Assignment #2:

Build a Simple Shiny App

Objective:

- To learn how Shiny works through exploration and trial and error.
- To learn how to customize the app for your own use-case, focusing on creating an interactive application that helps analyze your data.

Data:

- **Source:** Students should use a dataset from their current or past rotation/lab.
- **Permission:** If students are not using a public dataset, they should ask the rotation PI for permission to use it for this assignment. Alternatively, they can select a public dataset from a published paper in their field, or a built-in toy dataset which would fit the assignment objective.
- ***Note:*** *There will later be an option to "publish" the Shiny app, so non-public datasets should not be published without permission.*

Tasks

- Use `ggplot2` to code a visualization that tells a compelling (or non-compelling) story.
- Implement at least three dynamic features to explore the dataset.
- Use `shinydashboard` or `shinythemes` to create an aesthetically pleasing style.
- Focus on functionality.
    - Consider whether having a dynamic plot is even helpful for analyzing the data.
    - Consider which aspects would be helpful for a user to explore.
- [Optional] Publish Shiny app to https://www.shinyapps.io

Deliverables

- An `app.R` file and/or an HTML link to their published app.
- **Brief report (½ to 1 page)**: Include the following details:
    - **Visualization purpose and goals**: Describe what your application visualizes. What data are you visualizing? Why is being interactive important? How do you hope users will leverage your tool?
    - **Limitations:** What are some limitations of your applications? Can they be improved with software or are they inherent in the data/approach?

Tips

- Students will receive a full tutorial on Shiny app development.

Tools

- Suggested packages: `shiny`, `ggplot2`, `shinydashboard`, `shinythemes`
- Students will have access to all online resources and examples to aid their development.