... or you can exchange with your partners ("Having trouble on question 1357 – can you explain that equation?")

```

total@question 74 \newcounter{total@question}\total number of questions
75 \setcounter{total@question}{0}
total@answer 76 \newcounter{total@answer}\total number of answers
77 \setcounter{total@answer}{0}
question@page 78 \newcounter{question@page}\the n-th question on one page
79 \setcounter{question@page}{1}
answer@page 80 \newcounter{answer@page}\the n-th answer@page on one page
\card 81 \def\card#1#2#3{\% Titlequestionanswer typesetting the question: use the environ-
ment lernkarte for the layout
82 \begin{lernkarte}{%
83 \stepcounter{total@question}%
84 \ifcards@enumerate%
85 \thetotal@question:\%
86 \fi%
87 #1%
88 }
89 #2

```

```

90 \end{lernkarte}
91 \expandafter\def\csname_\answer@\thequestion@page_\endcsname{#3}
92 \stepcounter{question@page}

typeset the answers when the page is full of questions, ...

93 \ifnum\thequestion@page>\cards@per@page
94 \set@answers
95 \fi
96 }

```

Now we try a nicer way to typeset the answers:

```

\set@answers 97 \def\set@answers{
98 \hspace*{-2em}% FIXME here, too, space must be insertet. why the hell?!
99 \clearpage
100 \setcounter{answer@page}{1}

we loop through all saved answers

101 \loop

and typeset them L to R, so every answer is on the back of the correct question

102 \beginR

the stop-criterium for the loop

103 \ifnum\theanswer@page=\thequestion@page
104 \else% a <= is needed, actually ...

105 \begin{lernkarte}{\cards@answertext:\stepcounter{total@answer}%
\thetotal@answer}
106 \csname_\answer@\theanswer@page\endcsname
107 \end{lernkarte}
108 \stepcounter{answer@page}
109 \repeat
110 \hspace*{2em}% FIXME no idea why I need an hspace here to get the position
correct ...
111 \setcounter{question@page}{1}
112 \setcounter{answer@page}{0}
113 \clearpage
114 }

```

typeset the missing answers ... ok, this is VERY buggy ... but the important information is there ...

```

115 \AtEndDocument{
116 \set@answers
117 }

```

And finally the user-interface. For short question-answer groups, use `\karte`. For longer pairs, use the `\frage`–`\antwort`-construct. Example:

```
\karte[Ionradius]{ion radius of U?}{15nm}
```

or

```
\frage
How large is the radius of an Uranium-ion?
\antwort
It is 15nm, under the assumption that ...
```

If you use the `\frage`–`\antwort`, you must leave an empty line after the answer.

```
\karte 118 \newcommand\karte[3] [] {\card{#1}{#2}{#3}}
\frage 119 \long\def\frage#1\antwort#2\par{\karte{#1?}{#2}}
120 \end{class}
```

□