

# Summer R-I Workshop

## Day One

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Florida State University, Tallahassee, FL

August 6, 2025



# Today's Plan

- ▶ Introductions
- ▶ Discussion of What Grad School **is** and **is not**.
- ▶ Installing R (for data analysis), RStudio (for interacting with R), *Git/GitHub (for version control)*, and *Zotero (for citation management)*
- ▶ The basics of R (variable types, loading data, setting working directories, working in projects, etc.)



# Introductions

- ▶ Two Truths and A Lie
- ▶ Tell me 1. your name, 2. your subfield, 3. where you went to undergrad, and 4. two true things about you and one lie.  
We'll guess the lie!



# Who am I?

- ▶ My Name: Jay Stewart (He/Him/His)
- ▶ Fifth Year PhD Candidate studying Comparative Politics (Radical Right Politics and Environmental Politics)
- ▶ I went to Undergrad at the University of Alabama and New College of Florida





# My Two Truths and a Lie

- ▶ I'm a PADI certified Cave Diver, and every year, I go diving at Blue Hole in Ichetucknee Springs State Park.
- ▶ I ran a half-marathon that started in Switzerland, went through France and Germany, and ended back in Switzerland. I finished last in my age group.
- ▶ My wife and I have two dogs named Whimsey and Gnocchi. I adopted Whimsey at the Tallahassee Animal Shelter before my wife and I started dating, and we adopted Gnocchi together.



# Introductions

- ▶ Two Truths and A Lie
- ▶ Tell me 1. your name, 2. your subfield, 3. where you went to undergrad, and 4. two true things about you and one lie.  
We'll guess the lie!



# Required Dog Picture



# What are you getting yourself into?

- ▶ Welcome to Grad School! Grad School is not undergrad 2.0.
  - ▶ This is a workplace, and like any other workplace, there are rules and expectations.
  - ▶ Your contracts include three hours a week of professional development, so attend department meetings and events, such as job talks.
  - ▶ I am the GAU (Graduate Assistants United) Department Representative for the Political Science department.



# What are you getting yourself into?

- ▶ Some advice:
  - ▶ You get out of grad school what you put in. A PhD isn't a commodity; it's an experience.
  - ▶ Work together when allowed!
  - ▶ Have hobbies! Do things outside of the FSU bubble.
  - ▶ Don't be afraid to seek out mental health counseling.
  - ▶ ChatGPT and other AI tools are an anathema to learning.  
**DON'T USE THEM**



Let's Download R!

Go to [www.r-project.org](http://www.r-project.org)





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## Help With R

[Getting Help](#)

## Documentation

[Manuals](#)

[FAQs](#)

[The R Journal](#)

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[Certification](#)

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## Links

[Bioconductor](#)

[R-Forge](#)

[R-Hub](#)

# The R Project for Statistical Computing

## Getting Started

R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. To [download R](#), please choose your preferred [CRAN mirror](#).

If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

## News

- [R version 4.5.1 \(Great Square Root\)](#) has been released on 2025-06-13.
- [R version 4.5.0 \(How About a Twenty-Six\)](#) has been released on 2025-04-11.
- [R version 4.4.3 \(Trophy Case\)](#) (wrap-up of 4.4.x) was released on 2025-02-28.
- The [useR! 2025](#) conference will take place at Duke University, in Durham, NC, USA, August 8-10.
- We are deeply sorry to announce that our friend and colleague Friedrich (Fritz) Leisch has died. [Read our tribute to Fritz here](#).
- You can support the R Foundation with a renewable subscription as a [supporting member](#).

## News via Mastodon



### R\_Foundation

R version 4.5.1 "Great Square Root" (source version) has been released. (You can find it in [cran.r-project.org/src/base/R-4/](#), or wait for CRAN to be updated.)

Jun 13, 2025



### R\_Foundation

New [#RStats](#) blog entry by Tomas Kalibera: Sensitivity to C math library and mingw-w64 v12  
[blog.r-project.org/2025/04/24/...](#)

Apr 25, 2025



### useR\_conf

The Early Bird for useR! 2025 is open until April 30th!

Join this gathering of leaders in industry, academia, and the government to network while you increase your expertise in [#R](#).

useR! will be held from August 8th to August 10th at Duke University.

Conference page: [user2025.r-project.org/](#)

[#rstats](#)

## CRAN Mirrors

The Comprehensive R Archive Network is available at the following URLs, please choose a location close to you. Some statistics on the status of the mirrors can be found here: [main page](#), [windows release](#), [windows old release](#).

If you want to host a new mirror at your institution, please have a look at the [CRAN Mirror HOWTO](#).

