

First Bytes 2014 - R Technology Workshop

This is how my RStudio is configured:

```
sessionInfo()
```

```
## R version 3.0.2 (2013-09-25)
## Platform: x86_64-apple-darwin10.8.0 (64-bit)
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods    base
##
## loaded via a namespace (and not attached):
## [1] digest_0.6.4    evaluate_0.5.5  formatR_0.10    htmltools_0.2.4
## [5] knitr_1.6        rmarkdown_0.2.49 stringr_0.6.2    tools_3.0.2
## [9] yaml_2.1.13
```

You also need to install LaTeX if you want to generate PDF files from KnitR.



<http://latex-project.org/ftp.html>

Getting Started - Clone Repository:

```
Phils-MacBook-Pro:Mine pcannata$ pwd
```

```
/Users/pcannata/Mine
```

```
Phils-MacBook-Pro:Mine pcannata$ git clone https://github.com/pcannata/FirstBytesRepo.
git
```

```
Cloning into 'FirstBytesRepo'...
```

```
remote: Counting objects: 19, done.
```

```
remote: Compressing objects: 100% (12/12), done.
```

```
remote: Total 19 (delta 3), reused 19 (delta 3)
```

```
Unpacking objects: 100% (19/19), done.
```

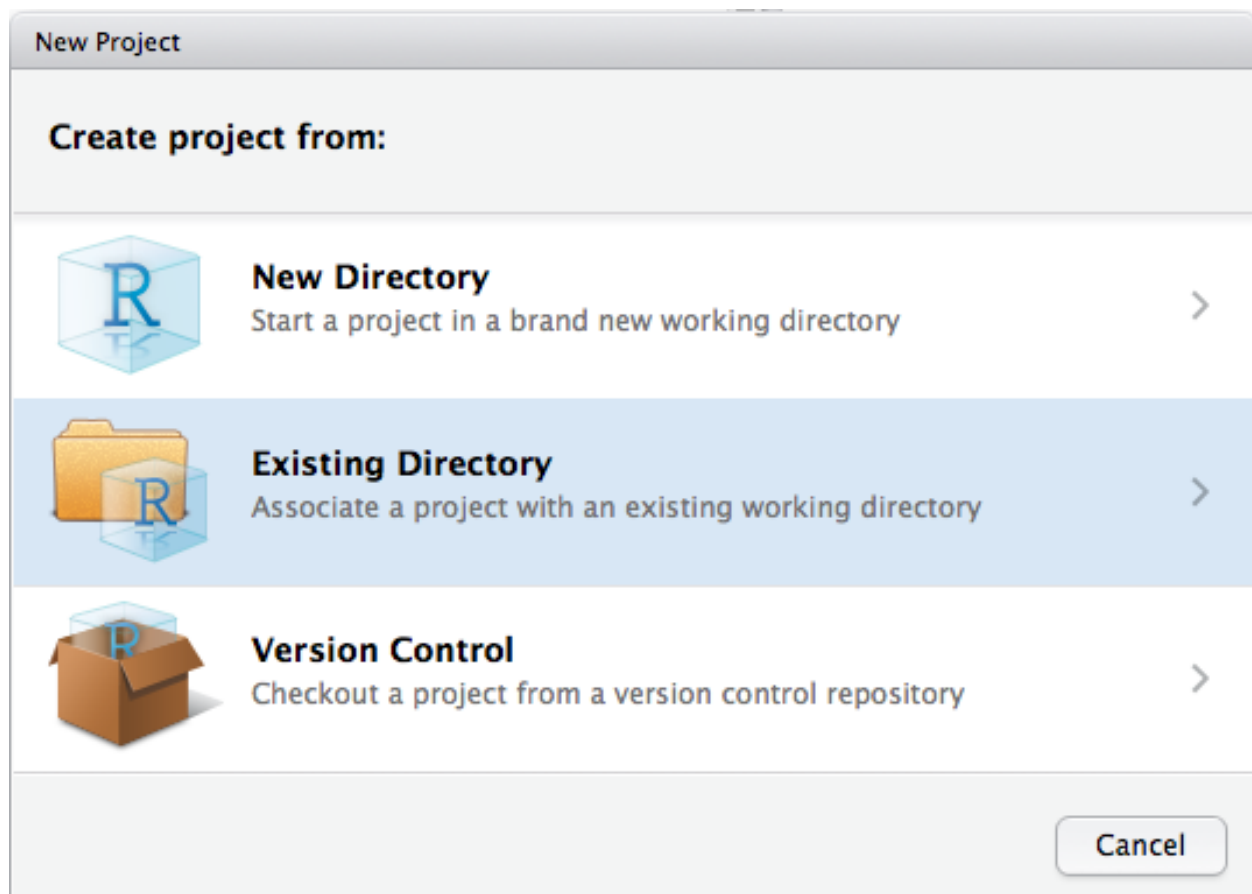
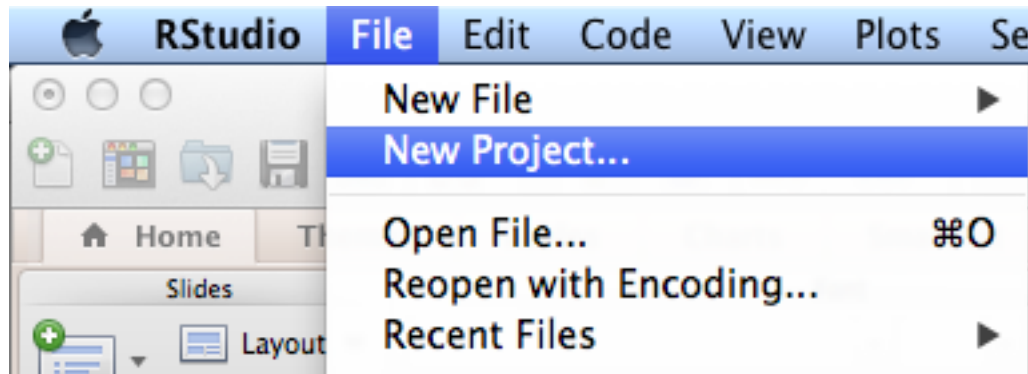
```
Checking connectivity... done
```

