

Including and Omitting Solutions from Problem Sets

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1 The Problem

You have a problem set or exam that is typeset in \LaTeX . You want to distribute a version that omits the solutions (for students to work on), and a version that includes the solutions (for grading or for students to review). You don't want to comment and uncomment each solution each time you omit or include the solutions.

2 Solutions for Math and Text

2.1 The exam Document Class

See <http://www-math.mit.edu/~psh/exam/examdoc.pdf> for the `exam` class implementation of a solution. Thanks to Brendan Nyhan for this suggestion.

2.2 An `etoolbox` Solution

Add this code to the preamble of your \LaTeX document:

```
\usepackage{etoolbox}
\newtoggle{includeSolutions}
\toggletrue{includeSolutions}
```

Then, after each problem in the \LaTeX document, add the solution surrounded by the `\iftoggle{}` command:

```
\iftoggle{includeSolutions}{
The solution is 42.
}
```

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Now, you only need to change one parameter to include or omit the solutions. To omit the solutions, change `\toggletrue{}` in the preamble to `\togglefalse{}` and recompile. To include the solutions, set the value back to `true` and recompile.

See <http://www.ctan.org/pkg/etoolbox> for more information about the relevant package.

3 A Solution for Code

Due to interactions between verbatim environments and conditionals, including code requires a slightly different solution. First, add this to the preamble of your \LaTeX document:

```
\usepackage{listings}
\makeatletter
\newcommand{\iftoggleverb}[1]{%
  \ifcsdef{etb@tgl@#1}
    {\csname etb@tgl@#1\endcsname\iftrue\iffalse}
    {\etb@noglobal\etb@err@notoggle{#1}\iffalse}%
}
\makeatother
```

Then, after each problem in the \LaTeX document, add the solution code in the `lstlisting` environment, leading with the `\iftoggleverb{}` command and closing with the `\fi` command:

```
\iftoggleverb{includeSolutions}
\begin{lstlisting}[language=R]
k <- 12
n <- 365
x <- 1:n
m <- 10000
\end{lstlisting}
\fi
```

See <http://www.ctan.org/pkg/listings> for more information about the relevant package, and <http://j.mp/1m8dJU3> for the original solution.

Hope this helps!