### 0-Cloud

<https://cloud.r-project.org/>

Automatic redirection to servers worldwide, currently sponsored by Posit

### Argentina

<http://mirror.fcaglp.unlp.edu.ar/CRAN/>

Universidad Nacional de La Plata

### Australia

<https://cran.csiro.au/>

CSIRO

<https://mirror.aarnet.edu.au/pub/CRAN/>

AARNET

<https://cran.ms.unimelb.edu.au/>

School of Mathematics and Statistics, University of Melbourne

### Austria

<https://cran.wu.ac.at/>

Wirtschaftsuniversität Wien

### Belgium

<https://www.freeststatistics.org/cran/>

Patrick Wessa

<https://ftp.belnet.be/mirror/CRAN/>

Belnet, the Belgian research and education network

### Brazil

<https://cran-r.c3sl.ufpr.br/>

Universidade Federal do Parana

<https://vps.fmvz.usp.br/CRAN/>

University of Sao Paulo, Sao Paulo

<https://brieger.esalq.usp.br/CRAN/>

University of Sao Paulo, Piracicaba

### Bulgaria

<https://ftp.uni-sofia.bg/CRAN/>

Sofia University

### Canada

<https://muug.ca/mirror/cran/>

Manitoba Unix User Group

<https://mirror.csclub.uwaterloo.ca/CRAN/>

University of Waterloo

<https://cran.mirror.rafael.ca/>

Rafal Rzekzkowski

### Chile

<https://cran.dcc.uchile.cl/>

Departamento de Ciencias de la Computación, Universidad de Chile

### China

<https://mirrors.tuna.tsinghua.edu.cn/CRAN/>

TUNA Team, Tsinghua University

<https://mirrors.bfsu.edu.cn/CRAN/>

Beijing Foreign Studies University

<https://mirrors.pku.edu.cn/CRAN/>

Peking University

<https://mirrors.ustc.edu.cn/CRAN/>

University of Science and Technology of China

<https://mirrors.zju.edu.cn/CRAN/>

Zhejiang University

<https://mirror-hk.koddos.net/CRAN/>

KoDoS in Hong Kong

<https://mirrors.qlu.edu.cn/CRAN/>

Qilu University of Technology

<https://mirror.lzu.edu.cn/CRAN/>

Lanzhou University Open Source Society

<https://mirrors.nju.edu.cn/CRAN/>

eScience Center, Nanjing University

<https://mirrors.sjtu.edu.cn/cran/>

Shanghai Jiao Tong University

<https://mirrors.sustech.edu.cn/CRAN/>

Southern University of Science and Technology (SUSTech)

<https://mirrors.hust.edu.cn/CRAN/>

Huazhong University of Science and Technology



Now Let's Download RStudio!

Go to  
[https://posit.co/download/rstudio-  
desktop/](https://posit.co/download/rstudio-desktop/)



enterprise features, don't hesitate to [book a call with us](#).

Want to learn about core or advanced workflows in RStudio?  
Explore the [RStudio User Guide](#) or the [Getting Started](#) section.

## 1: Install R

RStudio requires R 3.6.0+. Choose a version of R that matches your computer's operating system.

*R is not a Posit product. By clicking on the link below to download and install R, you are leaving the Posit website. Posit disclaims any obligations and all liability with respect to R and the R website.*

DOWNLOAD AND INSTALL R

## 2: Install RStudio

DOWNLOAD RSTUDIO DESKTOP FOR WINDOWS

Size: 281.24 MB | [SHA-256: 3A553330](#) | Version: 2025.05.1+513  
Released: 2025-06-05

**Is anyone having problems  
installing R and RStudio?**



Console Terminal Background Jobs

R 4.3.3 ~/

R version 4.3.3 (2024-02-29 ucrt) -- "Angel Food Cake"  
Copyright (c) 2024 The R Foundation for Statistical Computing  
Platform: x86\_64-w64-mingw32/x64 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
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.

&gt; |

Environment History Connection

R Global Environment

Environment is empty

Files Plots Packages Help Vi

Zoom Export



Addins

Project: (None)

Console Terminal Background

R 4.3.3 ~/

R version 4.3.3 (2024-02-29)  
Copyright (c) 2024 The R Foundation for Statistical Computing  
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Type 'q()' to quit R.

&gt; |

Install Packages...

Check for Package Updates...

Version Control

Terminal

Background Jobs

Addins

Memory

Keyboard Shortcuts Help Alt+Shift+K

Modify Keyboard Shortcuts...

Edit Code Snippets...

Show Command Palette Ctrl+Shift+P

Project Options...

Global Options...

"Food Cake"  
Statistical Computing

NO WARRANTY.  
tain conditions.  
tion details.

