SAS with Rmarkdown

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knitr::opts\_chunk$set(echo = TRUE)  
  
# see what the initial knitr engine settings are  
knitr::opts\_chunk$get()$engine

## [1] "R"

knitr::opts\_chunk$get()$engine.path

## NULL

knitr::opts\_chunk$get()$engine.opts

## NULL

## Resource Link

To get started using SAS as your statistical software/data processing "engine" take a look at the following article: <http://www.ssc.wisc.edu/~hemken/SASworkshops/Markdown/SASmarkdown.html>.

Also read up on the SASmarkdown package <https://cran.r-project.org/web/packages/SASmarkdown/>.

## Setup

To get started you need: 1. Have SAS installed locally on your machine (i.e. you need a licensed copy) 2. you need to know where on your local drive that your SAS executable is located. Mine is located at C:\Program Files\SASHome\SASFoundation\9.4\sas.exe. 3. Install the SASmarkdown package. 4. Then setup your knitr options as follows:

saspath <- "C:/Program Files/SASHome/SASFoundation/9.4/sas.exe"  
sasopts <- "-nosplash -linesize 75"  
knitr::opts\_chunk$set(engine="sashtml", engine.path=saspath,   
 engine.opts=sasopts, comment=NA)

## Change settings to use HTML output from SAS

NOTE: You will need to install the SASmarkdown package first. For this exercise we're using engine="sashtml" which works well when knitting to HTML. However, this format will not work if you knit to PDF or DOC. This leverages the ODS output from SAS.

If you want to knit to PDF or DOC, you should change the engine to engine="sas". This will NOT use ODS output from SAS.

# load the SASmarkdown package  
library(SASmarkdown)

## sas, saslog, sashtml, and sashtmllog engines

## are now ready to use.

# set up the options so that knit knows where you SAS executable is  
# set the linesize to be easily readable on letter size paper, portrait  
# and set the knir options using opts\_chunk$set().  
saspath <- "C:/Program Files/SASHome/SASFoundation/9.4/sas.exe"  
sasopts <- "-nosplash -linesize 75"  
knitr::opts\_chunk$set(engine="sashtml", engine.path=saspath,   
 engine.opts=sasopts, comment=NA)  
  
# run these commands to convince yourself that  
# within this knitr session the engine changed.  
knitr::opts\_chunk$get()$engine

## [1] "sashtml"

knitr::opts\_chunk$get()$engine.path

## [1] "C:/Program Files/SASHome/SASFoundation/9.4/sas.exe"

knitr::opts\_chunk$get()$engine.opts

## [1] "-nosplash -linesize 75"

## Try some SAS code

This code chunk runs te PROC MEANS command from SAS using the built in dataset sashelp.class.

proc means data=sashelp.class;  
run;

Variable

N

Mean

Std Dev

Minimum

Maximum

Age

Height

Weight

19

19

19

13.3157895

62.3368421

100.0263158

1.4926722

5.1270752

22.7739335

11.0000000

51.3000000

50.5000000

16.0000000

72.0000000

150.0000000

## More SAS code

... and another SAS code chunk using the PROC CORR commands to see correlations between the variables and also visualize the scatterplot matrix.

proc corr data=sashelp.class plots=matrix;  
run;

3 Variables:

Age Height Weight

Simple Statistics

Variable

N

Mean

Std Dev

Sum

Minimum

Maximum

Age

19

13.31579

1.49267

253.00000

11.00000

16.00000

Height

19

62.33684

5.12708

1184

51.30000

72.00000

Weight

19

100.02632

22.77393

1901

50.50000

150.00000

Pearson Correlation Coefficients, N = 19 Prob > |r| under H0: Rho=0

Age

Height

Weight

Age

1.00000

0.81143

<.0001

0.74089

0.0003

Height

0.81143

<.0001

1.00000

0.87779

<.0001

Weight

0.74089

0.0003

0.87779

<.0001

1.00000

## Reset engine to R

While this is great using SAS, if you want to switch back to using R within the same Rmarkdown document, within the same knitr session, you'll need to tell knitr that you are switching engines.

To get this next chunk to run, you'll need to reset the knitr engine within the chunk options directly and then use the command knitr::opts\_chunk$set(engine="R", engine.path=NULL, engine.opts=NULL, comment=NA) to reset back to R.

# this chunk has the engine set back to `R`  
  
# run a short bit of r code  
x <- 5  
x

[1] 5

# check the current engine  
knitr::opts\_chunk$get()$engine

[1] "sashtml"

# reset the engine globally (i.e. so it will work outside of  
# this chunk so you don't have to keep typing engine=`R`)  
knitr::opts\_chunk$set(engine="R", engine.path=NULL,   
 engine.opts=NULL, comment=NA)  
  
# confirm that this change was applied  
knitr::opts\_chunk$get()$engine

[1] "R"

knitr::opts\_chunk$get()$engine.path

NULL

knitr::opts\_chunk$get()$engine.opts

NULL

...and here is a new chunk with no engine defined but the engine has defaulted back to R.

# this chunk didn't list the engine explicitly, so let's  
# make sure the global change carried over into this chunk  
knitr::opts\_chunk$get()$engine

[1] "R"

# and another short bit of R code  
y <- 3  
y

[1] 3