Tools for data viz: R and ggplot

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QUT

Language: Why R?

- Scripted languages allow reproducibility
- Not about technical attributes
- Pick your language based on what people in your area speak/code
- Rstudio, Rmarkdown and other tools for communication and sharing
- A great open-source community

What is R?

- R is a programming language, statistical software, and visualisation program
- Interpreted (vs. compiled) language
- Similar to matlab & python
- It’s free! And the online community is vibrant

Where to get R

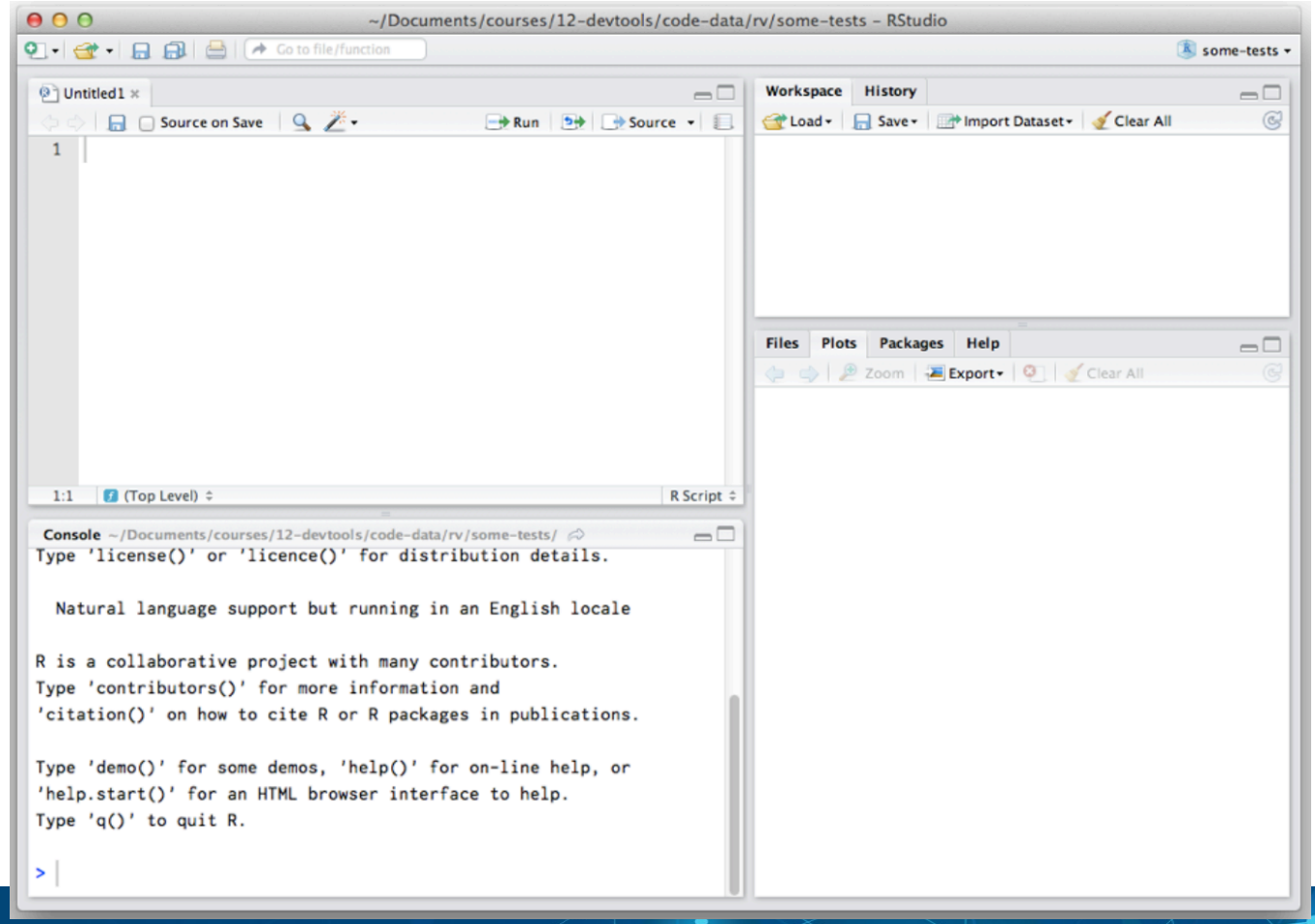
https://cloud.r-project.org (it's free!)

And get Rstudio (the IDE we will be using in MXB262)

http://www.rstudio.com/download (it's free!)

And if your heart belongs to matlab, google 'R for matlab users' cheat sheet

R Studio


~/Documents/courses/12-devtools/code-data/rv/some-tests - RStudio
Go to file/function
some-tests
Untitled1
Source on Save
Run
Source
1
1:1
(Top Level)
R Script
Workspace
History
Load
Save
Import Dataset
Clear All
Files
Plots
Packages
Help
Zoom
Export
Clear All
Console ~/Documents/courses/12-devtools/code-data/rv/some-tests/
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.
>

Assign variables with <-

```
> x <- 5
> x
[1] 5

katerules <- 1:4
> katerules
[1] 1 2 3 4
```

Indexing

Indexes from 1

Index using square brackets

```
> katerulesmore <- katerules * 10
> katerulesmore
[1] 10 20 30 40
> katerulesmore[1]
[1] 10
> katerulesmore[length(katerulesmore)]
[1] 40
```

Whitespace

Between letters: end of word/name/expression

Indentation means nothing, but is V E R Y N I C E

Line return: execute command

EXCEPT: curly brackets say ‘yo, another command incoming, don’t execute yet’

```
> {x<-5 [enter]
y<-10}
> x
[1] 10
> y
[1] 5
```

Short Cuts

In editor:

Command/ctrl + enter: send code to console

Ctrl + 2: move cursor to console

In console:

Up arrow: retrieve previous command

Ctrl + up arrow: search commands

Ctrl + 1: move cursor to editor

Using functions

```
> mean(katerules)
[1] 2.5
> katemean <- mean(katerules)
> katemean
[1] 2.5
```