Group project on an R package
Computer Modeling
Dr. Nyssa Silbiger

The objective of this assignment is to understand an R package that was not discussed yet and share it with the class. This project will allow you to learn more about the functionality of R from your peers as well as learning by teaching.

Requirements: Due April 13th at 1pm

Your groups will select one R project to understand in detail. Suggestions are below, but you are also allowed to suggest your own (see: https://cran.r-project.org/ for all available packages on CRAN).

No two groups can have the same package, so have a back-up idea. It will be first come first serve.

You will create your own Rmarkdown document explaining the package (cited or linked to webpages as appropriate) and include examples using your own dataset or one we have used in class. If you do not have an appropriate dataset you can use a "found" dataset, like from TidyTuesday, for example. Importantly, **it needs to be different than the dataset that already comes with the package.** You are also welcomed to incorporate other packages in your examples, as needed (e.g., tidyverse).

You MUST work collaborative with your groupmates. This means, everyone contributes to the document and code.

Your final project will be pushed to a **new** public GitHub repository **on the BIOL551 group** that is shared with everyone in the class. Everything for your project must be contained in a single main folder titled as the name of your package. Within that folder, you should have 3 subfolders: data, scripts, and output. Also add a readme.md file with the names of all your groupmates, a list of how each member contributed (note: this is common practice when submitting scientific papers for publication), and a description of your package.

You will give a ~20–30-minute presentation and teach us all about your R package (split up the talking between your groupmates). Explain why your package is useful, teach us how to code it, and walk us through some examples. Feel free to use think-pair-share or any other pedagogy that you would like, though this is not required. **The goal is for your classmates to have a basic understanding on how to use the package.**

Some R packages are much larger than others. You do not need to explain everything. Pick **at least** 5 of what you think are the most important functions to explore and share with the class. Feel free to give us other resources to explore on our own time.

Here are some options to choose from. If you have one that is not on this list, please ask for approval. You must pick a **useful** R package and no color palettes (https://cran.r-project.org/).

Communicating data:
Bookdown
Xaringan

Data cleaning/manipulation:

Janitor

Data exploration:
DataExplorer
Performance

Making tables:
DT
Gt
gridExtra

Visualizing data interactively
Leaflet
Plotly

Downloading "big data"
Rerddap
heatwaveR

Any of the modeling packages related to your research…

A curated list of R packages for more ideas:
https://github.com/uhub/awesome-r

See grading rubric on next page

<u>You grade will be determined based on the criteria below:</u>

1 – poor job 10 – excellent job

How well do you explain the functionality of your package in RMarkdown?

1 2 3 4 5 6 7 8 **9** 10

Do you have appropriate examples using new datasets?

1 2 3 4 5 6 7 8 9 **10**

Is the file structured appropriately for your project?

1 2 3 4 5 6 7 8 **9** 10

Does it have a readme file with relevant information?

1 2 3 4 5 6 7 **8** 9 10

Is your code commented appropriately?

1 2 3 4 5 6 7 **8** 9 10

Is your code clean and easy to follow?

1 2 3 4 5 6 7 8 **9** 10

Are you teaching the class at an appropriate pace for us to follow along?

1 2 3 4 5 6 7 8 **9** 10

Is your presentation clear and easy to follow?

1 2 3 4 5 6 7 8 9 **10**

Did you answer questions from the audience appropriately?

1 2 3 4 5 6 7 8 9 **10**

Did group members contribute equally to the final product?

1 2 3 4 5 6 7 8 9 **10**