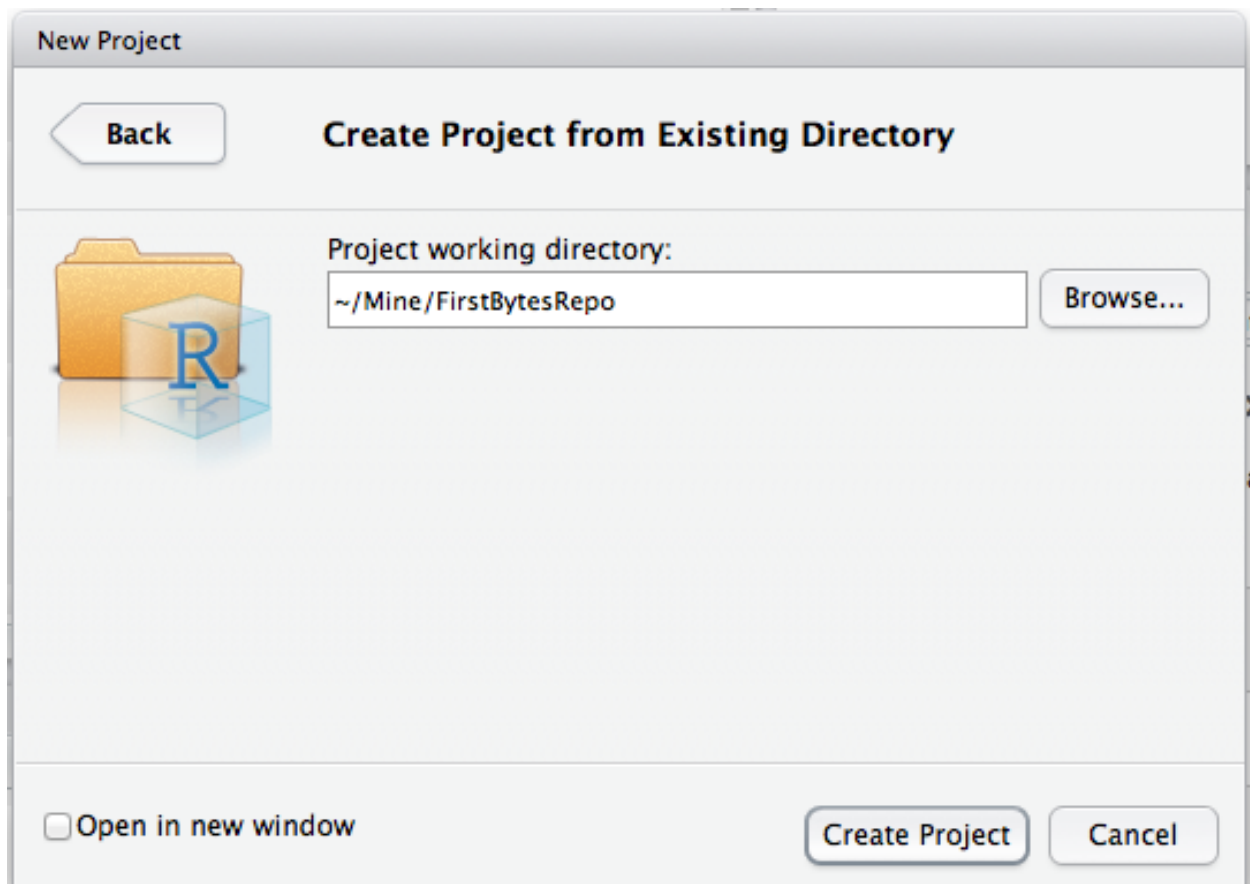
```
Phils-MacBook-Pro:Mine pcannata$ ls -la FirstBytesRepo/
```

```
. .Rprofile.R 00 Doc 03 ggplot 05 KnitR 02
```

```
.. .git 01 Basic R 04 KnitR 01 FirstBytesRepo.Rproj
```

