ffcode: \LaTeX Package
for Fixed-Font Code Blocks*

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1 Introduction

This package helps you write source code in your articles and make sure it looks nice. Install it from CTAN and then use like this (pay attention to `\ff` command and `ffcode` environment):

```latex
\documentclass{article}
\usepackage{ffcode}
\pagestyle{empty}
\begin{document}
The function \texttt{fibo()} is recursive:
\begin{verbatim}
int fibo(int n) {
  if (n < 2) {
    return n; (*@ \label{ln:ret} @*)
  }
  return fibo(n-1)+fibo(n-2);
}
\end{verbatim}
Line no. \ref{ln:ret} returns \texttt{n} and terminates it.
\end{document}
```

2 Package Options

\texttt{noframes} If you want to omit the light gray frames around `\ff` texts, use the package option `noframes`.
\texttt{nobars} To omit the vertical gray bar at the left side of each snippet, use `nobars` option of the package.
\texttt{nonumbers} To omit the line numbers, use `nonumbers` option of the package.
\texttt{nccn} By default, the numbering is continuous: line numbers start at the first snippet and

*The sources are in GitHub at yegor256/ffcode
increment until the end of the document. If you want them to start from one at each snippet, use `nocn` (stands for “no continuous numbering”) option of the package.

**bold** You can make your \texttt{ff} pieces look bolder than usual, which may be pretty convenient for some document classes (pay attention to the usage of the \texttt{lmodern} package, without it the bold won’t work, as explained here):

```latex
\begin{document}
Sometimes it’s necessary to make code pieces look bolder, like the \texttt{fibo()} function in this text.
\end{document}
```

**sf** You can change the font family of \texttt{ff} pieces to \texttt{sffamily}:

```latex
\begin{document}
Sometimes you may want them to look not strictly fixed-width, but more elegant, like the \texttt{fibo()} here.
\end{document}
```

### 3 Typesetting

By the way, the package correctly formats low-height texts, for example, just a dot: .  
A pair of vertical lines decorate a TeX command inside the snippet. If you want to print a single vertical line, use this: "|\char\vert|".

The command \texttt{ff} behaves differently in math mode — it doesn’t add gray frames:

```
x = \int_{\vert home\vert}^{N} f(x).
```

### 4 Line Highlighting

You can highlight some lines in your \texttt{ffcode} environment, or can use any other additional configuration parameters from \texttt{fancyvrb} and \texttt{fvextra} packages:
while (true) {
    print("Hi!");
    print("Enter your name:");
    scan(x);
    print("You name | " + x);
}

begin{ffcode}[backgroundcolor={color{gray!20}]}
while (true) {
    (*@textcolor{red}{print("Hi!")}@@*)
    print("Enter your name:");
    scan(x);
    print("You name | " + x);
}
end{ffcode}

Using this second argument of \texttt{ffcode}, you can provide any other options from the \texttt{listings} package to the snippet.

5 Implementation

First, we parse package options with the help of \texttt{pgfopts} package:

\begin{verbatim}
\RequirePackage{pgfopts}
\pgfkeys{
    /ff/.cd,
    bold/.store in=\ff@bold,
    sf/.store in=\ff@sf,
    noframes/.store in=\ff@noframes,
    nonumbers/.store in=\ff@nonumbers,
    nobars/.store in=\ff@nobar,
    novert/.store in=\ff@novert,
    nocn/.store in=\ff@nocn,
}
\ProcessPgfPackageOptions{/ff}
\end{verbatim}

Then, we configure the \texttt{listings} package:

\begin{verbatim}
\RequirePackage{xcolor}
\RequirePackage{listings}
\makeatletter
% See \url{https://tex.stackexchange.com/questions/706858}{the explanation}:
\lst@AddToHook{Init}{\setlength{\lineskip}{0pt}}
\makeatother

\texttt{ffcode} Then, we define the \texttt{ffcode} environment and its supplementary \texttt{ffcode*} counterpart:

\begin{verbatim}
\makeatletter
\lstnewenvironment{ffcode}[1][]
{
    \lstset{breaklines}
    \lstset{escapeinside={(*@}{@*)}}
    \lstset{basicstyle={\ttfamily}}
    \lstset{columns=fullflexible}
    \ifdefined\ff@nonumbers\else
    \lstset{numbers=left,numbersep=.8em,numberstyle={\tiny\sffamily\color{gray}}}
    \fi
    \ifdefined\ff@nobar\else
    \lstset{frame=leftline,framerule=.05em,rulecolor={\color{gray}}}
    \fi
    \ifdefined\ff@nocn\else
    \lstset{firstnumber=last}
\end{verbatim}
Then, we define a supplementary macro $\texttt{\textbackslash ff@print}$:

\begin{verbatim}
\makeatletter
\newcommand\ff@print[1]{{\textnormal{\ifdefined\ff@sf\sffamily\else\ttfamily\fi\ifdefined\ff@bold\fontseries{b}\selectfont\fi#1\}}}\makeatother
\end{verbatim}

$\texttt{\textbackslash ff@rule}$ Then, we define supplementary command $\texttt{\textbackslash ff@rule}$:

\begin{verbatim}
\makeatletter
\newcommand\ff@rule{\vrule height 0.6em depth 0.1em width 0em}\makeatother
\end{verbatim}

$t\text{colorbox}$ Then, we use $\texttt{tcolorbox}$ to define $\texttt{\textbackslash ff@box}$ command for a gray box around verbatim text block:

\begin{verbatim}
\makeatletter
\ifdefined\ff@noframes\else
  \RequirePackage{tcolorbox}
  \newtcbbox\ff@box{nobeforeafter,colframe=gray!80!white,colback=gray!5!white,boxrule=0.01em,arc=0.1em,boxsep=0.12em,left=0.05em,right=0.05em,top=0.02em,bottom=0.02em,tcbox raise base}
\fi
\makeatother
\end{verbatim}

$\texttt{\textbackslash ff@x}$ Then, we define $\texttt{\textbackslash ff@x}$ internal command for printing a piece of fixed-width-font text:

\begin{verbatim}
\makeatletter
\NewDocumentCommand\ff@x{v}{\ff{#1}}\makeatother
\end{verbatim}

$\texttt{\textbackslash ff}$ Then, we define $\texttt{\textbackslash ff}$ macro:

\begin{verbatim}
\makeatletter
\newcommand\ff[1]{{\ifdefined\ff@noframes\else\relax\fi\ifdefined\ff@mode\else\relax\fi\ff@rule\ff@print{#1}\fi\fi}\makeatother
\end{verbatim}
Finally, we let vertical bars work similar to \( ff \), as suggested here and here (unless \texttt{novert} package option is used):

\begin{verbatim}
\makeatletter
\ifdefined\ff@novert\else
\catcode'|\active
\AtBeginDocument{\catcode'|\active\protected\def{|{\ff@x|}}
\catcode'|12 \%
\fi\makeatother
\endinput
\end{verbatim}
Change History

v0.1.0
General: Initial version

v0.2.0
General: Package options nonumbers and noframes added.

v0.3.0
General: Package option nocn added.

v0.4.0
General: Package option nobars added.

v0.5.1
\ff\@print: Now, the command \ff ignores italic and bold and always prints \texttt as it should be.

v0.6.0
General: Package option novert added, to disable redefinition of vertical bar.

v0.7.0
We use pgfopts instead of xkeyval.

v0.8.0\ff: The \ff command is now a normal command, not verbatim.

v0.9.0
General: The minted package is replaced by the listings package.

v0.9.2
General: All lengths and sizes are in "em" instead of "pt".
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