

ETC 2420/5242 Lab 1 2016

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Getting up and running with the computer

- R and RStudio
- Projects
- RMarkdown
- Basic functions

R is ...

- **Free** to use
- **Extensible**
 - Over 8500 user contributed add-on packages currently on CRAN!
- **Powerful**
 - With the right tools, get more work done, faster.
- **Flexible**
 - Not a question of *can*, but *how*.
- **Frustrating**
 - Flexibility comes at a cost (easy to shoot yourself in the foot!).

RStudio is ...

From Julie Lowndes:

If R were an airplane, RStudio would be the airport, providing many, many supporting services that make it easier for you, the pilot, to take off and go to awesome places. Sure, you can fly an airplane without an airport, but having those runways and supporting infrastructure is a game-changer.

The RStudio IDE

1. Source editor:

- Docking station for multiple files,
- Useful shortcuts (“Knit”),
- Highlighting/Tab-completion,
- Code-checking (R, HTML, JS),
- Debugging features

2. Console window:

- Highlighting/Tab-completion,

- Search recent commands

3. Other tabs/panes:

- Graphics,
- R documentation,
- Environment pane,
- File system navigation/access,
- Tools for package development, git, etc

Projects

Creating a project helps organise work. For this unit, I have created a project on my laptop called ETC2420.

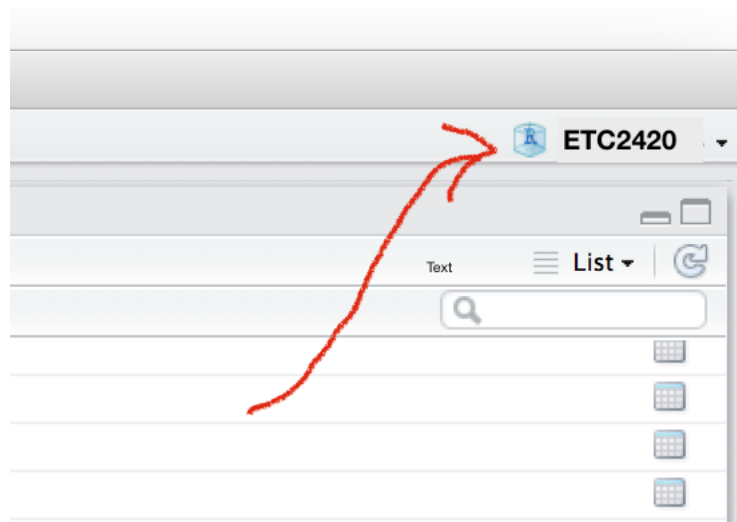


Figure 1: Using projects to organise your work

Exercise 1

Create a project for this unit, in the directory. (Be sure that you open this at the start of each lab. Generally it is a good idea NOT TO SAVE THE WORKSPACE when you close a project for the day.)

- File -> New Project -> Existing Directory -> Empty Project

Exercise 2

Open a new Rmarkdown document. You are going to want to call it Lab1 (it will automatically get the file extension .Rmd) when you save it.

- File -> New File -> R Markdown -> OK -> Knit HTML

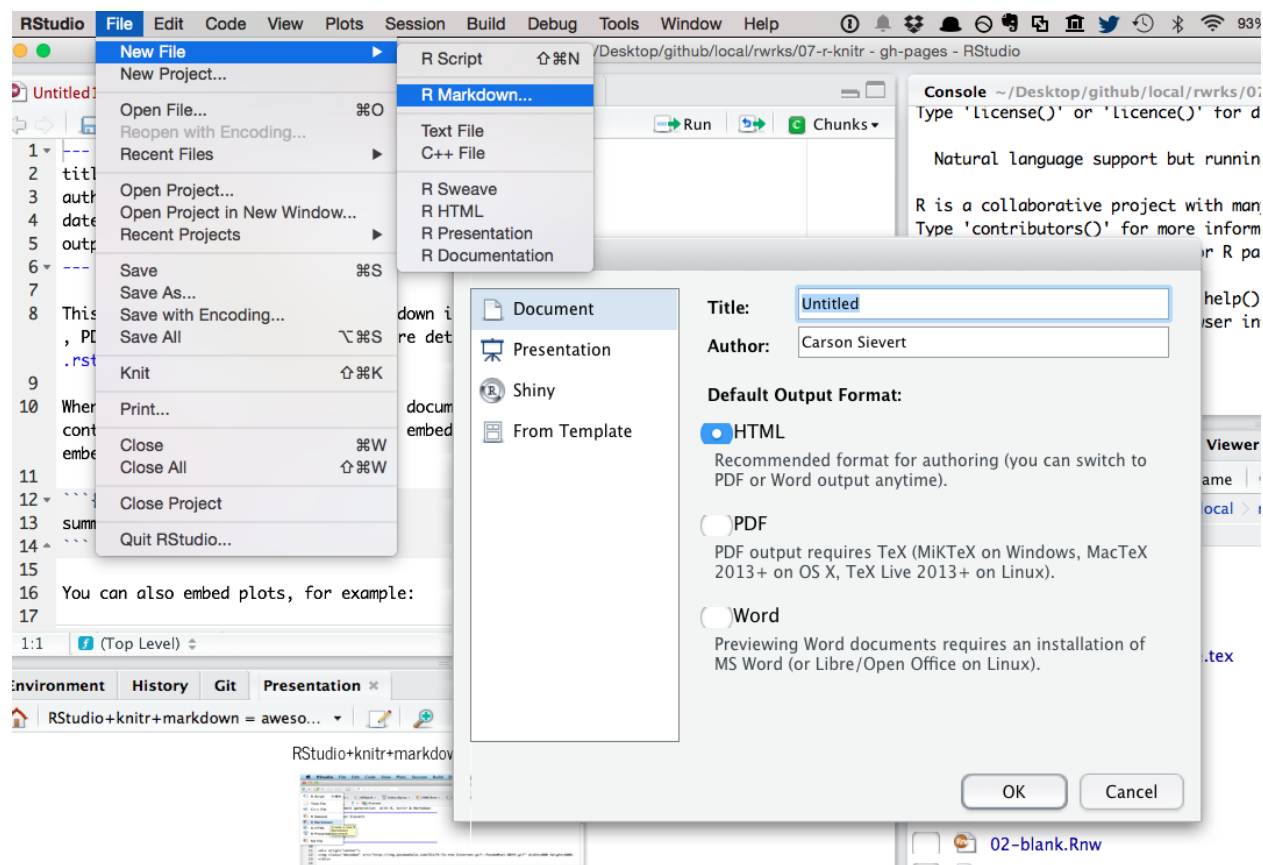


Figure 2: Writing and computing with the one document

What is R Markdown?

- From the R Markdown home page:
- R Markdown is an authoring format that enables easy creation of dynamic documents, presentations, and reports from R.
- It combines the core syntax of **markdown** (an easy-to-write plain text format) **with embedded R code chunks** that are run so their output can be included in the final document.
- R Markdown documents are fully reproducible (they can be automatically regenerated whenever underlying R code or data changes).

Exercise 1

Look at the

Resources

- RStudio IDE cheat sheet
- rmarkdown cheat sheet
- Q/A site: <http://stackoverflow.com>
- Dynamic Documents with R and knitr, Yihui Xie,

Share and share alike

Materials for this workshop build on slides provided by several people, but primarily Hadley Wickham and Carson Sievert.

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