Getting Started - Creating a New RStudio Project:





The screenshot shows the RStudio application window. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Tools, Window, and Help. The title bar indicates the current project is ~/Mine/FirstBytesRepo - master - RStudio. The console on the left displays the R version 3.0.2 (2013-09-25) and various startup messages. The environment pane on the right shows the Global Environment is empty. The file explorer at the bottom right shows the contents of the FirstBytesRepo directory, including a .gitignore file and several folders and files.

Console Output:

```
R version 3.0.2 (2013-09-25) -- "Frisbee Sailing"
Copyright (C) 2013 The R Foundation for Statistical Computing
Platform: x86_64-apple-darwin10.8.0 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> |
```

Environment: Global Environment (Empty)

Files:

Name	Size	Modified
..		
.gitignore	29 B	Jul 5, 2014, 8:04 PM
00 Doc		
01 Basic R		
03 ggplot		
04 KnitR 01		
05 KnitR 02		
FirstBytesRepo.Rproj	205 B	Jul 5, 2014, 7:47 PM

Recommended Books:



http://www.amazon.com/Everyone-Advanced-Analytics-Graphics-Addison-Wesley/dp/0321888030/ref=sr_1_1?ie=UTF8&qid=1404611818&sr=8-1&keywords=R+for+everyone



http://www.amazon.com/Reproducible-Research-RStudio-Chapman-Series/dp/1466572841/ref=sr_1_1?ie=UTF8&qid=1404612129&sr=8-1&keywords=reproducible+research+with+r

Basic R Language Constructs

See also <http://cran.r-project.org/doc/manuals/r-devel/R-lang.html>, <http://www.r-tutor.com/r-introduction>, and <http://www.cookbook-r.com/>

```
source("../01 Basic R/Basic.R", echo = TRUE)
```

```
##  
## > "Variables"  
## [1] "Variables"  
##  
## > v <- 211  
##  
## > v  
## [1] 211  
##  
## > "Vectors"  
## [1] "Vectors"  
##  
## > v <- c(1, 2, 3, 4, 5)  
##  
## > v  
## [1] 1 2 3 4 5
```

R Dataframes

See also <http://www.r-tutor.com/r-introduction/data-frame>

```
source("../02 R Dataframes/Dataframes.R", echo = TRUE)
```

