Week-3: Code-along
NM2207: Computational Media Literacy
2023-08-24

Welcome! Go through the steps described below, carefully. It is totally fine to get stuck - ASK FOR HELP; reach out to your friends, TAs, or the discussion forum on Canvas.
Here is what you have to do,
1. Download Code-along.Rmd and cat_lovers.csv files from Canvas and move it to the folder "Week-3" (see instructions for creating folder in Section I below)
2. Open the video lectures and start listening to them
3. Every time you come across a code chunk (inside shaded blocks) in the lecture video, Pause the video
4. Edit the Code-along.Rmd file with the codes explained in the lecture videos within appropriate R chunk/code-block/shaded area (environment enclosed within "")

5. Comments inside the R chunk/code-block/shaded area indicates which command explained in the lecture should be typed in there

week-2-Data&Visualization

week-2-Data&Visualization/Code-along.html week-2-Data&Visualization/Final.Rmd week-2-Data&Visualization/Final.html

week-2-Data&Visualization/Teaching_files/

week-2-Data&Visualization/Final.Rmd

week-2-Data&Visualization/Final.html
 week-2-Data&Visualization/Teaching.Rmd
 week-2-Data&Visualization/Teaching.html

Files Plots Packages Help Viewer Presentation

Folder 😌 Blank File 🗸 😂 Delete 🕞 Rename 🥻 🕶

Copy To...

Move...

week-2-Data&Visualization/Teaching_files/

Copy Folder Path to Clipboard

TOPEN Each File in New Columns

Synchronize Working Directory

Set As Working Directory

Go To Working Directory

week-2-Data&Visualization/Final files/figure-

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☐ **②** Code−a

☐ ☐ Final file

🗌 🎱 Final.htr

gains.sv

images

Teaching_filesTeaching.html

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Untitled_files
Untitled_html

Untitled.Rmd

week-2-Data&Visualization/Teaching.Rmd

week-2-Data&Visualization/Teaching.html

Files Plots Packages Help Viewer Presentation

2. Open R Studio3. Go to the Files tab and open the folder, "Week-3", you just created

I. Preliminaries

Press the three horizontal dots highlighted in the Figure below

66 - ```{r, out.height= "400px",out.width= "800px",echo=FALSE,fig.cap="Set as working directory 💆 ≚ 🕨

1. Create a new folder, "Week-3", inside "NM2207" folder you created last week

Browse and select "Week-3" folder that you created in the previous step, inside "NM2207" folder

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54 2. Open R Studio

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 56
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62:63 # I. Preliminaries \$

> library("tidyverse")

Console $Terminal \times Render \times Background Jobs \times$

The downloaded binary packages are in

— Attaching core tidyverse packages

Figure: Creating a new project

Loading packages

Load package tidyverse

Assigning values to variables

Example a.: execute this example

file

x < - 'A'

x <- 'A'

typeof(x)

X

R 4.2.1 · ~/Downloads/NVGit/CourseMaterial/week-2-Data&Visualization/

3. Go to the Files tab and open the folder, "Week-2", you just created

62 4. Set it as your working directory (shown in the Figure below)

Code-along.Rmd × Teaching.Rmd × Teac

6. **Set** eval=TRUE to generate the output and verify it to the one shown in the lecture videos

7. **Knit** the file upon completion and submit the pdf document on Canvas **before** coming to the tutorial session

