

4 present

- ☐ Instructor will try to get datacamp access.
- ☐ There is a case, (on stack var reassignment?) where leaving the last statement for an implicit return won't work.
- ☐ class stopped over a trailing comma in a matrix expression like so:  

```
x[x[,2] >= 3,]
```

This translates as:  
reference those values of the first row of the matrix x where the values in the second column of x are greater than or equal to three.  
The trick to parsing this was to note that the `x[,2] >= 3` phrase applied to the rows of x meaning to the left of the trailing comma.
- ☐ the `apply(M, dim=1,2 or c(1,2), fun, args)`  
flattens M, applies the function and returns the result usually as the transpose of the original M.  
Writing `t(apply(...))` usually makes more sense visually.

Some version divergence in old and new versions of R  
RStudio 1.2 won't run < MacOS 12 but RStudio 1.1 will.  
 Installed old on the laptop and new on the desktop.

R in Jupyter Notebooks is OK.  
 So I will build an R project in Jupyter  
 and try looking at its environment in RStudio,  
 kinda like vi versus Netbeans.

Installed R Jupyter and RStudio on  
 both machines. Works great so far.  
 That's four installations - a bit of maintenance.

Three styles of code execution:

- Line
- Selected Region
- Entire Document

Exporting Images From Jupyter  
 Exporting Images From RStudio

Facilitating Group Collaboration

Read Data From File:

- .csv Comma Separated Values
- .txt File
- .xls .xlsx, .xla Excel Files

Write/Save Data To File:

- See Example Runs
- Load Source to See Previous Sessions
- .RData is suffix to save session file

R Types: Integer, Numeric, Logical, Character

R Structure: Vector, Matrix, Array, List, Data frame

- Vector, Matrix, Array are Homogeneous
- List, Data frame can be Heterogeneous

☐ Cleaning Data with `na.rm` and `na.omit`

☐ Including libraries like `ggplot` with each session

☐ Questions:

- How to check version?
- How to install from CRAN, in Jupyter and RStudio?
- Does environment in RStudio show proper package versions?

☐ Unix-Like Commands:

- `ls()` and `rm(obj)` work within the scope of R itself
- `setwd()`, `getwd()`, `dir()` and `dir.create()` affect OS state
- `!cd`, `!pwd`, `!mkdir` are Jupyter notebook equivalents

☐ Multiple libraries accessible from Bioconductor

- Including OMIM, PUBMED:

☐ Extra Programming Hints on R Data Camp

☐ Codify today's work as a web page for quick access.

☐ Nick Trick: Cross Compare Two Datasets