Creating LaTeX documents from within Stata

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Introduction

- `texdoc` is a new command to create LaTeX documents from within Stata.
- `texdoc` is especially convenient to create LaTeX documents that contain Stata output.
- `texdoc` is like weaving, but all Stata.
- I use it for teaching, e.g. to create solutions for class assignments.
- I also use it for Stata Journal articles.

Syntax and Usage

- Create a LaTeX document (interactive mode)

```
texdoc init docname [, replace ]
tex line 1
tex line 2
...
texdoc close
```

Syntax and Usage

- Include Stata output in LaTeX document

```
texdoc init docname [, replace ... ]
...
texdoc stlog [name]
... commands ...
texdoc stlog close
...
texdoc close
```

Syntax and Usage

- Within `texdoc stlog`, type

```
texdoc stlog oom command
```

  to suppress output (and print "*(output omitted)*").

- Furthermore, within `texdoc stlog` type

```
texdoc stlog cnp
```

  to continue output on next page (and print "*(continued on next page)*").

Syntax and Usage

- Non-interactive mode: Process a do-file containing `texdoc` commands.

```
texdoc do filename [, init(docname) close replace ... ]
```

- In non-interactive mode you can use the

```
/*tex ... tex*/
```

  comment structure to include blocks of LaTeX code.

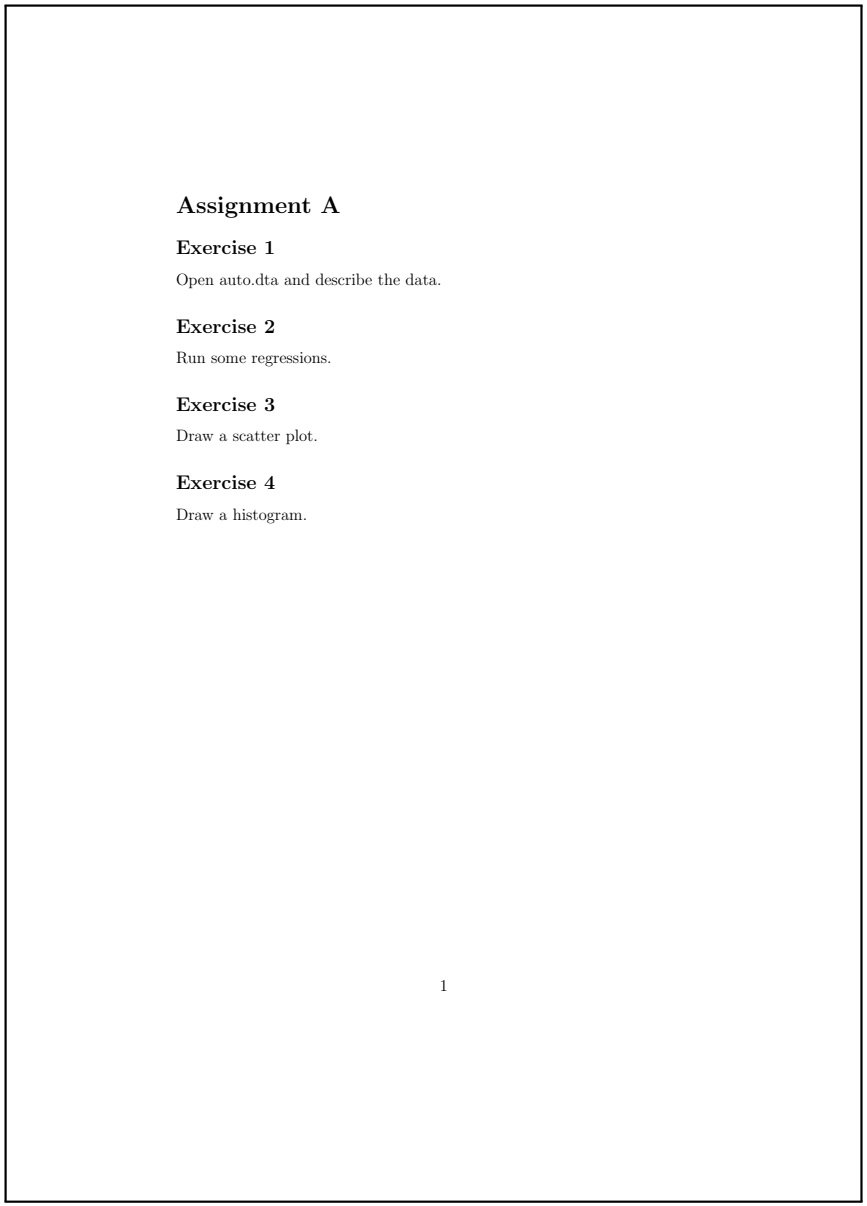
- `init()` and `close` can also be specified within the do-file using `texdoc init` and `texdoc close`
- Get rid of all LaTeX and `texdoc` commands:

```
texdoc strip oldfile newfile [, replace ]
```