English locale

Contributors.

for more information and

for on-line help, or  
for an HTML browser interface to help.

&gt; |

Environment History Connection

R Global Environment

Environment is empty

Files Plots Packages Help View

Zoom Export

## Options



General



Code



Console



Appearance



Pane Layout



Packages



R Markdown



Python



Sweave



Spelling



Git/SVN



Publishing



Terminal



Accessibility

RStudio theme:

Modern

Zoom:

175%

Text rendering:

(Default)

Editor font:

Lucida Console

Editor font size:

10

Line height (%):

120

Help font size:

10

Editor theme:

Pastel On Dark

Solarized Dark

Solarized Light

SQL Server

Textmate (default)

Tomorrow

Tomorrow Night

Tomorrow Night 80s

Tomorrow Night Blue

Tomorrow Night Bright

Twilight

Vibrant Ink

```
# compute five-number summary
fivenum <- function(x) {
```

```
# handle empty input
n <- length(x)
if (n == 0)
  return(rep.int(NA, 5))
```

```
# compute quartile indices
n5 <- 1
n4 <- ((n + 3) %/% 2) / 2
n3 <- (n + 1) / 2
n2 <- n + 1 - n4
n1 <- n
i <- c(n5, n4, n3, n2, n1)
```

```
# compute quartile values
x <- sort(x)
xf <- x[floor(i)]
xc <- x[ceiling(i)]
0.5 * (xf + xc)
```

}

Summer R Workshop - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/functions Addins

Untitled1

1

Environment History Connections Git Tutorial

Import Dataset 134 MiB

Global Environment

Environment is empty

Files Plots Packages Help Viewer Presentation

Folder File Delete Rename

Home > GitHub > Summer R Workshop

	Name	Size	Modified
	..		
	.gitignore	44 B	Aug 5, 2025, 5:26 PM
	.Rhistory	6.5 KB	Aug 5, 2025, 6:59 PM
	Summer R Workshop Day One.R	4.4 KB	Aug 5, 2025, 6:41 PM
	Summer R Workshop.Rproj	217 B	Aug 5, 2025, 6:59 PM

1:1 (Top Level) R Script

Console Terminal

R 4.3.3 ~/GitHub/Summer R Workshop/

natural language support but running in an English locale

R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
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'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.

>

Type here to search

Lightning nearby 7:00 PM 8/5/2025

Summer R Workshop - RStudio

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Go to file/function Addins

Untitled1

Source on Save Run Source

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'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.

>

Type here to search

Lightning nearby 7:00 PM 8/5/2025

# Using R as a Calculator

```
Console Terminal x
R 4.3.3 · ~/GitHub/Summer F
natural language supp

R is a collaborative pr
Type 'contributors()' f
'citation()' on how to

Type 'demo()' for some
'help.start()' for an H
Type 'q()' to quit R.

> 2+2
```



## Using R as a Calculator

```
R is a collaborative project with many  
Type 'contributors()' for more info  
'citation()' on how to cite R or R packages
```

```
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.
```

```
> 2+2  
[1] 4  
> |
```



## Using R as a Calculator

```
> 2+2  
[1] 4  
> 1-4  
[1] -3  
> 2*3  
[1] 6  
> sqrt(4)  
[1] 2  
> |
```



# Practice Using R as a Calculator

Open up a script and use R to Calculate the following:

- ▶  $10 * 2.4$
- ▶  $4^2$
- ▶  $\frac{(4^3-5)}{3}$
- ▶  $\sqrt{400}$
- ▶  $\log_{10}(100)^1$

---

<sup>1</sup> $\log()$  in R defaults to base e



# Object Oriented Programming: Scalars

```
#Using R as a calculator is pretty boring though.  
#Let's try something a little more complicated.  
  
#assign values to variables  
  
x <- 2  
y <- 3  
  
#Look! -> Those values just popped up over  
#in the environment!
```



# Practice Using R with Scalars

Use R to Calculate the following (use the script you've already opened up):

- ▶  $x * y$
- ▶  $y^x$
- ▶  $\frac{(x^3 - y)}{y - x}$
- ▶  $\sqrt{x^3}$
- ▶  $\log_{10}(y)$  (Remember that  $\log()$  in R defaults to base e)



# Object Oriented Programming: Strings

```
#Objects don't have to be numbers  
object_string <- "string"  
#the quotation marks are important  
object_string <- string  
#strings don't interact with numeric values  
object_string + 2  
#This can be frustrating, because numbers can be strings too  
"4" + 2
```





We don't want to work with just one number. We want to work with data!