##

```
## > library("ggplot2", lib.loc = "/Library/Frameworks/R.framework/Versions/3.0/Resources/library")
##
## > head(diamonds)
##   carat      cut color clarity depth table price     x     y     z
## 1  0.23    Ideal     E   SI2   61.5    55   326  3.95  3.98  2.43
## 2  0.21  Premium     E   SI1   59.8    61   326  3.89  3.84  2.31
## 3  0.23     Good     E   VS1   56.9    65   327  4.05  4.07  2.31
## 4  0.29  Premium     I   VS2   62.4    58   334  4.20  4.23  2.63
## 5  0.31     Good     J   SI2   63.3    58   335  4.34  4.35  2.75
## 6  0.24 Very Good     J  VVS2   62.8    57   336  3.94  3.96  2.48
```

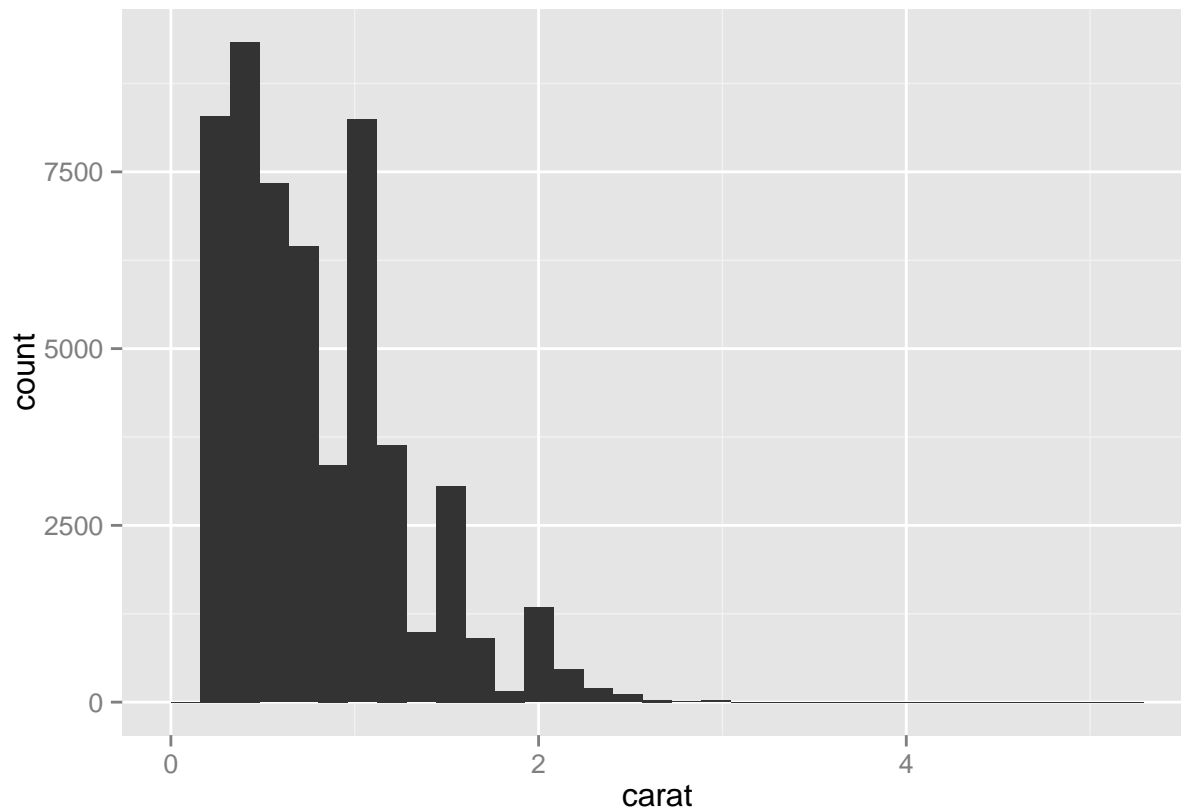
ggplot2

See also <http://ggplot2.org/>

```
source("../03 ggplot/01 Histograms.R", echo = TRUE)
```

```
##
## > library("ggplot2", lib.loc = "/Library/Frameworks/R.framework/Versions/3.0/Resources/library")
##
## > ggplot(data = diamonds) + geom_histogram(aes(x = carat))

## stat_bin: binwidth defaulted to range/30. Use 'binwidth = x' to adjust this.
```



```
##
## > ggplot(data = diamonds) + geom_density(aes(x = carat,
## +     fill = "gray50"))
```