Examples

Create homework assignment (interactive mode)

```
. texdoc init assignment
(texdoc output file is assignment.tex)
. tex \documentclass[12pt]{article}
. tex
. tex \begin{document}
. tex
. tex \section*{Assignment A}
. tex
. tex \subsection*{Exercise 1}
. tex
. tex Open auto.dta and describe the data.
. tex
. tex \subsection*{Exercise 2}
. tex
. tex Run some regressions.
. tex
. tex \subsection*{Exercise 3}
. tex
. tex Draw a scatter plot.
. tex
. tex \subsection*{Exercise 4}
. tex
. tex Draw a histogram.
. tex
. tex \end{document}
. texdoc close
(texdoc output written to assignment.tex)
```



Assignment A

Exercise 1

Open auto.dta and describe the data.

Exercise 2

Run some regressions.

Exercise 3

Draw a scatter plot.

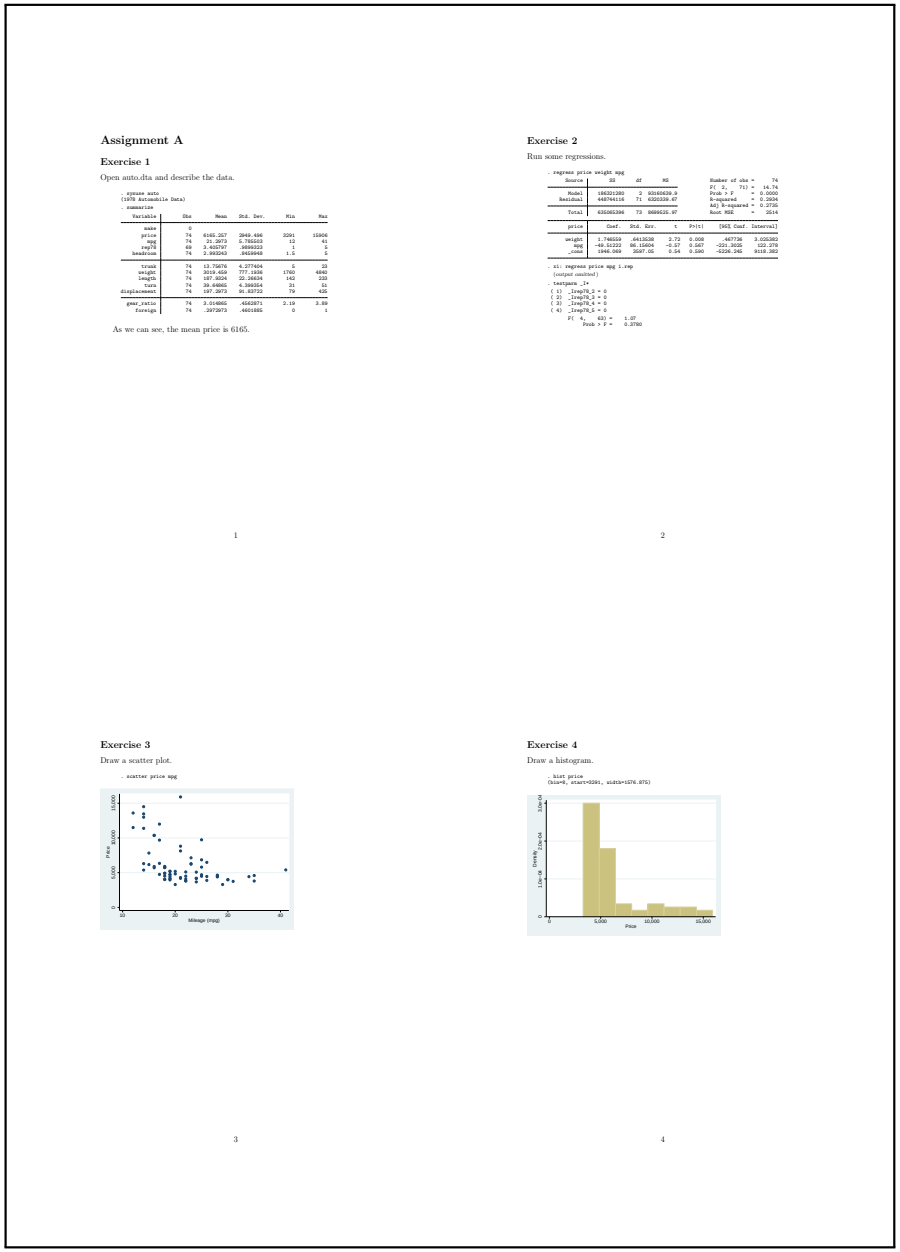
Exercise 4

Draw a histogram.

