

`ffcode`: L^AT_EX 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):

<pre>The function <code>fibonacci()</code> is recursive: 1 int fibonacci(int n) { 2 if (n < 2) { 3 return n; 4 } 5 return fibonacci(n-1)+fibonacci(n-2); 6 } Line no. 3 returns <code>n</code> and terminates it.</pre>	<pre>1 \documentclass{article} 2 \usepackage{ffcode} 3 \pagestyle{empty} 4 \begin{document} 5 The function fibonacci() is recursive: 6 \begin{ffcode} 7 int fibonacci(int n) { 8 if (n < 2) { 9 return n; (*@ \label{ln:ret} @*) 10 } 11 return fibonacci(n-1)+fibonacci(n-2); 12 } 13 \end{ffcode} 14 Line no.~\ref{ln:ret} returns \ff{n} 15 and terminates it. 16 \end{document}</pre>
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`\ffinput` There is also an `\ffinput` command that reads the content from a file and places it into the document, formatted exactly the same way as it would be if the `ffcode` environment were used. It may be useful to use `ffsave` environment first, which acts exactly like the `ffcode` environment but doesn't print the content. It saves it to a file instead, which may later be used by the `\ffinput` command.

*The sources are in GitHub at [yegor256/ffcode](https://github.com/yegor256/ffcode)

2 Package Options

- `samepage` If you want to avoid page breaks inside `\ffcode` blocks, use the `samepage` package option.
- `noframes` If you want to omit the light gray frames around `\ff` texts, use the package option `noframes`.
- `nobars` To omit the vertical gray bar at the left side of each snippet, use the `nobars` option of the package.
- `nonumbers` To omit the line numbers, use the `nonumbers` option of the package.
- `nocn` By default, the numbering is continuous: line numbers start at the first snippet and 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 `\ff` pieces look bolder than usual, which may be pretty convenient for some document classes (pay attention to the usage of the [lmodern](#) package, without it the bold won’t work, as explained [here](#)):

Sometimes it’s necessary to make code pieces look bolder, like the `\fibonacci()` function in this text.

```
4 \usepackage{lmodern}
5 \usepackage[bold,noframes]{ffcode}
6 \begin{document}
7 Sometimes it’s necessary to make
8 code pieces look bolder, like
9 the |fibonacci()| function in this text.
10 \end{document}
```

- `sf` You can change the font family of `\ff` pieces to `\sffamily`:

Sometimes you may want them to look not strictly fixed-width, but more elegant, like the `\fibonacci()` here.

```
4 \usepackage[sf,bold,noframes]{ffcode}
5 \begin{document}
6 Sometimes you may want them to look
7 not strictly fixed-width, but more
8 elegant, like the \emph{|fibonacci()|}
9 here.
10 \end{document}
```

3 Typesetting

By the way, the package correctly formats low-height texts, for example, just a dot: `\dot{}`.

A pair of vertical lines decorates a TeX command inside the snippet. If you want to print a single vertical line, use this: “`\char‘\vert`”.

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

$$x = \int_{\text{home}}^N f(x).$$

```
6 \begin{equation*}
7 x = \int_{\text{home}}^N f(x).
8 \end{equation*}
```

4 Line Highlighting

You can highlight some lines in your `ffcode` environment, or can use any other additional configuration parameters from `fancyvrb` and `fvextra` packages:

```
1 while (true) {  
2   print("Hi!")  
3   print("Enter your  
4     name:")  
5   scan(x)  
6   print("Your name | "  
7     + x)  
8 }  
9  
10 \begin{ffcode}[backgroundcolor=\color{gray!20}]  
11 while (true) {  
12   (*@\textcolor{red}{print("Hi!")})@*  
13   print("Enter your name:")  
14   scan(x)  
15   print("Your name | " + x)  
16 }  
17 \end{ffcode}
```

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

5 Implementation

First, we parse package options with the help of `pgfopts` package:

```
1 \RequirePackage{pgfopts}  
2 \pgfkeys{  
3   /ff/.cd,  
4   bold/.store in=\ff@bold,  
5   sf/.store in=\ff@sf,  
6   samepage/.store in=\ff@samepage,  
7   noframes/.store in=\ff@noframes,  
8   nonumbers/.store in=\ff@nonumbers,  
9   nobars/.store in=\ff@nobars,  
10  novert/.store in=\ff@novert,  
11  nocn/.store in=\ff@nocn,  
12 }  
13 \ProcessPgfPackageOptions{/ff}
```

Then, we include the `xcolor` package:

```
14 \RequirePackage{xcolor}
```

Then, we configure the `listings` package:

```
15 \RequirePackage{listings}  
16 \makeatletter  
17 % See \href{https://tex.stackexchange.com/questions/706858}{the ex-  
18   planation}:  
19 \lst@AddToHook{Init}{\setlength{\lineskip}{0pt}}  
20 \makeatother
```

