



Welcome to QuACK!

Week 4

9/29/2025

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Today's Agenda: Plotting

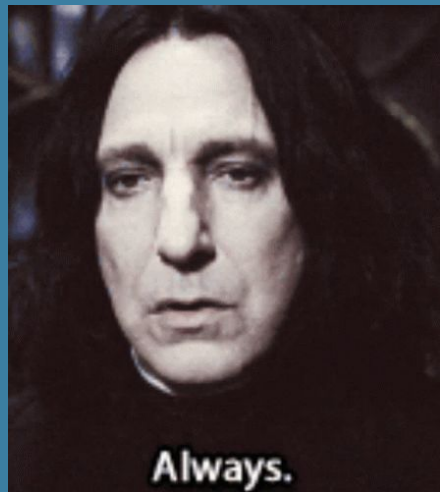
- Warm-up activity
- Intro to ggplot2
- Demo: data visualization



Week 3 Warm-up – 10 minutes

1. Download this week's materials from this link: <https://tinyurl.com/quack-summer>
2. Open the practice PDF from **last week** (session 3)
3. If you did the practice exercises during last week's session, refresh your memory on what you did and what the answers were
4. If you didn't get a chance last week, try the practice exercises now!

When should you visualize your data?

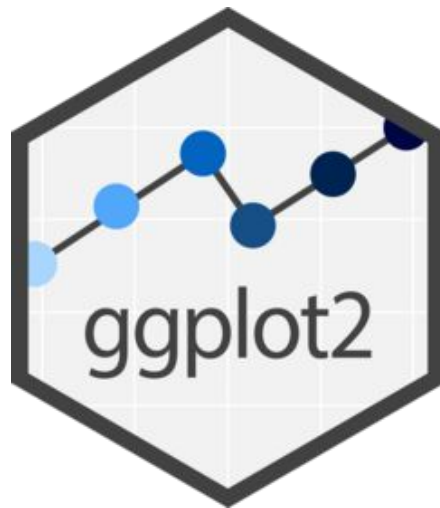


Ok...but why?

- Helps to easily identify trends in your data – maybe some you expected, and others you didn't expect
- Helps find outliers in your data – these may be throwing off your stats without you even knowing!
- In some cases, it can help you decide which statistical tests are appropriate for the kind of data you have
- Can help you easily communicate your findings to collaborators and the broader scientific community

Introducing ggplot2

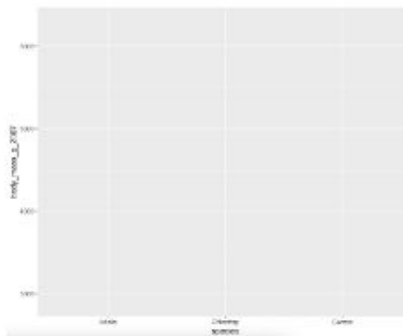
- Last week we learned about Tidyverse. We used some Tidyverse packages like `readr` and `dplyr` to clean our data
- Today we are learning about another package in Tidyverse called `ggplot2` that is used for data visualization
- Why ggplot?
 - It's easy to use
 - It works well with the rest of Tidyverse (and R in general)
 - It creates very flexible and easily customizable plots



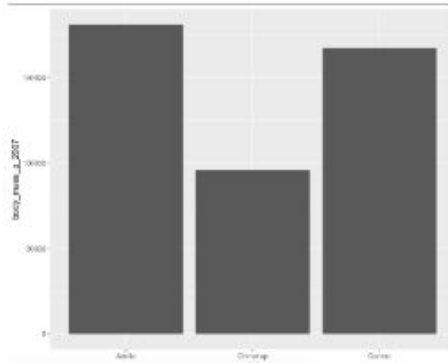
Build any plot with ggplot

- You can combine layers in ggplot2 to create a plot
- The way ggplot2 is so flexible is by offering many different layers, each with many different customization options

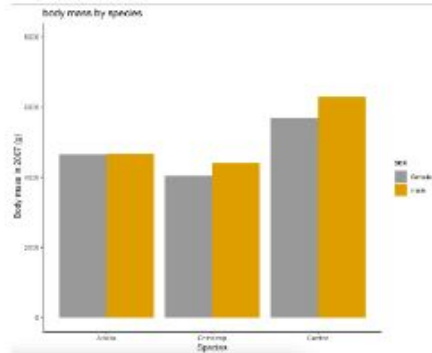
Step 1: create a plot and designate variables



Step 2: Decide how to represent the data



Step 3: customize



ggplot2 terminology

- **Creating a ggplot object (this is your “canvas”)**

```
ggplot(data = myDataFrame, aes(x = x_series, y = y_series))
```

- **Adding geometric objects to your plot. These tell ggplot how to represent your data.**

```
ggplot(data = myDataFrame, aes(x = x_series, y = y_series)) +
```

```
  geom_col()
```

Note that ggplot layers are connected by “+” not “%>%”

- **Add other layout and design features**

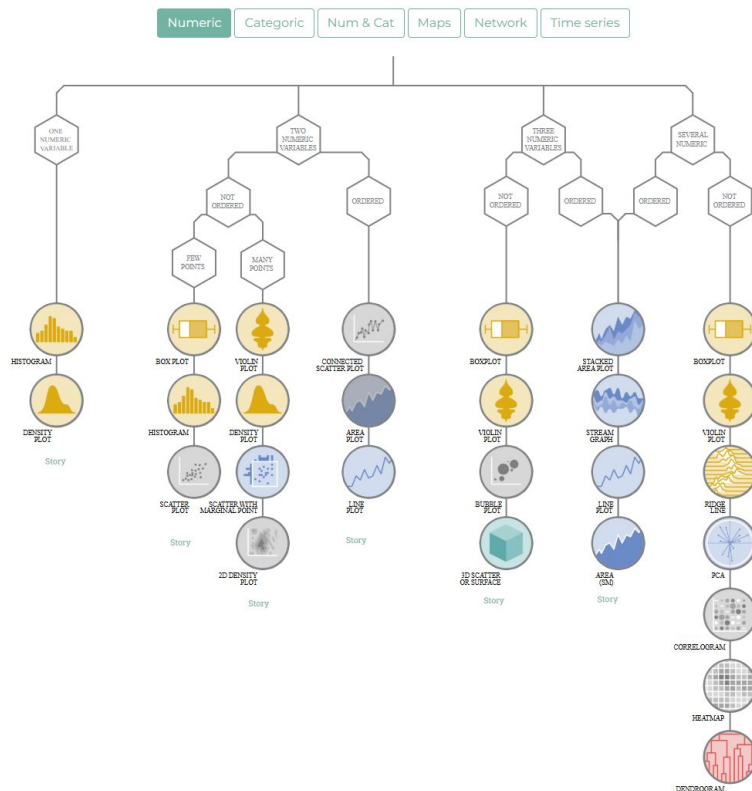
```
ggplot(data = myDataFrame, aes(x = x_series, y = y_series)) +
```

```
  geom_col() +
```

```
  theme_classic()
```

And lastly, a helpful dataviz resource:

<https://www.data-to-viz.com/>



Time to get started in R!

- Go to <https://tinyurl.com/quack-fall2025>
- Download and unzip the course materials
- You will see many files:
 - Two R Markdown (.rmd) files
 - A .csv file
 - Two PDF files – slides and a practice doc
 - Some other folders – ignore these for now
- Open the R Markdown file marked “starter_code” – this is where we will code together for the first part of the session
- The .csv file contains the data we will be working with
- The practice PDF contains practice exercises for you to do during the second part of the session



Exit Ticket

Link: <https://tinyurl.com/quack-fall2025-exit-survey>

