

# `ffcode`: L<sup>A</sup>T<sub>E</sub>X 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 &lt; 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 <code> fibonacci </code> is recursive: 6 \begin{ffcode} 7 int fibonacci(int n) { 8   if (n &lt; 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 <code>\ff{n}</code> 15 and terminates it. 16 \end{document}</pre>
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## 2 Package Options

- `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 `nobars` option of the package.
- `nonumbers` To omit the line numbers, use `nonumbers` option of the package.
- `nocn` By default, the numbering is continuous: line numbers start at the first snippet and

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\*The sources are in GitHub at [yegor256/ffcode](https://github.com/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 `\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 decorate 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 name:")
4   scan(x)
5   print("You name | " + x)
6 }

```

```

6 \begin{ffcode}[backgroundcolor=\color{gray!20}]
7 while (true) {
8   (*@\textcolor{red}{print("Hi!")})@*
9   print("Enter your name:")
10  scan(x)
11  print("You name | " + x)
12 }
13 \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   noframes/.store in=\ff@noframes,
7   nonumbers/.store in=\ff@nonumbers,
8   nobars/.store in=\ff@nobars,
9   novert/.store in=\ff@novert,
10  nocn/.store in=\ff@nocn,
11 }
12 \ProcessPgfPackageOptions{/ff}

```

Then, we configure the `listings` package:

```

13 \RequirePackage{xcolor}
14 \RequirePackage{listings}

```

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

```

15 \makeatletter
16 \lstnewenvironment{ffcode}[1] []
17 {
18   \lstset{breaklines}
19   \lstset{escapeinside={(*@){@*}}
20   \lstset{basicstyle={\ttfamily}}
21   \lstset{columns=fullflexible}
22   \ifdefined\ff@nonumbers\else
23     \lstset{numbers=left,numbersep=5pt,numberstyle={\tiny\sffamily\color{gray}}}
24   \fi
25   \ifdefined\ff@nobars\else
26     \lstset{frame=leftline,framerule=.3pt,rulecolor={\color{gray}}}
27   \ifdefined\ff@nocn\else\fi
28   \lstset{#1}
29 }
30 {}
31 \makeatother

```

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

```

32 \makeatletter
33 \newcommand\ff@print[1]{%
34   \textnormal{%
35     \ifdefined\ff@sf\sffamily\else\ttfamily\fi%
36     \ifdefined\ff@bold\fontseries{b}\selectfont\fi%
37     #1%
38   }%
39 }
40 \makeatother

```

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

```

41 \makeatletter\newcommand\ff@rule
42   {\vrule height 6pt depth 1pt width 0pt}
43 \makeatother

```

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

```

44 \makeatletter
45 \ifdefined\ff@noframes\else
46   \RequirePackage{tcolorbox}
47   \newtcbbox\ff@box{nobeforeafter,colframe=gray!80!white,
48     colback=gray!5!white,boxrule=0.1pt,arc=1pt,
49     boxsep=1.2pt,left=0.5pt,right=0.5pt,top=0.2pt,bottom=0.2pt,
50     tcbox raise base}
51 \fi
52 \makeatother

```

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

```

53 \makeatletter
54 \NewDocumentCommand\ff@x{v}{\ff{#1}}
55 \makeatother

```

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

```

56 \makeatletter
57 \newcommand\ff[1]{%
58   \ifdefined\ff@noframes%
59     \ff@rule\ff@print{#1}%
60   \else%
61     \relax\ifmmode%
62       \ff@rule\ff@print{#1}%
63     \else%
64       \ff@box{\ff@rule\ff@print{#1}}%
65     \fi%
66   \fi%
67 }
68 \makeatother

```

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

```

69 \makeatletter\ifdefined\ff@novert\else
70   \catcode'\| \active
71   \AtBeginDocument{\catcode'\| \active\protected\def|{\ff@x|}}
72   \catcode'\| 12 %
73 \fi\makeatother

```

## Change History

v0.1.0		vertical bar. . . . .	3
	General: Initial version . . . . .		3
v0.2.0		We use <code>pgfopts</code> instead of	
	General: Package options <code>nonumbers</code>	<code>xkeyval</code> . . . . .	3
	and <code>noframes</code> added. . . . .		3
v0.3.0		v0.7.0	
	General: Package option <code>nocn</code> added. . .	General: Package option <code>bold</code> added,	
		to make all <code>\ff</code> pieces look bolder	
v0.4.0		than usual. . . . .	3
	General: Package option <code>nobars</code>	Package option <code>sf</code> added, to make	
	added. . . . .	all <code>\ff</code> pieces be printed as	
v0.5.1		<code>\sffamily</code> . . . . .	3
	<code>\ff@print</code> : Now, the command <code>ff</code>	v0.8.0	
	ignores italic and bold and always	<code>\ff</code> : The <code>\ff</code> command is now a	
	prints <code>\texttt</code> as it should be. . . .	normal command, not verbatim. . .	4
v0.6.0		v0.9.0	
	General: Package option <code>nover</code>	General: The <code>minted</code> package is	
	added, to disable redefinition of	replaced by the <code>listings</code> package. .	3

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