

# 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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`\ffinput` There is also `\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 would be used.

## 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`.

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

- `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 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](#)):

<p style="font-size: small; margin: 0;">Sometimes it’s necessary to make code pieces look bolder, like the <code>fibonacci</code> function in this text.</p>	<pre style="font-family: monospace; font-size: small; margin: 0;"> 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}</pre>
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- `sf` You can change the font family of `\ff` pieces to `\sffamily`:

<p style="font-size: small; margin: 0;">Sometimes you may want them to look not strictly fixed-width, but more elegant, like the <code>fibonacci</code> here.</p>	<pre style="font-family: monospace; font-size: small; margin: 0;"> 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}</pre>
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### 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:

$x = \int_{\text{home}}^N f(x).$	<pre style="font-family: monospace; font-size: small; margin: 0;"> 6 \begin{equation*} 7 x = \int_{\text{home}}^N f(x). 8 \end{equation*}</pre>
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### 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   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 explanation}:
18 \lst@AddToHook{Init}{\setlength{\lineskip}{0pt}}
19 \makeatother

```

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

```

20 \makeatletter
21 \newcommand\ff@set[1]{
22   \lstset{breaklines}
23   \lstset{escapeinside={(*@}{@*)}}
24   \lstset{basicstyle={\ttfamily}}
25   \lstset{columns=fullflexible}
26   \ifdefined\ff@nonumbers\else
27     \lstset{numbers=left,numbersep=.8em,numberstyle={\tiny\sffamily\color{gray}}}
28   \fi
29   \ifdefined\ff@nobars\else
30     \lstset{frame=leftline,framerule=.05em,rulecolor={\color{gray}}}
31   \fi
32   \ifdefined\ff@nocn\else

```

```

33 \lstset{firstnumber=last}
34 \fi
35 \lstset{#1}
36 }
37 \makeatother

```

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

```

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

```

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

```

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

```

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

```

51 \makeatletter
52 \newcommand\ff@print [1]{%
53 \textnormal{%
54 \ifdefined\ff@sf\sffamily\else\ttfamily\fi%
55 \ifdefined\ff@bold\fontseries{b}\selectfont\fi%
56 #1%
57 }%
58 }
59 \makeatother

```

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

```

60 \makeatletter\newcommand\ff@rule
61 {\vrule height 0.6em depth 0.1em width 0em}
62 \makeatother

```

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

```

63 \makeatletter
64 \ifdefined\ff@noframes\else
65 \RequirePackage{tcolorbox}
66 \newtcbbox\ff@box{nobeforeafter,colframe=gray!80!white,
67 colback=gray!5!white,boxrule=0.01em,arc=0.1em,
68 boxsep=0.12em,left=0.05em,right=0.05em,top=0.02em,bottom=0.02em,
69 tcbbox raise base}
70 \fi
71 \makeatother

```

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

```

72 \makeatletter
73 \NewDocumentCommand\ff@x{v}{\ff{#1}}
74 \makeatother

```

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

```
75 \makeatletter
76 \newcommand\ff[1]{%
77   \ifdefined\ff@noframes%
78     \ff@rule\ff@print{#1}%
79   \else%
80     \relax\ifmmode%
81       \ff@rule\ff@print{#1}%
82     \else%
83       \ff@box{\ff@rule\ff@print{#1}}%
84     \fi%
85   \fi%
86 }
87 \makeatother
```

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

```
88 \makeatletter\ifdefined\ff@novert\else
89   \catcode'\|\active
90   \AtBeginDocument{\catcode'\|\active\protected\def|\ff@x|}
91   \catcode'\| 12 %
92 \fi\makeatother

93 \endinput
```

## Change History

v0.1.0	General: Initial version . . . . .	3	added, to disable redefinition of vertical bar. . . . .	3	
v0.10.0	General: Package option <code>samepage</code> added, to keep all <code>ffcode</code> blocks on the same page. . . . .	3	We use <code>pgfopts</code> instead of <code>xkeyval</code> . . . . .	3	
	<code>ffcode</code> : The <code>\ffinput</code> command added. . . . .	4	v0.7.0	General: Package option <code>bold</code> added, to make all <code>\ff</code> pieces look bolder than usual. . . . .	3
v0.2.0	General: Package options <code>nonumbers</code> and <code>noframes</code> added. . . . .	3	Package option <code>sf</code> added, to make all <code>\ff</code> pieces be printed as <code>\sffamily</code> . . . . .	3	
v0.3.0	General: Package option <code>nocn</code> added. . . . .	3	v0.8.0	<code>\ff</code> : The <code>\ff</code> command is now a normal command, not verbatim. . . . .	5
v0.4.0	General: Package option <code>nobars</code> added. . . . .	3	v0.9.0	General: The <code>minted</code> package is replaced by the <code>listings</code> package. . . . .	3
v0.5.1	<code>\ff@print</code> : Now, the command <code>ff</code> ignores italic and bold and always prints <code>\texttt</code> as it should be. . . . .	4	v0.9.2	General: All lengths and sizes are in "em" instead of "pt". . . . .	3
v0.6.0	General: Package option <code>novert</code>				

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