Let's start with **vectors**:

- ▶ numeric vectors can only contain numbers, like 1.8, 5, or 4536125
- ▶ character vectors contain strings, like "CDU/CSU", "Die Linke", "AfD", etc.
- ▶ factor vectors contain **ordered strings**. For example, scales like "Strong Democrat" to "Strong Republican"
- ▶ logical vectors only contain TRUE or FALSE values



# Object Oriented Programming: Vectors

```
#objects can be something called vectors  
  
vector_example <- c(1,2,3,4)  
  
#this vector is a vector of numbers  
  
class(vector_example)  
  
#we can even do math with these vectors  
  
output <- vector_example*3  
  
output
```



# Factors

```
pid <- c("Democrat", "Republican", "Republican", "Democrat")
class(pid)
table(pid)

#no Independents? Not ordered?

pid_factor <- factor(pid, levels = c("Republican",
                                     "Independent",
                                     "Democrat"))

class(pid_factor)
table(pid_factor)
```



# Missing Values in R

```
#Missing values are denoted with NA  
missing_numeric <- c(1,2,NA,4)  
missing_numeric * 3  
sum(missing_numeric) #This does not work  
sum(missing_numeric, na.rm = TRUE)
```



# Practice with Vectors

## Numeric Vector

Generate a numeric vector of your choosing (10 items long). Assign this vector to an object named `numeric_vector`. Use the `class()` function to confirm that this is a numeric vector. Use the `mean()`, `sum()`, and `sqrt()` functions on your vector.

## Character Vector

Generate a character vector (a vector of strings) with whatever strings you'd like (10 items long). Assign it to an object named `character_vector`. Use the `class()` function, and the `mean()` function on that character vector.

## Factor Vector

Generate a character vector named `ideology` (10 items long), with observations ranging from "Very Conservative" to "Very Liberal". Turn this into a **factor** vector called `ideology_factor`.



# Data Frames and Tibbles

- ▶ Whenever you want to work with data, you'll largely want to work with **data frames** or **tibbles**, which are functionally the same thing.
- ▶ Think of a data frame/tibble as a collection of vectors.
- ▶ We'll take the three vectors we created in the last exercise (all length 10), and turn them into a data frame using the `data.frame()` function.
- ▶ The equivalent function in `tidyverse` is `tibble()`



# What I Wrote

```
#practice with vectors

numeric_vector <- c(1,2,3,4,5,6,7,8,9,10)

character_vector <- c("tacos", "pizza", "burgers", "fries",
                      "chicken tenders", "salads", "hot dogs",
                      "french fries", "mozzarella sticks",
                      "bacon")

ideology <- c("Very Conservative", "Very Liberal", "Liberal",
              "Moderate", "Conservative", "Moderate",
              "Moderate", "Very Liberal", "Conservative",
              "Very Conservative")

ideology_factor <- factor(ideology, levels = c("Very Conservative",
                                                "Conservative",
                                                "Moderate",
                                                "Liberal",
                                                "Very Liberal"))

data_frame <- data.frame(numeric_vector, character_vector,
                          ideology_factor)
```



# Working with Dataframes (Base R)

Let's say that I want to grab a whole column:

- ▶ I would use the `$` operator
- ▶ So to grab the `numeric_vector` column, I'd just write `data_frame$numeric_vector`.
- ▶ I can use this to do operations on that column, like `sum(data_frame$numeric_vector)`
- ▶ One handy base R function is `summary()`. It gives you the mean, the median, min, max, and 1st and 3rd quartiles of a numeric vector.





# Working with Dataframes (Base R)

Let's say that I want to grab a whole row:

- ▶ I would use `[ , ]`
- ▶ So to grab the first row, I'd just write `data_frame[1,]`.
- ▶ I can also use this to grab individual observations using `data_frame[row#, col#]`



# What we'll mostly use



# Installing and Loading tidyverse

- ▶ Run the following code **once**  
`install.packages('tidyverse')`
- ▶ Then run the following code `library(tidyverse)`
- ▶ tidyverse has a set of functions that are very useful for cleaning data and turning it into something useful.



# Important Functions and Operators in tidyverse

- ▶ `mutate()` is one of the most important functions in `tidyverse`. It creates new variables in our data frame.
- ▶ `case_when()` is used in conjunction with `mutate` to create new variables conditional on the values of other variables. It is functionally equivalent to nested `if_else()` statements.
- ▶ `filter()` takes a logical operator and filters out **rows** that don't fit the logical operator.
- ▶ `select()` selects the requested **columns**.
- ▶ The pipe `% > %` operator allows one to do multiple functions in a row on your data. You can type this more quickly using `control + shift + m` (or `command + shift + m` on Mac)
- ▶ `glimpse()` gives us a quick view of the data.