Then, we define a supplementary command `\ff@set`:

```
21 \makeatletter  
22 \newcommand\ff@set[1]{  
23   \lstset{breaklines}  
24   \lstset{escapeinside={(*}{@*}}}  
25   \lstset{basicstyle={\ttfamily}}  
26   \lstset{columns=fullflexible}  
27   \lstset{keepspace=true}
```

```

27 \ifdefined\ff@nonumbers\else
28   \lstset{numbers=left,numbersep=.8em,numberstyle={\tiny\sffamily\color{gray}},x
29   \fi
30 \ifdefined\ff@nobars\else
31   \lstset{frame=leftline,framerule=.05em,rulecolor={\color{gray}}}
32   \fi
33 \ifdefined\ff@nocn\else
34   \lstset{firstnumber=last}
35   \fi
36   \lstset{#1}
37 }
38 \makeatother

```

`ffcode` Then, we define the `ffcode` environment and its supplementary `ffcode*` counterpart:

```

39 \makeatletter
40 \lstnewenvironment{ffcode}[1][]
41   {\ff@set{#1}\ifdefined\ff@samepage\noindent\minipage{\linewidth}\fi}
42   {\ifdefined\ff@samepage\endminipage\fi}
43 \makeatother

```

`ffinput` Then, we define the `\ffinput` command:

```

44 \makeatletter
45 \newcommand\ffinput[2][]{%
46   \ff@set{#1}%
47   \ifdefined\ff@samepage\noindent\minipage{\linewidth}\fi%
48   \lstinputlisting[#1]{#2}%
49   \ifdefined\ff@samepage\endminipage\fi%
50 }
51 \makeatother

```

`ffsave` Then, we define the `ffsave` environment:

```

52 \RequirePackage{fancyvrb}
53 \newenvironment{ffsave}[1][ffsave.txt]
54   {\VerbatimEnvironment\begin{VerbatimOut}{#1}}
55   {\end{VerbatimOut}}

```

`\ff@print` Then, we define a supplementary macro `\ff@print`:

```

56 \makeatletter
57 \newcommand\ff@print[1]{%
58   \textnormal{%
59     \ifdefined\ff@sf\sffamily\else\ttfamily\fi%
60     \ifdefined\ff@bold\fontseries{b}\selectfont\fi%
61     #1%
62   }%
63 }
64 \makeatother

```

`\ff@rule` Then, we define supplementary command `\ff@rule`:

```

65 \makeatletter\newcommand\ff@rule
66   {\vrule height 0.6em depth 0.1em width 0em}
67 \makeatother

```

tcolorbox Then, we use [tcolorbox](#) to define `\ff@box` command for a gray box around verbatim text block:

```
68 \makeatletter
69 \ifdefined\ff@noframes\else
70   \RequirePackage{tcolorbox}
71   \newtcbox\ff@box{nobeforeafter,colframe=gray!80!white,
72     colback=gray!5!white,boxrule=0.01em,arc=0.1em,
73     boxsep=0.12em,left=0.05em,right=0.05em,top=0.02em,bottom=0.02em,
74     tcbox raise base}
75 \fi
76 \makeatother
```

`\ff@x` Then, we define `\ff@x` internal command for printing a piece of fixed-width-font text:

```
77 \makeatletter
78 \NewDocumentCommand\ff@x{v}{\ff{#1}}
79 \makeatother
```

`\ff` Then, we define `\ff` macro:

```
80 \makeatletter
81 \newcommand\ff[1]{%
82   \ifdefined\ff@noframes%
83     \ff@rule\ff@print{#1}%
84   \else%
85     \relax\ifmmode%
86       \ff@rule\ff@print{#1}%
87     \else%
88       \ff@box{\ff@rule\ff@print{#1}}%
89     \fi%
90   \fi%
91 }
92 \makeatother
```

novert Finally, we let vertical bars work similar to `\ff`, as suggested [here](#) and [here](#) (unless `novert` package option is used):

```
93 \makeatletter\ifdefined\ff@novert\else
94   \catcode'\active
95   \AtBeginDocument{\catcode'\active\protected\def|\ff@x|}
96   \catcode'\ 12 %
97 \fi\makeatother

98 \endinput
```

Change History

v0.1.0		added. 3
General: Initial version	3	
v0.10.0		\ff@print: Now, the command ff ignores italic and bold and always prints \texttt as it should be. 4
General: Package option samepage added, to keep all ffcodes blocks on the same page. 3		
ffinput: The \ffinput command added. 4		
v0.10.2		v0.6.0
General: We started to use keepspaces in order to guarantee correct visual render of multi-spaced content. 3		General: Package option novert added, to disable redefinition of vertical bar. 3
v0.11.0		We use pgfopts instead of xkeyval. 3
ffsave: The ffsave environment added. 4		
v0.11.1		v0.7.0
General: Reserve xleftmargin for line numbers so they sit inside the column instead of protruding into the page margin. 3		General: Package option bold added, to make all \ff pieces look bolder than usual. 3
v0.2.0		Package option sf added, to make all \ff pieces be printed as \sffamily. 3
General: Package options nonumbers and noframes added. 3		v0.8.0
v0.3.0		\ff: The \ff command is now a normal command, not verbatim. 5
General: Package option nocn added. 3		
v0.4.0		v0.9.0
General: Package option nobars		General: The minted package is replaced by the listings package. 3
		v0.9.2
		General: All lengths and sizes are in "em" instead of "pt". 3

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