Bridging R Programming with Excel

The Future of Data Modeling

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GitHub Repo for Everything!

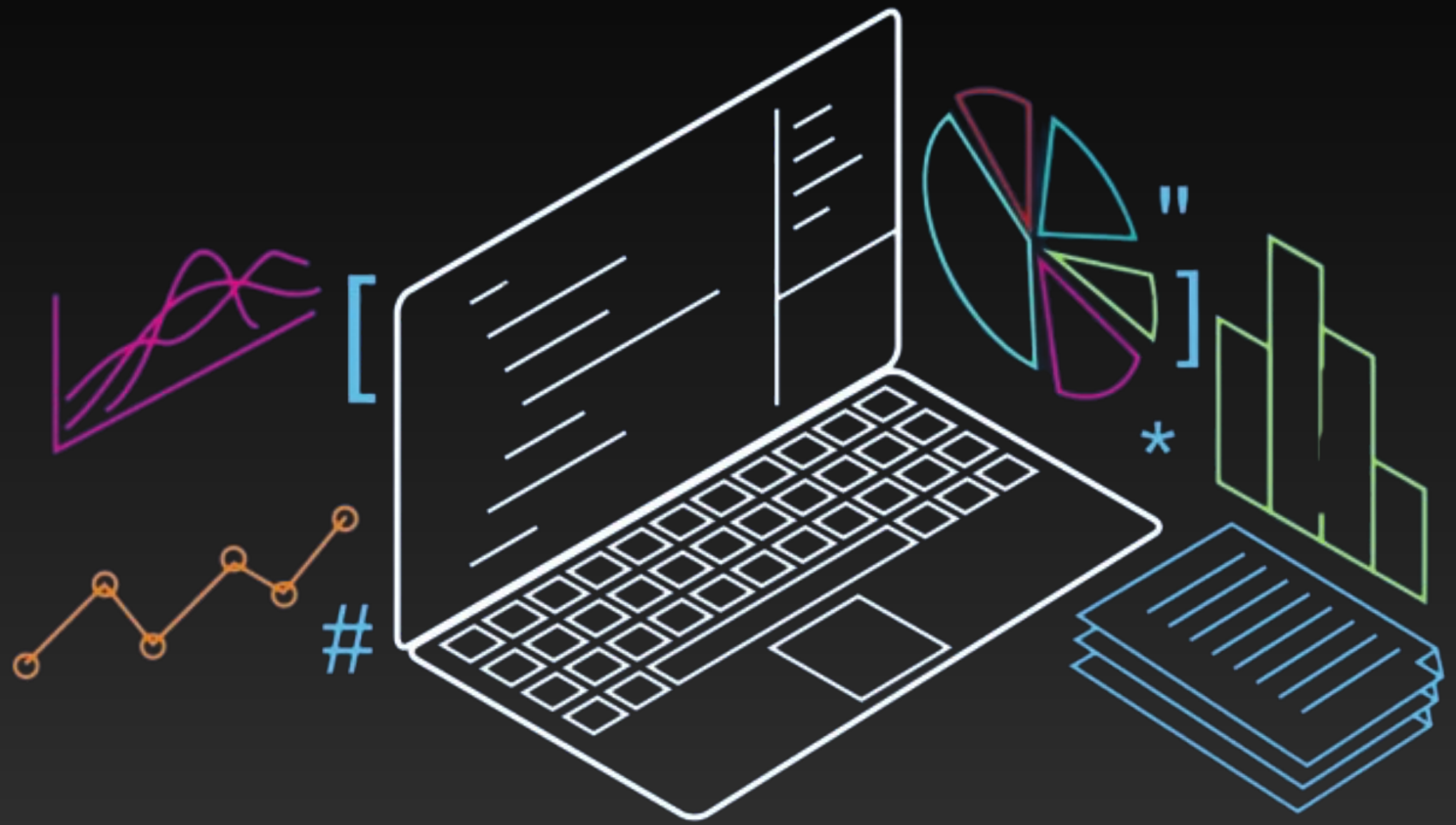
https://github.com/netdevmike/CDW-R-Programming-with-Excel.git

About Me

- Education
  - Bachelor in Biology with a Minor in Psychology
  - Bachelor in Computer Science - Software Engineering
  - Masters in Business Administration
  - Masters in Information Management Systems
- Certifications
  - Master's Degree Certificates in Cybersecurity & Data Analytics
  - Multi-Cloud Certified Solutions Architect (GCP, AWS, AZURE), CCNA
  - HMS Certifications in Physiology, Immunology, Biochemistry, Genetics
- Work Experience
  - Retail Chane manager- KFC, Pizza Hut, Tim Hortons
  - Research Assistant Autosomal Dominant Polyscitc Kidney Diseases
  - Network Administrator - Focused on Automation
  - Cloud Marketplace Program Manager

