

# 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.
```

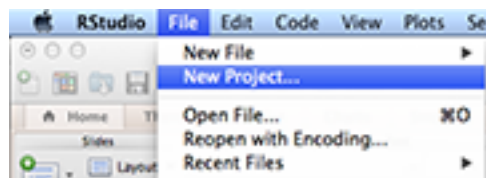
```
Checking connectivity... done
```

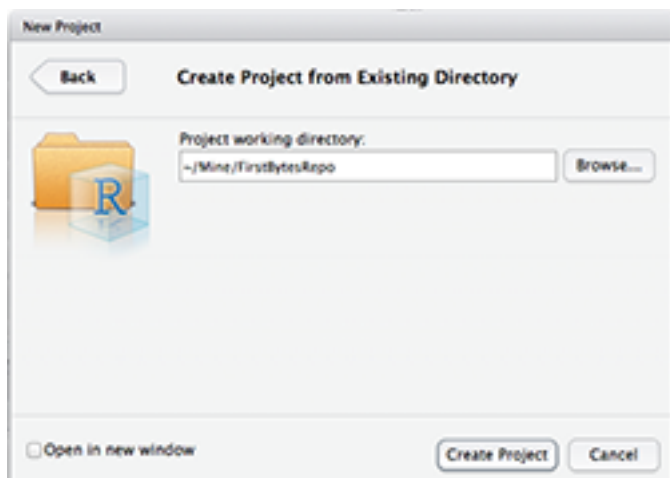
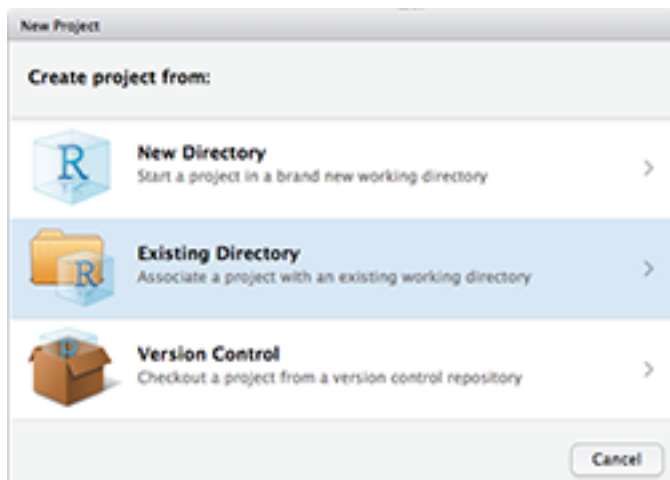
```
Phils-MacBook-Pro:Mine pcannata$ ls -la FirstBytesRepo/
```

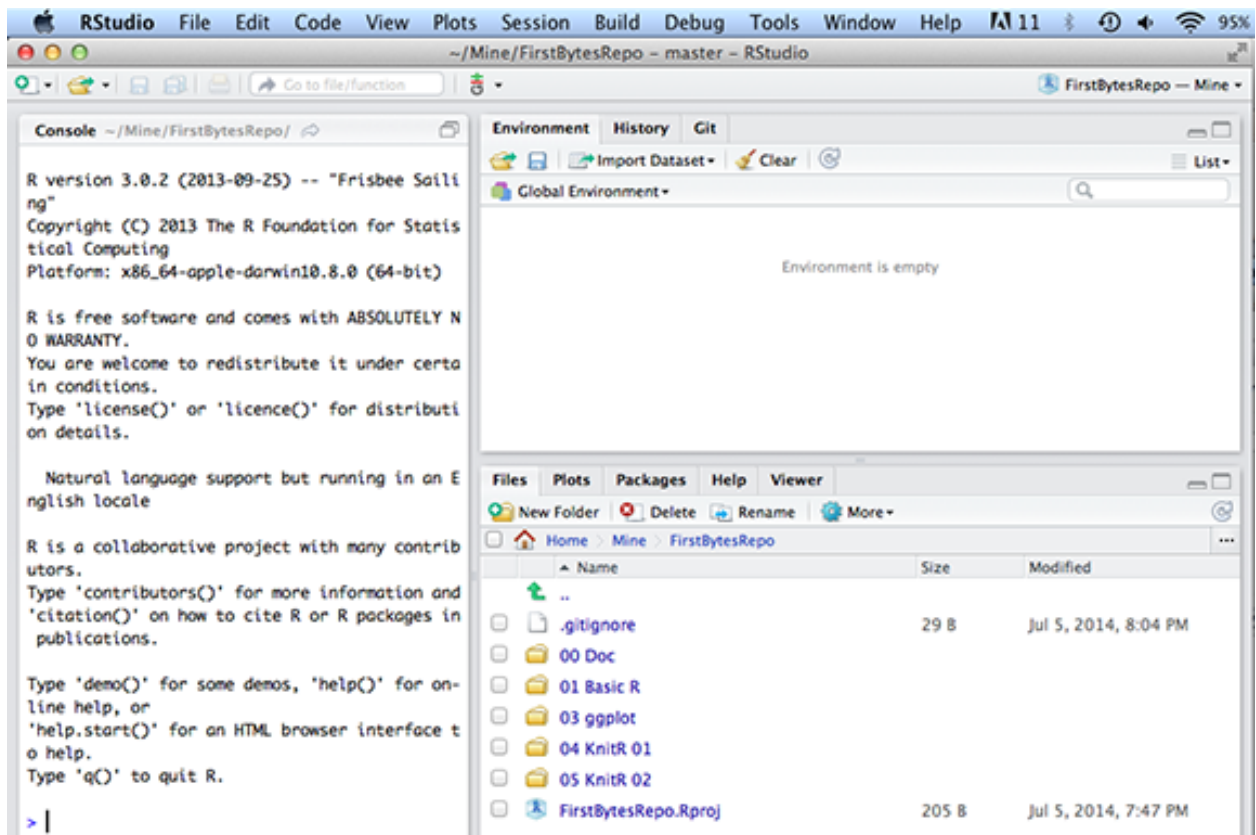
```
.. .Rprofile.R 00 Doc 03 ggplot 05 Knitr 02
```

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

## Getting Started - Creating a New RStudio Project:







## 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/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](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"
##
## > v1 <- c(1, 2, 3, 4, 5)
##
## > v1
## [1] 1 2 3 4 5
##
## > v2 <- 1:11
##
## > v2
## [1] 1 2 3 4 5 6 7 8 9 10 11
##
## > v3 <- -5:5
##
## > v3
## [1] -5 -4 -3 -2 -1 0 1 2 3 4 5
##
## > "Vector Operations"
## [1] "Vector Operations"
##
## > v1 + 2
## [1] 3 4 5 6 7
##
## > sqrt(v2)
## [1] 1.000 1.414 1.732 2.000 2.236 2.449 2.646 2.828 3.000 3.162 3.317
##
## > v2 + v3
## [1] -4 -2 0 2 4 6 8 10 12 14 16
##
## > length(4:22)
## [1] 19
##
## > mean(4:22)
## [1] 13
##
## > "Functions"
## [1] "Functions"
```

```
##
## > apropos("mean")
## [1] ".colMeans"      ".rowMeans"      "colMeans"      "kmeans"
## [5] "mean"           "mean.Date"     "mean.default"  "mean.difftime"
## [9] "mean.POSIXct"   "mean.POSIXlt"  "rowMeans"      "weighted.mean"
```

## 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
```

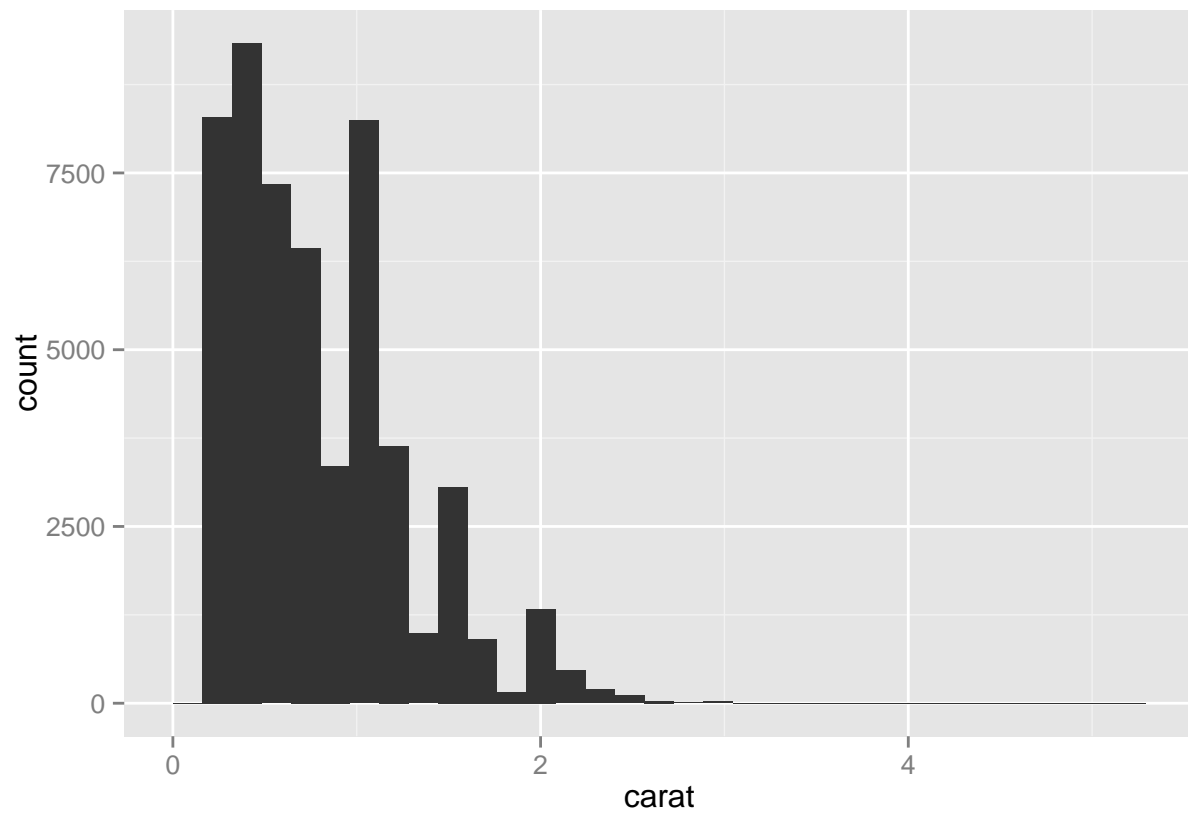
## ggplot2

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"))
```