# Logical Operators in R

Syntax	Description
<	Less Than
<=	Less than or Equal to
==	Exactly Equal to
>=	Greater than or Equal to
>	Greater Than
	OR
&	AND
!=	NOT equal to



## Example

Let's try to do some things with our `data_frame`. I'm going to assign it to a new object called `df1`, select only our `ideology_factor` and `numeric_vector` variables, generate a new variable called `higher_or_lower` that is equal to "higher" when the `numeric_vector` is above the mean of that variable, and "lower" when it is below the mean, and then filter the data so that we only keep higher.



## Example

```
df1 <- data_frame %>%  
  select(c(ideology_factor, numeric_vector)) %>%  
  mutate(higher_or_lower = case_when(  
    numeric_vector >= mean(numeric_vector) ~ "higher",  
    numeric_vector < mean(numeric_vector) ~ "lower",  
    .default = NA)) %>% #This isn't necessary in this case  
  filter(higher_or_lower != "lower") %>%  
  glimpse()
```



If you're ever unsure of what a  
function does, just type  
`?function_name`





## Some more important tidyverse functions

- ▶ `rename()` is extremely important, because many times, we'll get variables that are named uninformative things.
- ▶ `slice()` allows you to select **rows** based on their integer locations.
- ▶ `slice_max()` returns the row with the maximum value of whatever variable you're using.
- ▶ `slice_min()` returns the row with the minimum value of whatever variable you're using.
- ▶ `parse_number()` allows you to turn character vectors that contain numbers into numeric vectors.



# Reading Data into RStudio

You'll rarely generate your own data. You probably will spend most of your time working with data that you got from somewhere else.

- ▶ You'll need to understand what a working directory is first. A working directory is the folder on your computer where R is both reading from and writing data to.
- ▶ Run `getwd()` in your console.
- ▶ That is your current working directory.
- ▶ You can change your working directory in one of three ways.
  1. using `setwd()`, 2. using the session tab, or 3. creating a project and working in that project (which I recommend)



## Using `setwd()` and the Session Tab to set a working directory

- ▶ To use `setwd()` you just need to specify the file path.
- ▶ For example, on my home computer, my user profile is “Owner”, so if I want to set my file path to downloads, I would run `setwd("C:/Users/Owner/Downloads/")`
- ▶ Similarly, I could just click on Session – > Set Working Directory – > Choose Directory



Summer R Workshop - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Adds

Summer R Workshop Day One.R df1 data\_frame

Source on Save Run Source

```
193
194 #look at all the information about this function!
195
196
197 df1 <- data_frame %>%
198   select(c(ideology_factor, numeric_vector)) %>%
199   mutate(higher_or_lower = case_when(
200     numeric_vector >= mean(numeric_vector) ~ "higher",
201     numeric_vector < mean(numeric_vector) ~ "lower",
202     .default = NA)) %>% #This isn't necessary in this case
203   filter(higher_or_lower != "lower") %>%
204   glimpse()
205
206
207
```

202:59 (Top Level) R Script

Console Terminal

```
R 4.3.3 ~ /GitHub/Summer R Workshop/
+ glimpse()
Rows: 5
Columns: 3
$ ideology_factor <fct> Moderate, Moderate, Very Liberal, Conservati...
$ numeric_vector <dbl> 6, 7, 8, 9, 10
$ higher_or_lower <chr> "higher", "higher", "higher", "higher", "hig...
> view(df1)
> getwd()
[1] "C:/Users/Owner/Documents/GitHub/Summer R Workshop"
> ?slice
> |
```

Environment History Connections Git Tutorial

Global Environment 320 MiB

Data

data_frame	10 obs. of 3 variables
df1	5 obs. of 3 variables

Values

character_ve...	chr [1:10]	"tacos" "pizza" "burgers..."
-----------------	------------	------------------------------

Files Plots Packages Help Viewer Presentation

Folder File Delete Rename

Home > GitHub > Summer R Workshop

	Name	Size	Modified
	..		
	.gitignore	44 B	Aug 5, 2025, 5:26 PM
	.Rhistory	7.1 KB	Aug 6, 2025, 1:36 PM
	Summer R Workshop Day One.R	5.1 KB	Aug 6, 2025, 1:36 PM
	Summer R Workshop.Rproj	217 B	Aug 6, 2025, 1:37 PM
	2024-fantasy-football.RDS	64 KB	Jul 16, 2025, 9:59 AM