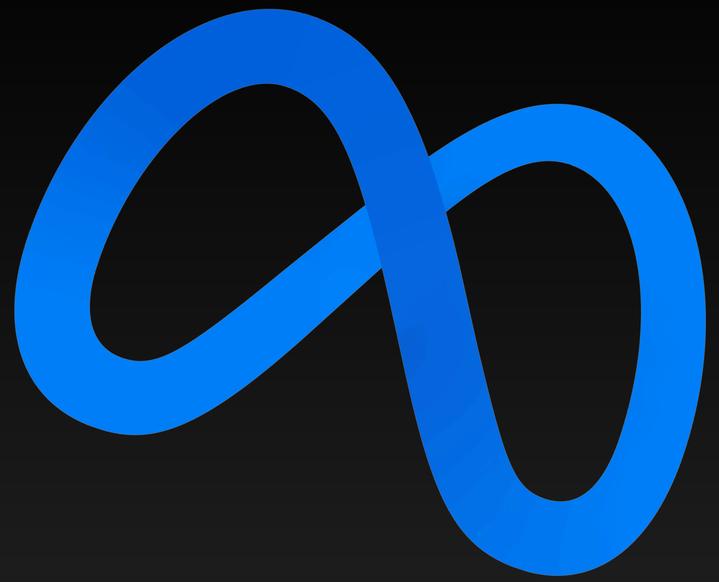
Agenda

- Why R?
- Learning Objectives
- What is R?
- What is R Studio?
- Setup
- Scripts



Why R?

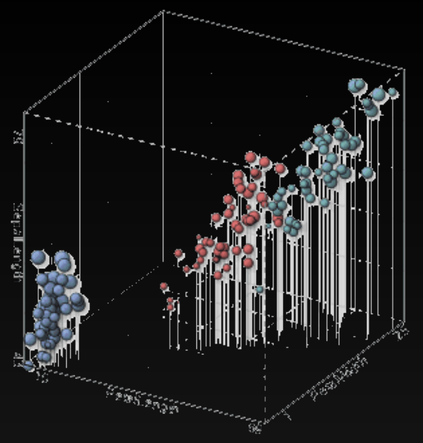
- Full of functions and features that will get you very far
- Easy to learn for beginners
  - Built for people who do not code
  - Not used by experts
  - Often used by reaserchers
- Few simple functions = alot of power
  - Most advanced statistics written into simple R functions
- Advanced libraries to make graphs
- Alot of tutorials online



WHO USES R?

Meta uses advanced tools like R programming for behavior analysis and social media analytics.
R is used in data management, data analytics, economic forecasting, and business-decision making at Google
Amazon data scientists and analysts use R for statistics and machine learning to build analytics systems that can measure the marketing ROIAverage Salaries for Amazon Employees

What is R?



- R is a programming language for statistical computing and graphics.
- It is the most popular statistical software in circulation today and is used by more than 2 million data scientists & and statisticians worldwide.
  - How Companies Use R to Compete in a Data-Driven World, data-informed.com
- Downloard R! - https://cran.r-project.org/

What is R Studio?

- IDE – Integrated Development Environment
  - Adds additional functionality e.g. git, shiny projects, markdown templates
- R studio is the most popular IDE for R, although there are others, you don’t actually need it to execute R code.
- R Studio sits atop the installed R version. Without base R, R Studio cannot function. By programmatically accessing base R, R Studio improves the interface and functionality.
- Download R Studio! - https://posit.co/download/rstudio-desktop/

R Studio has four main panes

Code Editor

```r
# Simple data manipulation - calculating the mean of a numeric column
# Replace 'numeric_column' with your actual column name
mean_value <- mean(data_from_csv$CustomerID, na.rm = TRUE)
print("Mean of the selected column:")
print(mean_value)

# Part 4: Writing Data

# Install and load nece
install.packages("writexl")
library(writexl)

# Writing data to an Excel file (replace 'output.xlsx' with your desired file name)
write_xlsx(data_from_csv, "output.xlsx")
print("Data written to Excel file successfully.")

# Part 5: Cool Example - Visualizing Data

# Plotting a simple graph
plot(data_from_csv$CustomerID, ty
     main = "Simple Line Graph",
print("Line graph plotted success

# Conclusion
print("End of introduction to R programming with Excel integration.")
```