Folder Blank File - Delete 📑 Rename 🔯 -67 knitr::include_graphics("images/saw.png") ___ me > Downloads > NVGit > CourseMaterial > week-2-Data&Visualization 🕸 🛄 Size 70 3. Create a new project, "Week-2" 71
 72 **
66:1 **© Chunk 1 **‡** Aug 15, 2023, 3:56 Pt R Markdown ‡ Code-along.Rmd 2.7 KB Aug 16, 2023, 2:48 Pf Console Terminal × Render × Background Jobs × ☐ **i** Final_files R 4.2.1 · ~/Downloads/NVGit/CourseMaterial/week-2-Data&Visualization/ ☐ **1** Final.html 34.4 KB Aug 14, 2023, 5:19 Pf The downloaded binary packages are in 18.8 KB Aug 14, 2023, 5:19 Př /var/folders/21/g7cpfl457z13mg0d8jtzsbzc0000gn/T//RtmpGEYZGm/downloaded_packages 13.8 KB Jun 12, 2023, 12:30 P > library("tidyverse") images Attaching core tidyverse packages — tidyverse 2.0.0 — 1.1.2 readr Lecture Slides.pdf Aug 11, 2023, 6:40 Pf ✓ forcats 1.0.0 ✓ stringr 1.5.0 ✓ ggplot2 3.4.2 ✓ tibble 3.2.1 ✓ lubridate 1.9.2 🗸 tidyr 1.3.0 ✓ purrr 1.0.1 README.md Jun 12, 2023, 12:30 P — Conflicts tidyverse_conflicts() — Teaching_files * dplyr::filter() masks stats::filter() Teaching.html 37.4 KB Aug 15, 2023, 1:26 Pł * dplyr::lag() masks stats::lag() Teaching.Rmd i Use the <u>conflicted package</u> to force all conflicts to become errors 19.7 KB Aug 15, 2023, 12:41 I Jul 15, 2023, 7:18 PM ☐ № Week-2_ Introduction to Data &... 8.9 MB Navigating folders 4. Set it as your working directory (shown in the Figure below) week-2-Data&Visualization - main - RStudio ■ week-2-Data&Visualization Environment History Connections Git Tutorial ■ Diff Order Pull → Pull → 🍨 Staged Status A Path Source Visual Outline .DS_Store 1. Create a new folder, "Week-2", inside "NM2207" folder you created last week week-1-Introduction/.DS Store week-2-Data&Visualization/Code-along.R 52
 week-2-Data&Visualization/Code-along.Rmd week-2-Data&Visualization/Code-along.html

/var/folders/21/g7cpfl457z13mg0d8jtzsbzc0000gn/T//RtmpGEYZGm/downloaded_packages

✓ dplyr 1.1.2 ✓ readr 2.1.4 Lecture g 11, 2023, 6:40 Pl Open New Terminal Here ✓ forcats 1.0.0 ✓ stringr 1.5.0 ☐ **ibs** Show Folder in New Window ✓ ggplot2 3.4.2 ✓ tibble 3.2.1 old ✓ lubridate 1.9.2 🗸 tidyr **Show Hidden Files** ✓ purrr README 12, 2023, 12:30 P 1.0.1 tidyverse_conflicts() — Teaching_files * dplyr::filter() masks stats::filter() ☐ ■ Teaching.html Aug 15, 2023, 1:26 Pf * dplyr::lag() masks stats::lag() i Use the conflicted package to force all conflicts to become errors 19.7 KB ☐ № Week-2_ Introduction to Data &... 8.9 MB Jul 15, 2023, 7:18 PM Set as working directory 5. Now, create a new project and name it "Week-3" week-1-Introduction - main - RStudio ALWAYS PRESS HERE TO CREATE A NEW Console Terminal × Background Jobs × Environment History Connections ☐ Import Dataset → ↑ 78 MiB ☐ Open Project Create a project
R → ↑ Global Environment → Open Project in New Session... R 4.2.1 · ~/Downloads/NVGit/CourseMaterial/week-1-Introduction/ R version 4.2.1 (2022-06-23) -- "Funny-Looking Kid" Close Project Copyright (C) 2022 The R Foundation for Statistical Computing Platform: x86_64-apple-darwin17.0 (64-bit) week-1-Introduction $\ensuremath{\mathsf{R}}$ is free software and comes with ABSOLUTELY NO WARRANTY. week-4-ManipulatingData You are welcome to redistribute it under certain conditions. week-3-Variables Type 'license()' or 'licence()' for distribution details. Natural language support but running in an English locale week-6-Iterations Poster R is a collaborative project with many contributors. Type 'contributors()' for more information and SICSS Files Plots Packages Help View 'citation()' on how to cite R or R packages in publications. week-8-Shiny Folder □ Blank File → □ Delete narayanivedam.github.io Type 'demo()' for some demos, 'help()' for on-line help, or 'help.start()' for an HTML browser interface to help. ▲ Name Type 'q()' to quit R. Project Options... Challenge.html 6.8 MB Aug 13, 2023, 1:29 PI Challenge.Rmd 6 KB Aug 13, 2023, 2:24 Pf Code-along.pdf 2.6 MB Aug 13, 2023, 10:34 / codealong.html 5.4 MB Aug 13, 2023, 10:33 / codealong.pdf 173 KB Aug 4, 2023, 11:40 A Aug 13, 2023, 10:33 / images Lecture Slides.pdf 14.9 MB Aug 12, 2023, 11:31 I