Type here to search

87°F Mostly cloudy 3:22 PM 8/6/2025

Summer R Workshop - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Adds

Summer R Workshop Day One.R df1 data\_frame

Source on Save Run Source

```
193
194 #look at all the information about this function!
195
196
197 df1 <- data_frame %>%
198   select(c(ideology_factor, numeric_vector)) %>%
199   mutate(higher_or_lower = case_when(
200     numeric_vector >= mean(numeric_vector) ~ "higher",
201     numeric_vector < mean(numeric_vector) ~ "lower",
202     .default = NA)) %>% #This isn't necessary in this case
203   filter(higher_or_lower != "lower") %>%
204   glimpse()
205
206
207
```

202:59 (Top Level) R Script

Console Terminal

```
R 4.3.3 ~\GitHub\Summer R Workshop/
+ glimpse()
Rows: 5
Columns: 3
$ ideology_factor <fct> Moderate, Moderate, Very Liberal, Conservati...
$ numeric_vector <dbl> 6, 7, 8, 9, 10
$ higher_or_lower <chr> "higher", "higher", "higher", "higher", "hig...
> view(df1)
> getwd()
[1] "C:/Users/Owner/Documents/GitHub/Summer R Workshop"
> ?slice
> |
```

Environment History Connections Git Tutorial

Global Environment 320 MiB

Data

- data\_frame 10 obs. of 3 variables
- df1 5 obs. of 3 variables

Values

character\_ve... chr [1:10] "tacos" "pizza" "burgers..."

Files Plots Packages Help Viewer Presentation

Folder File Delete Rename

Home > GitHub > Summer R Workshop

	Name	Size	Modified
	..		
	.gitignore	44 B	Aug 5, 2025, 5:26 PM
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Type here to search

87°F Mostly cloudy 3:22 PM 8/6/2025

Summer R Workshop - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

Summer R Workshop Day One.R\* df1 data\_frame

Source on Save Run Source

```
193
194 #look at all the information about this function!
195
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197 df1 <- data_frame %>%
198   select(c(ideology_factor, numeric_vector)) %>%
199   mutate(higher_or_lower = case_when(
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202     .default = NA)) %>% #This isn't necessary in this case
203   filter(higher_or_lower != "lower") %>%
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202:59 (Top Level) R Script

Console Terminal

R 4.3.3 ~ /GitHub/Summer R Workshop/

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+ glimpse()
Rows: 5
columns: 3
$ ideology_factor <fct> Moderate, Moderate, Very Liberal, Conservati...
$ numeric_vector <dbl> 6, 7, 8, 9, 10
$ higher_or_lower <chr> "higher", "higher", "higher", "higher", "hig...
> view(df1)
> getwd()
[1] "C:/Users/Owner/Documents/GitHub/Summer R Workshop"
> ?slice
> |
```

Environment History

New Project...

Open Project...

Open Project in New Session...

Close Project

Summer R Workshop

General-Repository-Teaching

fantasy-football

Gender-Quotas

Practicum

Causal-Inference-Homework

Dissertation-Nuclear-Power

Dissertation-Affective-Polarization-Coalition-Formation

tidycensus project

EJScreen

Clear Project List

Project Options...

Files Plots Pack

Folder File

Home > Git

Name

..

.gitignore

.Rhistory

Summer f

Summer f

2024-fant

87°F Mostly cloudy 3:26 PM 8/6/2025

Summer R Workshop - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

Summer R Workshop Day One.R df1 data\_frame

Source on Save Run Source

```
193
194 #look at all the information
195
196
197 df1 <- data_frame %>%
198   select(c(ideology_factor
199     mutate(higher_or_lower =
200       numeric_vector >= mean(
201         numeric_vector < mean(n
202           .default = NA)) %>% #T
203     filter(higher_or_lower !=
204     glimpse()
205
206
207
```

202:59 (Top Level)

Console Terminal

R 4.3.3 ~\GitHub/Summer R Workshop/

```
+ glimpse()
Rows: 5
columns: 3
$ ideology_factor <fct> Moderate,
$ numeric_vector <dbl> 6, 7, 8,
$ higher_or_lower <chr> "higher",
> view(df1)
> getwd()
[1] "C:/Users/Owner/Documents/GitHub/Summer R Workshop"
> ?slice
> |
```

Environment History Connections Git Tutorial

Import Dataset 323 MiB

R Global Environment

of 3 variables  
of 3 variables

:10] "tacos" "pizza" "burgers..."