1

Solutions to assignment (non-interactive mode)

```
. type solutions.do
* Solutions to Assignment A
/*tex
\documentclass[12pt]{article}
\usepackage{stata, graphicx}
\begin{document}
\section*{Assignment A}
tex*/
* Ex 1
/*tex
\subsection*{Exercise 1}
Open auto.dta and describe the data.
tex*/
texdoc stlog
sysuse auto
summarize
texdoc stlog close
/*tex
As we can see, the mean price is 6165.
tex*/
* Ex 2
/*tex
\newpage
\subsection*{Exercise 2}
Run some regressions.
tex*/
texdoc stlog
regress price weight mpg
texdoc stlog oom xi: regress price mpg i.rep
testparm _I*
texdoc stlog close
* Ex 3
/*tex
\newpage
\subsection*{Exercise 3}
Draw a scatter plot.
tex*/
texdoc stlog
scatter price mpg
texdoc stlog close
graph export solutions_gr1.eps
!epstopdf solutions_gr1.eps
tex \includegraphics[scale=0.7]{solutions_gr1}
* Ex 4
/*tex
\newpage
\subsection*{Exercise 4}
Draw a histogram.
tex*/
texdoc stlog
hist price
texdoc stlog close
local grname ${TeXdoc_stprefix}_${TeXdoc_stcounter}
graph export `grname'.eps
!epstopdf `grname'.eps
tex \includegraphics[scale=0.7]{`grname'}
/*tex
\end{document}
tex*/
. texdoc do solutions, init(solutions) close
(texdoc output file is solutions.tex)
```



Assignment A

Exercise 1

Open auto.dta and describe the data.

```
. sysuse auto
(1978 Automobile Data)
. summarize
```

Variable	Obs	Mean	Std. Dev.	Min	Max
make	0				
price	74	6165.257	2949.496	3291	15906
mpg	74	21.2973	5.785503	12	41
rep78	69	3.405797	.9899323	1	5
headroom	74	2.993243	.8459948	1.5	5
trunk	74	13.75676	4.277404	5	23
weight	74	3019.459	777.1936	1760	4840
length	74	187.9324	22.26634	142	233
turn	74	39.64865	4.399354	31	51
displacement	74	197.2973	91.83722	79	425
gear_ratio	74	3.014865	.4563871	2.19	3.89
foreign	74	.2972973	.4601885	0	1

As we can see, the mean price is 6165.

1

Exercise 2

Run some regressions.

```
. regress price weight mpg
      Source |       SS       df       MS              Number of obs =      74
-------------+------------------------------           F(  2,    71) =   16.74
       Model |   186321280     2  93160639.9           Prob > F      =  0.0000
    Residual |   440744116    71  6208339.67           R-squared     =  0.2604
-------------+------------------------------           Adj R-squared =  0.2735
       Total |   627065396    73  8589935.97           Root MSE      =  2514

------------------------------------------------------------------------------
       price |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      weight |   1.746559   .6413538     2.72   0.008     .467736    3.025382
         mpg |  -49.51222   86.15604    -0.57   0.567    -221.3025    122.278
       _cons |   1946.069   3597.05      0.54   0.590    -5226.245    9118.382
------------------------------------------------------------------------------
. xi: regress price mpg i.rep
i.rep             _Irep_1-5           (naturally coded; _Irep_1 omitted)
(output omitted)
. testparm _I*
( 1)  _Irep78_2 = 0
( 2)  _Irep78_3 = 0
( 3)  _Irep78_4 = 0
( 4)  _Irep78_5 = 0
           F(  4,    69) =    1.07
                Prob > F =    0.3760
```

2

Exercise 3

Draw a scatter plot.

```
. scatter price mpg
```


3

Exercise 4

Draw a histogram.

```
. hist price
(bin=8, start=3291, width=1576.875)
```


4

Issues

- `texdoc do` always runs everything, that is it
  - cannot process LaTeX without running Stata commands,
  - cannot run Stata commands without processing LaTeX.
- An option to copy the pieces of Stata output directly into the LaTeX document instead of using external log files would be nice.
- `texdoc stlog` relies on `sjlog`, which has some limitations:
  - linesize is fixed
  - closes the (unnamed) default log
- `texdoc do` does not exit the do-file on `exit`
- Overall, `texdoc` is only for small documents. I would not use it to produce a whole book or so. Also, `texdoc` is suited primarily for documents where Stata plays an important role. If the document is mostly LaTeX then an alternative approach should probably be followed ...

Alternative approach

- Make LaTeX the default and tag Stata commands.
- That is, define a LaTeX document containing blocks of Stata code such as

```
\begin{stata}
... commands ...
\end{stata}
```

```
\begin{stlog}
... commands ...
\end{stlog}
```

and then process the file e.g. as follows

```
dotex filename
```

- Implementation would not be much more complicated than the implementation of `texdoc`.

Thanks for listening!