The homework class and style*

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Abstract

This work contains a both a class and a package designed to simplify the authoring of schoolwork, homework and assignments. They may be used independently of each other; the class provides some slight modifications to the article class, while the style adds commonly used packages and functionalities.

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1 ⟨∗class⟩

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*This document corresponds to homework v0.1, dated 2011/02/11.

For simplicity, we'll derive everything from the standard `article` class.

```
 2
 3 %
 4 % Load fixes first thing
 5 %
 6
 7 \RequirePackage{fix-cm}
 8 % \RequirePackage{fix-rsfs}
 9 \DeclareFontFamily{U}{rsfs}{\skewchar\font127 }
10 \DeclareFontShape{U}{rsfs}{m}{n}{ % Allow continuous sizing
11     <-6> rsfs5
12     <6-8> rsfs7
13     <8-> rsfs10
14 }{}
15
16 %
17 % Packages required for this class file
18 %
19
20 \RequirePackage{etoolbox}
21
22 %
23 % Option handling
24 %
25
26 % Screen or print options and sidedness conglomerates
27 \newcommand{\hw@sidedness}[1]{\def\hw@side{#1side}}
28 \newtoggle{hw@print}
29 \DeclareOption{print}{\toggletrue{hw@print}   \hw@sidedness{two}}
30 \DeclareOption{screen}{\togglefalse{hw@print} \hw@sidedness{one}}
31 \DeclareOption{oneside}{\hw@sidedness{one}}
32 \DeclareOption{twoside}{\hw@sidedness{two}}
33
34 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{article}}
35
36 \ExecuteOptions{11pt,screen}
37 \ProcessOptions\relax
38
39 \LoadClass[\hw@side]{article}
40
41 %
42 % Document sectioning - hack article.cls' \@sect
43 %
44 \let\@@sect\@sect
45
46 \def\@sect#1#2#3#4#5#6[#7]#8{ %
47   \hw@sectsplit{#1}{{#2}{#3}{#4}{#5}{#6}}[#7||]{#8}
48 }
49
50 \def\hw@sectsplit#1#2[#3|#4|#5]#6{ %
```

```
51   \ifcsundef{hw@theorig#1}
52     {\expandafter\edef\csname hw@theorig#1\endcsname %
53        {\expandafter\expandonce\csname the#1\endcsname}}
54     {\relax}
55   \ifstrempty{#4#5}
56   {
57     % No pipe in original input -- just restore \the#1 and behave normally
58     \expandafter\edef\csname the#1\endcsname %
59        {\expandafter\noexpand\csname hw@theorig#1\endcsname}
60     \@@sect{#1}#2[{#3}]{#6}
61   }
62   {
63     \expandafter\edef\csname the#1\endcsname{#3}
64     \ifstrempty{#4}
65        {\@@sect{#1}#2[{#6}]{#6}}
66        {\@@sect{#1}#2[{#4}]{#6}}
67   }
68 }
69
70 %
71 % Document titling
72 %
73 \newcommand*{\hwClass}[1]{\def\@hwClass{#1}}
74 \newcommand*{\hwTitle}[1]{\def\@hwTitle{#1}}
75 \title{\textbf{\@hwClass:} \@hwTitle}
76 ⟨/class⟩
```

3   The **homework** package

Put text here.

3.1   Implementation

```
77 ⟨*package⟩
```

Here follows the source:
```
78 \usepackage{fixltx2e}
79 % Use utf-8 encoding for foreign characters
80 \usepackage[T1]{fontenc}
81 \usepackage[utf8]{inputenc}
82 \usepackage[scaled=.86]{beramono}
83 \usepackage{textcomp}
84 % Use microtype, but with half the expansion and protruding punctuation
85 \usepackage[stretch=10,protrusion=true]{microtype}
86
87 % Math stuffs
88 \usepackage{amsmath,amsthm,amssymb}
89 \usepackage{mathtools}
90 \usepackage{dsfont} % \mathds{R} for reals, etc
91 \usepackage{mathrsfs} % \mathscr for scripts
```

```latex
92 \usepackage{xfrac} % \sfrac{1}{2} for slanted fractions
93 \usepackage{empheq}
94 \newcommand{\sch@swap}[2]{\let\sch@tmp#1 \let#1#2 \let#2\sch@tmp}
95 \sch@swap{\theta}{\vartheta}
96 \sch@swap{\phi}{\varphi}
97 \sch@swap{\epsilon}{\varepsilon}
98
99 % Graphics and colors
100 \usepackage[svgnames]{xcolor}
101 \usepackage{graphicx}
102
103 % amazing unit rendering with si{\micro{}A/cm^2}, SI{3}{\meters\per\second}
104 \usepackage{siunitx}
105 \sisetup{per-mode = symbol} % use units in 'm/s' format
106 % And good chemical formula rendering
107 \usepackage[version=3]{mhchem}
108
109 % Figure handling
110 \usepackage{float}     % Allow "unfloating" with the H placement specifier
111 \usepackage{wrapfig}
112 % \floatstyle{boxed}
113 % \restylefloat{figure}
114 \usepackage[small,labelfont=bf]{caption}
115 % \DeclareCaptionFont{singlespacing}{\setstretch{1}}
116 % \captionsetup{font=singlespacing}
117
118 \usepackage{placeins} % Allow \FloatBarrier
119
120 % Package for including code in the document
121 \usepackage{listings}
122 % For faster processing, load Matlab syntax for listings
123 \lstloadlanguages{Matlab}
124 \newcommand*{\matlabuserfunctions}[1]{
125   \lstset{language=Matlab, morekeywords=[3]{#1}} }
126 \lstset{language=Matlab,
127         frame=single,
128         basicstyle=\footnotesize\ttfamily,
129         keywordstyle=[1]\color{Blue}\bfseries,
130         keywordstyle=[2]\color{Purple},
131         keywordstyle=[3]\color{Blue}\underbar,
132         identifierstyle=,
133         commentstyle=\footnotesize\ttfamily\itshape\color{Green},
134         stringstyle=\color{Purple},
135         showstringspaces=false,
136         tabsize=5,
137         % Put standard MATLAB functions not included in the default
138         % language here
139         morekeywords={xlim,ylim,var,alpha,factorial,poissrnd,normpdf,normcdf},
140         % Put MATLAB function parameters here
141         morekeywords=[2]{on, off, interp},
```

```
142          % Put user defined functions here
143          % morekeywords=[3]{},
144          morecomment=[l][\color{Blue}]{...},
145          numbers=left,
146          firstnumber=1,
147          numberstyle=\footnotesize\color{Blue},
148          stepnumber=5
149          }
150 \newcommand*{\matlabscript}[2]
151   {\begin{itemize}\item[]\lstinputlisting[caption={\texttt{#1.m}. #2},label={lst:#1}]{#1.m}\end{i
152
153 \usepackage[marginpar]{todo}
154
155 % \iftoggle{hw@print}
156 %    {\usepackage{hyperref}}
157 \usepackage[colorlinks,linkcolor=blue]{hyperref}
158 \newcommand*{\magicref}[2]{\hyperref[#2]{#1 \ref{#2}}}
159
160
161 \usepackage{tikz}
162 \usepackage{pgfplots}
163 \pgfplotsset{compat=1.4}
164 ⟨/package⟩
```