Viewer Presentation




Rename

R Workshop

	Size	Modified
	44 B	Aug 5, 2025, 5:26 PM
	7.1 KB	Aug 6, 2025, 1:36 PM
ay One.R	6.3 KB	Aug 6, 2025, 3:27 PM
roj	217 B	Aug 6, 2025, 1:37 PM
DS	64 KB	Jul 16, 2025, 9:59 AM

New Project Wizard

### Create Project

-  **New Directory**  
Start a project in a brand new working directory
-  **Existing Directory**  
Associate a project with an existing working directory
-  **Version Control**  
Checkout a project from a version control repository

Cancel

Summer R Workshop - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

Summer R Workshop Day One.R df1 data\_frame

Source on Save Run Source

```
193
194 #look at all the information
195
196
197 df1 <- data_frame %>%
198   select(c(ideology_factor
199     mutate(higher_or_lower =
200       numeric_vector>= mean(
201         numeric_vector< mean(n
202           .default = NA))) %>% #T
203     filter(higher_or_lower !=
204     glimpse()
205
206
207
```

202:59 (Top Level)

Console Terminal

R 4.3.3 ~\GitHub/Summer R Workshop/

```
+ glimpse()
Rows: 5
columns: 3
$ ideology_factor <fct> Moderate,
$ numeric_vector <dbl> 6, 7, 8,
$ higher_or_lower <chr> "higher",
> view(df1)
> getwd()
[1] "C:/Users/Owner/Documents/GitHub/Summer R Workshop"
> ?slice
> |
```

New Project Wizard

Back Project Type

- New Project
- R Package
- Shiny Application
- Quarto Project
- Quarto Website
- Quarto Blog
- Quarto Book

Cancel

Environment History Connections Git Tutorial

Import Dataset 323 MiB

Global Environment

of 3 variables  
of 3 variables

10] "tacos" "pizza" "burgers..."

Viewer Presentation

Rename

R Workshop

	Size	Modified
	44 B	Aug 5, 2025, 5:26 PM
	7.1 KB	Aug 6, 2025, 1:36 PM
ay One.R	6.3 KB	Aug 6, 2025, 3:27 PM
roj	217 B	Aug 6, 2025, 1:37 PM
DS	64 KB	Jul 16, 2025, 9:59 AM

87°F Mostly cloudy 3:30 PM 8/6/2025



Summer R Workshop - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

Summer R Workshop Day One.R df1 data\_frame

Source on Save Run Source

```
193
194 #look at all the information
195
196
197 df1 <- data_frame %>%
198   select(c(ideology_factor
199     mutate(higher_or_lower =
200       numeric_vector>= mean(
201         numeric_vector< mean(n
202           .default = NA)) %>% #T
203     filter(higher_or_lower !=
204     glimpse()
205
206
207
```

202:59 (Top Level)

Console Terminal

R 4.3.3 ~ /GitHub/Summer R Workshop/

```
+ glimpse()
Rows: 5
columns: 3
$ ideology_factor <fct> Moderate,
$ numeric_vector <dbl> 6, 7, 8,
$ higher_or_lower <chr> "higher",
> view(df1)
> getwd()
[1] "C:/Users/Owner/Documents/GitHub/Summer R workshop"
> ?slice
> |
```

Environment History Connections Git Tutorial

Import Dataset 323 MiB

R Global Environment

Viewer Presentation

Rename

Size Modified

44 B	Aug 5, 2025, 5:26 PM
7.1 KB	Aug 6, 2025, 1:36 PM
6.3 KB	Aug 6, 2025, 3:27 PM
217 B	Aug 6, 2025, 1:37 PM
64 KB	Jul 16, 2025, 9:59 AM

New Project Wizard

Back Create New Project

Directory name:

Create project as subdirectory of:

~/GitHub Browse...

☒ Create a git repository

☐ Use renv with this project

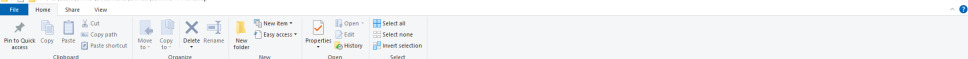
☐ Open in new session

Create Project Cancel

Type here to search

87°F Mostly cloudy 3:29 PM 8/6/2025

C:\Users\Owner\Documents\GitHub\Summer R Workshop



← → ↕ + This PC > Documents > GitHub > Summer R Workshop

Search Summer R Workshop

Name	Date modified	Type	Size
.gitignore	8/5/2025 5:26 PM	Text Document	1 KB
.Rhistory	8/6/2025 1:36 PM	RHISTORY File	8 KB
2024-fantasy-football.RDS	7/16/2025 9:59 AM	RDS File	64 KB
Summer R Workshop Day One.R	8/6/2025 3:27 PM	R File	7 KB
Summer R Workshop.Rproj	8/6/2025 1:37 PM	RStudio Project File	1 KB

