

Managing and Manipulating Data Using R

Introduction, part 1

Ozan Jaquette

1. What is R

1 What is R

What is R

According to the Inter-university consortium for political and social research ([ICPSR](#)), R is “an alternative to traditional statistical packages such as SPSS, SAS, and Stata such that it is an extensible, open-source language and computing environment for Windows, Macintosh, UNIX, and Linux platforms. Such software allows for the user to freely distribute, study, change, and improve the software under the [Free Software Foundation's GNU General Public License](#).”

- For more info visit [R-project.org](#)

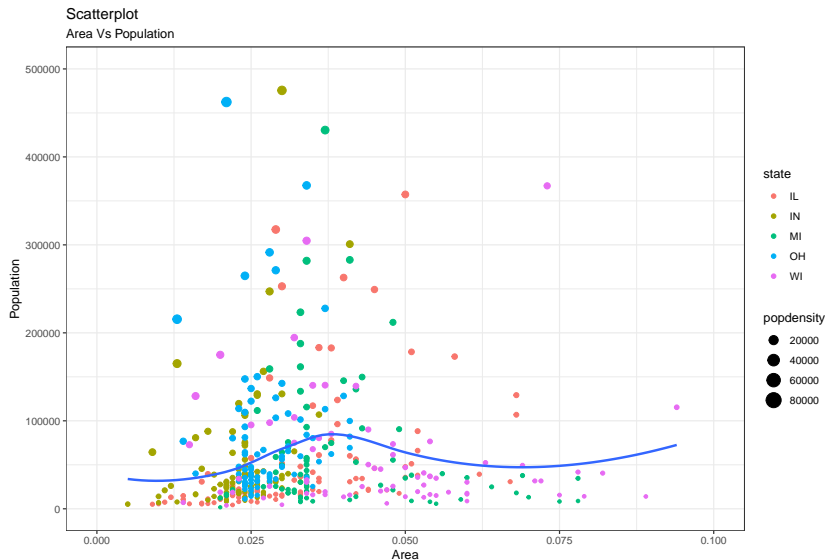
Why R? Capabilities of R

- Graphs
- Presentation
- Websites
- Journals
- Interactive tutorials
- Web apps
- Dashboards
- Books
- Web scraping
- Maps

For more info [visit](#)

Graphs

- Create graphs with `ggplot2` package



Source: midwest

Journal articles

- Journal articles with [rticles](#) package



Title of submission to PLOS journal

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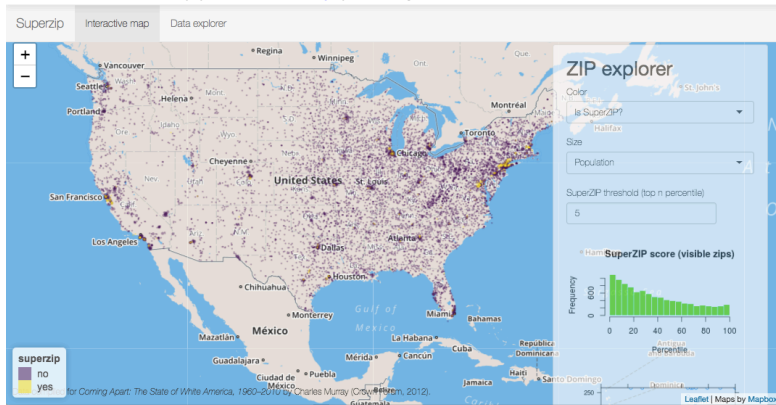
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Abstract

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Curabitur eget porta erat. Morbi consectetur est vel gravida pretium. Suspendisse ut dui eu ante cursus gravida non sed sem. Nullam sapien tellus, commodo id velit id, eleifend volutpat quam. Phasellus mauris velit, dapibus finibus elementum vel, pulvinar non tellus. Nunc pellentesque pretium diam, quis maximus dolor faucibus id. Nunc convallis sodales ante, ut ullamcorper est egestas vitae. Nam sit amet enim ultrices, ultrices elit pulvinar, volutpat risus.

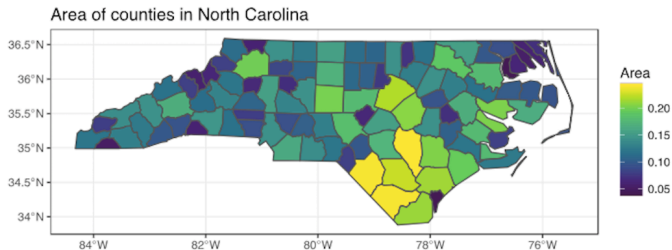
Interactive web apps

- o Interactive web apps with **shiny** package



Mapping

- Mapping with `sf` package & `ggplot`



Base R vs. R packages

There are “default” packages that come with R. Some of these include:

- `as.character`
- `print`
- `setwd`

And there are R packages developed and shared by others. Some R packages include:

- `tidyverse`
- `stargazer`
- `foreign`

more about these in later weeks...

Installing and Loading R packages

You only need to install a package once. To install an R package use

`install.package()` function.

```
#install.packages("tidyverse")
```

However, you need to load a package everytime you plan to use it. To load a package use the `library()` function.

```
library(tidyverse)
```

```
#> -- Attaching packages -----  
#> v tibble  1.4.2      v purrr   0.2.5  
#> v tidyr   0.8.1      v dplyr   0.7.6  
#> v readr   1.1.1      v stringr 1.3.1  
#> v tibble  1.4.2      v forcats 0.3.0  
#> -- Conflicts -----  
#> x dplyr::filter() masks stats::filter()  
#> x dplyr::lag()    masks stats::lag()
```

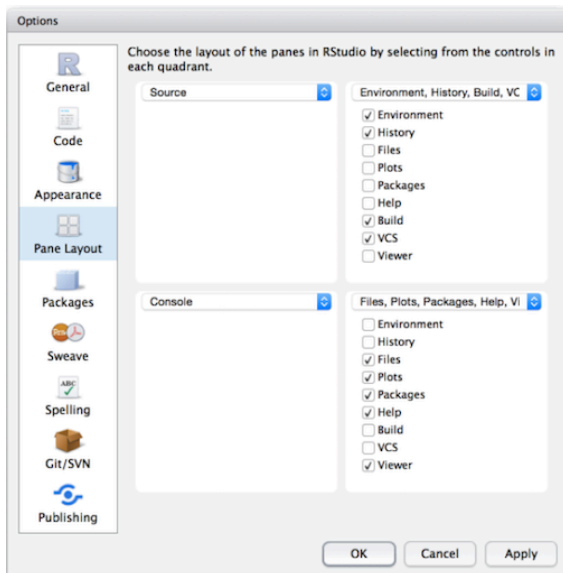
Functions; function syntax

[I MAY MOVE THIS SLIDE BELOW; JUST WANT YOU TO DRAFT IT]

describe basic syntax of functions in R; how to get help on a function

RStudio

“RStudio is an integrated development environment (IDE) for R. It includes a console, syntax-highlighting editor that supports direct code execution, as well as tools for plotting, history, debugging and workspace management.”



R Markdown

R Markdown produces dynamic output formats in html, pdf, MS Word, dashboards, Beamer presentations, etc.

- We will be using R Markdown for lectures and homeworks.