Environment

Data

data_from_csv	5 obs. of 3 variables

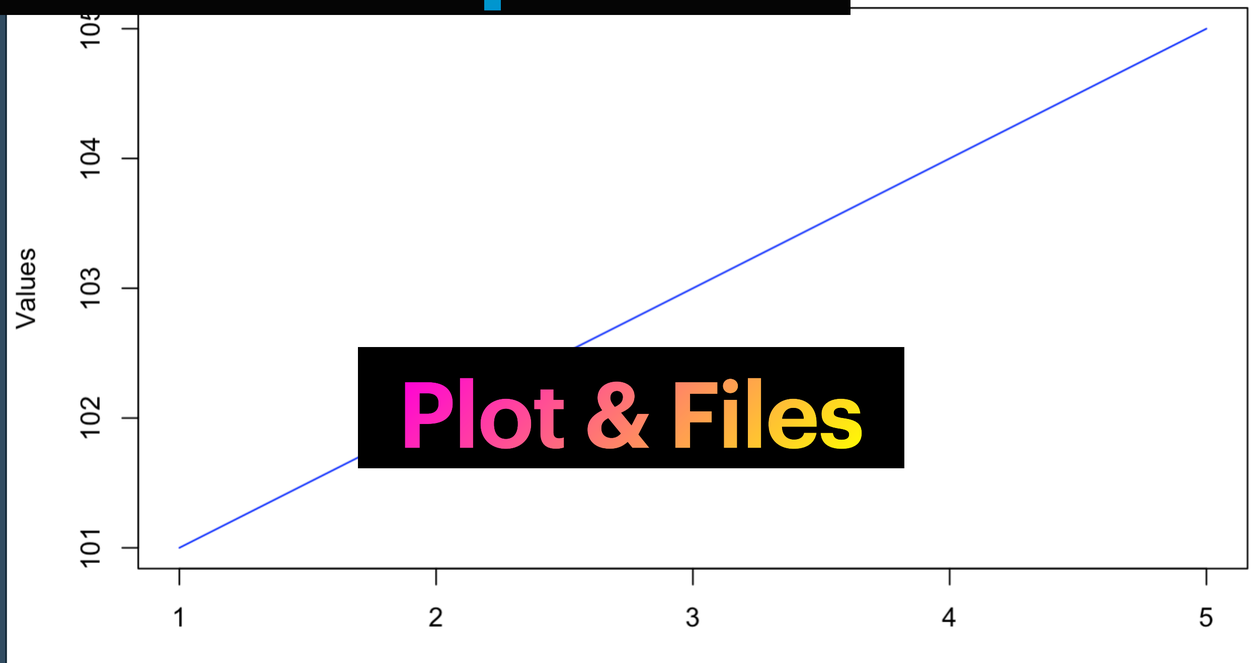
Values

mean_value	103
my_vector	
sum_result	

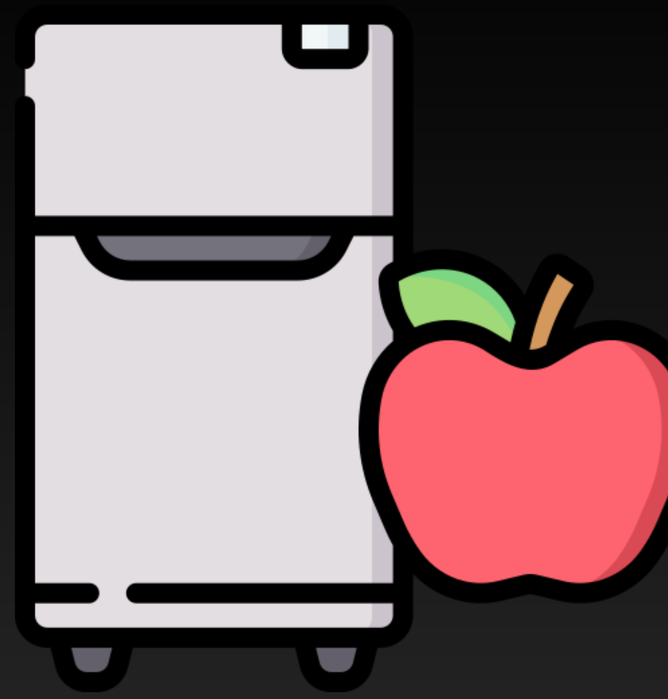
Console

```
> # Writing data to an Excel file (replace 'output.xlsx' with your desired file name)
> write_xlsx(data_from_csv, "output.xlsx")
> print("Data written to Excel file successfully.")
[1] "Data written to Excel file successfully."
>
> # Part 5: Cool Example - Vis
>
> # Plotting a simple graph
> plot(data_from_csv$CustomerID, type = "l", col = "blue",
+      main = "Simple Line Graph", xlab = "Index", ylab = "Values")
> print("Line graph plotted successfully.")
[1] "Line graph plotted successfully."
>
> # Conclusion
> print("End of introduction to R programming with Excel integration.")
```

Plot & Files



R Workflow



- Let’s eat an apple for breakfast. Where is the fruit?
- If a “local” file define the path to the file
  - setwd(‘fridge/shelf/fruits’)
  - OR
  - From a URL
  - csvFile <- ‘https://raw.githubusercontent.com/kwartler/Harvard_DataMining_Business_Student/master/Lessons/A_IntroToR/data/forceAwakens_definedScenes.csv’
- The item of interest needs to be in the “working directory”

R uses functions, libraries & objects

- Found the fruit shelf! What tools do I need?
  - #setwd(“fridge/shelf/fruits”)
- library(peel)
- library(knife)
- library(readr)

- Change R into a breakfast-preparing machine with specialized libraries.

Lets build our tool box (libraries)

- Before loading a library use
- install.packages("name of package").
- You only need to do this once per environment
- But, you will need to repeat it w/each new environment!

R uses functions, libraries & objects

> library(peel)

> library(knife)

> library(readr)

> Now R is a cutting & peeling machine, let’s pick our fruit.

Fridge/shelf/fruits -> apple, banana, pear

> setwd(‘fridge/shelf/fruits’)

> apple <- readr(“Apple.”)

> peelApple <- peel(apple)

> cutApple <- knife(peelApple)

LETS CODE!