Complete the code for Example b and execute it

Complete the code for Example c and execute it

Complete the code for Example d and execute it

Complete the code for Example e and execute it

Complete the code for Example b and execute it

Complete the code for Example d and execute it

Complete the code for Example e and execute it

import the cat-lovers data from the csv file you downloaded from canvas

Compute the mean of the number of cats: execute this command

Get more information about the mean() command using ? operator

6. Download the Code-along.Rmd file from Canvas and move it to t

Complete the code for Example f and execute it Checking the type of variables

II. Code to edit and execute using the Code-along.Rmd

Complete the code for Example c and execute it

mean(cat_lovers\$number_of_cats)

Example a.: execute this example

Complete the code for Example f and execute it

Need for data types

Convert the variable number_of_cats using as.integer()

Display the elements of the column number_of_cats

Display the elements of the column number of cats after converting it using as.numeric()

Method 1
x<-vector("logical",length=5)
Display the contents of x</pre>

Display the type of x

Display the contents of x

x<-c(TRUE, FALSE, TRUE, FALSE, TRUE)

Display the contents of x

Display the type of x

Implicit coercion

Create a vector

Check the type of x

Create a vector

Add a logical value to the vector

Create a vector

Example 3

Example 4

Example 1

Add a number to the vector

Display the type of x

print(typeof(x))

Display the type of x

print(typeof(x))

Create an empty vector

Type of the empty vector

Create vectors of type logical

Empty vector

typeof(x)

print(x)

Method 2

print(x)

Method 3

Method 1

Method 2

print(x)

Method 3

Method 2

print(x)

Method 3

Method 4

Method 5

Method 2

Method 3

Example 1

x<-logical(5)

print(typeof(x))

Display the contents of x
print(x)
Display the type of x
print(typeof(x))
Create vectors of type character

Create vectors of type integer

Method 1

Display the contents of x

Display the type of x
print(typeof(x))

Method 1
Display the contents of x
Display the type of x

Create vectors of type double

Create a vector

Check the type of x

Add a character to the vector

Check the type of x

Example 2

Add a number to the vector
Check the type of x

Explicit coercion

Create a vector

Check the type of x

Check the type of x

Check the type of x

Create a vector

x < -c(1,10,9,8,1,3,5)

Examining vectors

Initialise a named list

Print the names of the list

display the list

library(tidyverse)

Selecting categoric variables

View the columns stacked one below another

loans <- loans_full_schema %>%

glimpse(loans)

print(str(x))

Lists

my_pie

Convert the vector to type character

Convert the vector to type double

Access one element with index 3

Access elements using logical vector

x[c(TRUE, FALSE, FALSE, TRUE, FALSE, FALSE, TRUE)]

Access elements using the conditional operator <

my_pie = list(type="key lime", diameter=7, is.vegetarian=TRUE)

Accessing elements of the vector

Check the type of x

Example 2

Create a vector

Check the type of x

Access elements with consecutive indices, 2 to 4: 2,3,4

Access elements with non-consecutive indices, 1,3,5

Display the length of the vector
print(length(x))
Display the type of the vector
print(typeof(x))
Display the structure of the vector

Retrieve the element named type
Retrieve a truncated list

Retrieve the element named type

Exploring data-sets

Install package
install.packages("openintro")
Load the package
library(openintro)
Load package

select() # type the chosen columns as in the lecture slide