5 items



# Downloading Data and using it in R

- ▶ Go to the course Google Drive
- ▶ Download 2024-fantasy-football.RDS
- ▶ Make sure that that file is in your working directory!
- ▶ Then run the following code: `data_nfl <- readRDS("2024-fantasy-football.RDS")`



# Exercises

- ▶ Summarize the distribution of FantasyPoints. Tell me who has the most and who has the fewest. (Hint: use `slice_max()` and `slice_min()`)
- ▶ Use the base R function `unique()` to tell me the possible values of Pos. (Hint: you'll need to use the `$.`)
- ▶ In some fantasy leagues, you have something called a “flex” position, where you can put a Running Back (RB), a Wide Receiver (WR), or a Tight End (TE) in that spot. Using `case_when()`, generate a variable that is equal to 1 if the player is eligible for the flex position and 0 if not. Make sure to assign this to a new data frame.
- ▶ Generate a dataframe called `new_york_flex` that only has flex eligible players from the three New York Teams (NYJ, NYG, BUF). Tell me what their average points are, as well as the best and worst fantasy players.
- ▶ Generate a dataframe of QBs with more than 175 passing attempts. Who has the most/least turnovers?



# Homework

- ▶ You have homework assignments in this workshop
- ▶ **PLEASE WORK TOGETHER** (that doesn't mean split it up and do separate parts separately).
- ▶ Email me your completed homework at [jstewart2@fsu.edu](mailto:jstewart2@fsu.edu)



## If we have time: Git, Github, and Zotero

- ▶ You'll have to do a lot of reading, writing, and statistical analysis in this program, so tools that can help you are extremely important!
- ▶ Three programs that I use consistently are 1. Zotero, 2. Git, and 3. Github.
- ▶ Zotero is a great citation manager. It makes citing papers easy, and helps keep everything collected.



- ▶ Go to `https://www.zotero.org/`



Example: one of my favorite papers is [BN12]





# Git and Github

- ▶ Go to <https://github.com/git-guides/install-git>
- ▶ Go to <https://docs.github.com/en/desktop/installing-and-authenticating-to-github-desktop/installing-github-desktop>
- ▶ Sign up for Github here: <https://github.com/>



FileEditViewRepositoryBranchHelp

Current repository  
Summer R Workshop

Current branch  
master

Fetch origin  
Last fetched 14 minutes ago

Changes 0

History

2 changed files

2024-fantasy-football.RDS

Summer R Workshop Day One.R

Summer R Workshop Day One.R

@@ -137,6 +137,32 @@ sum(missing\_numeric) #this does not work

sum(missing\_numeric, na.rm = TRUE)

137 137

138 138

139 139

140 +

141 + #practice with vectors

142 +

143 + numeric\_vector <- c(1,2,3,4,5,6,7,8,9,10)

144 +

145 + character\_vector <- c(("tacos", "pizza", "burgers", "fries",

146 + "chicken tenders", "salads", "hot dogs",

147 + "french fries", "mozzarella sticks",

148 + "tacos")

149 +

150 + ideology <- c("Very Conservative", "Very Liberal", "Liberal",

151 + "Moderate", "Conservative", "Moderate",

152 + "Moderate", "Very Liberal", "Conservative",

153 + "Very Conservative")

154 +

155 + ideology\_factor <- factor(ideology, levels = c("Very Conservative",

156 + "Conservative",

157 + "Moderate",

158 + "Liberal",

159 + "Very Liberal"))

160 +

161 + data\_frame <- data.frame(numeric\_vector, character\_vector,

162 + ideology\_factor)

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164 + data\_frame\$numeric\_vector

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we can even write our own functions!

our\_function <- function(a,b){

@@ -168,6 +194,18 @@ library(tidyverse)

#look at all the information about this function!

dfl <- data\_frame %>%

select((ideology\_factor, numeric\_vector)) %>%

mutate(higher\_or\_lower = case\_when(

numeric\_vector> mean(numeric\_vector) ~ "higher",

numeric\_vector<= mean(numeric\_vector) ~ "lower",

default = NA)) %>% #this isn't necessary in this case

filter(higher\_or\_lower != "lower") %>%

glimpse()

Summary (required)

Description

R+

Commit 2 files to master

Type here to search

87°F Mostly cloudy 4:55 PM 8/6/2025

- [BN12] Fernanda Brollo and Tommaso Nannicini. “Tying Your Enemy’s Hands in Close Races: The Politics of Federal Transfers in Brazil”. In: *The American Political Science Review* 106.4 (2012). Publisher: [American Political Science Association, Cambridge University Press], pp. 742–761. ISSN: 0003-0554. URL: <https://www.jstor.org/stable/23357707> (visited on 10/28/2022).