Outline day 1*

Tran Thai Hung

Last version: December 05, 2024

Table of contents

List of Figures

---

*Please do not circulate.

1. Set up

1.1 Git vs Github

- Difference between Git and GitHub.
- Why version control is important for collaboration.
- Hands-on: Creating and cloning repositories.

1.2 Rproject / Project Environment

- Overview of RStudio projects.
- Benefits of using a project environment.
- Setting up your first R project.

2. R Foundations

2.1 Rscript

- What is an R script?
- How to create and run scripts in RStudio.

2.2 Variable/Classes/Special Values

- Variables and data types (numeric, character, logical, etc.).
- Special values (e.g., `NA`, `NaN`, `Inf`, `NULL`).

2.3 Functions

- Creating and using functions.
- Built-in vs custom functions.

2.4 Scope

- Local vs global scope.
- The environment in R.

2.5 Packages

- Installing and loading packages.
- Exploring CRAN, Bioconductor, and GitHub.

3. In-class Exercise

- Practice using what we've learned so far.
- Tasks involving creating variables, using functions, and exploring packages.

4. Data Manipulation in R

4.1 Data Import/Export

- Reading data from CSV, Excel, and other formats.
- Writing data to files.

4.2 Clean Column Names

- Standardizing column names using `janitor::clean_names()`.

4.3 Simple Data Extraction

- Selecting rows and columns.

4.4 Data Summary

- Summarizing data with `summary` and `skim`.