

Lecture 1: Introduction to R, RStudio, and Posit.Cloud

Dr. Logan Kelly

2024-09-04

Overview

- In this lecture, we'll explore the basics of:
 - **R**: A powerful language for statistical computing.
 - **RStudio**: An Integrated Development Environment (IDE) designed for R, enhancing its usability.
 - **Posit.Cloud**: A web-based service that provides access to RStudio from any device.

1. Introduction to R

- **What is R?**
 - A powerful programming language for statistical computing and graphics.
 - Used widely in data analysis, statistical modeling, and business intelligence (BI).
- **Why is R important?**
 - Open-source, widely adopted in both academia and industry.
 - Supports advanced data analysis, visualization, and statistical modeling.
- **Key Features of R:**
 - Highly flexible and extensible with thousands of packages.
 - Supports reproducible research and integrates with other tools (e.g., Python, databases).

2. RStudio Overview

- **What is RStudio?**

- Integrated Development Environment (IDE) designed specifically for R.
- Simplifies data analysis, visualization, and model building.

- **Key Features of RStudio:**

- User-friendly interface for writing and running R scripts.
- Includes tools for managing data, visualizing results, and navigating R packages.

- **RStudio Layout:**

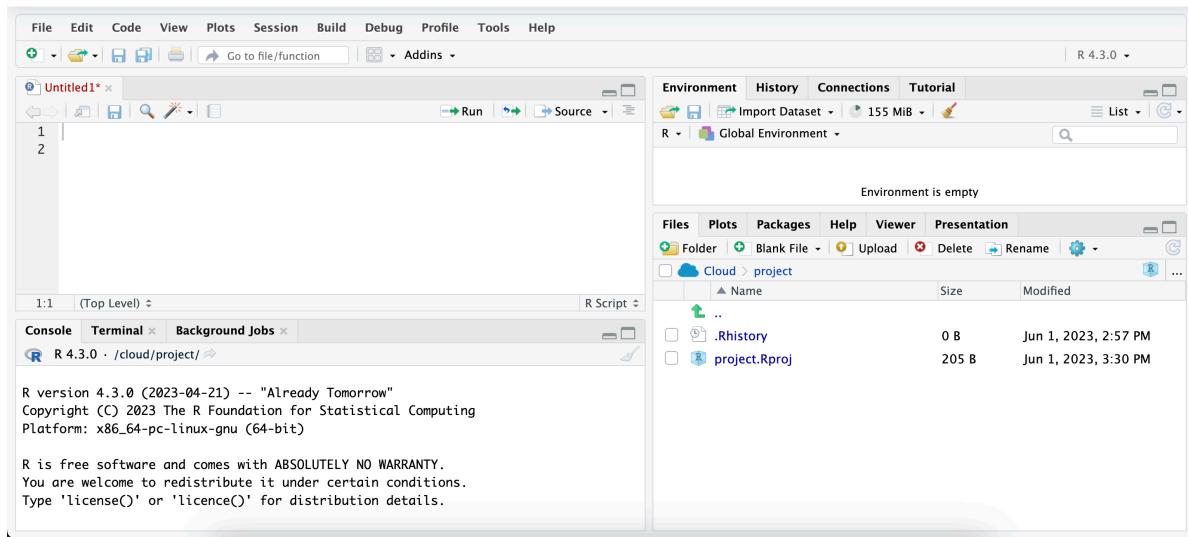


Figure 1: RStudio Layout

- Four main panels:

1. **Source Panel** (Top-left): Where R scripts are written.
2. **Console Panel** (Bottom-left): Where R code is executed.
3. **Environment/History Panel** (Top-right): Lists objects in the workspace.
4. **Files/Plots/Packages/Help Panel** (Bottom-right): Access to files, plots, packages, and documentation.

3. Posit.Cloud Overview

- **What is Posit.Cloud?**

- A web-based platform that allows you to run RStudio in a browser.

- Useful for educational purposes, particularly in courses where access to RStudio from any device is needed.
- Direct link: <https://posit.cloud>

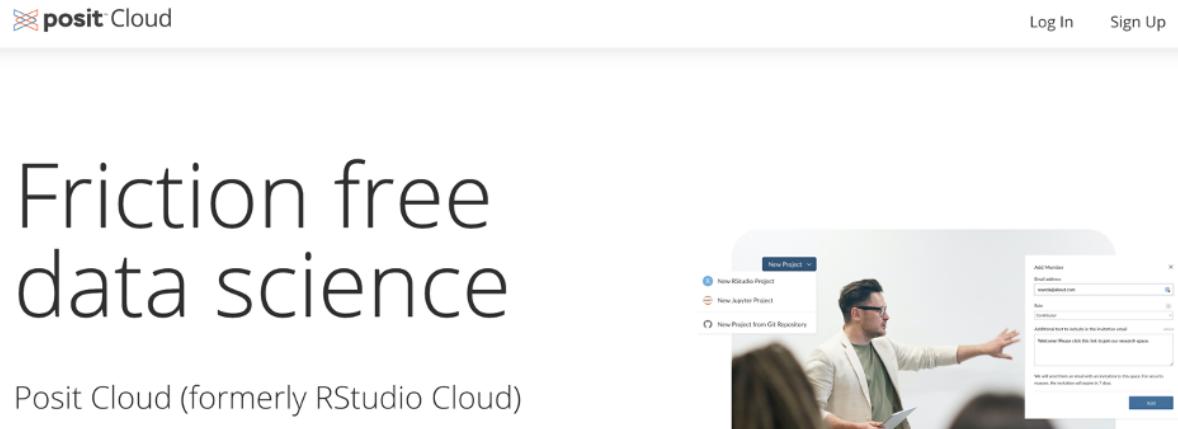


Figure 2: Posit.Cloud Splash Page

- **Posit.Cloud Plans:**

- **Cloud Free:**
 - * Free plan with limited compute hours and resources.
 - * Ideal for students in educational settings.
- **Cloud Instructor:**
 - * Tailored for educators with additional compute hours.

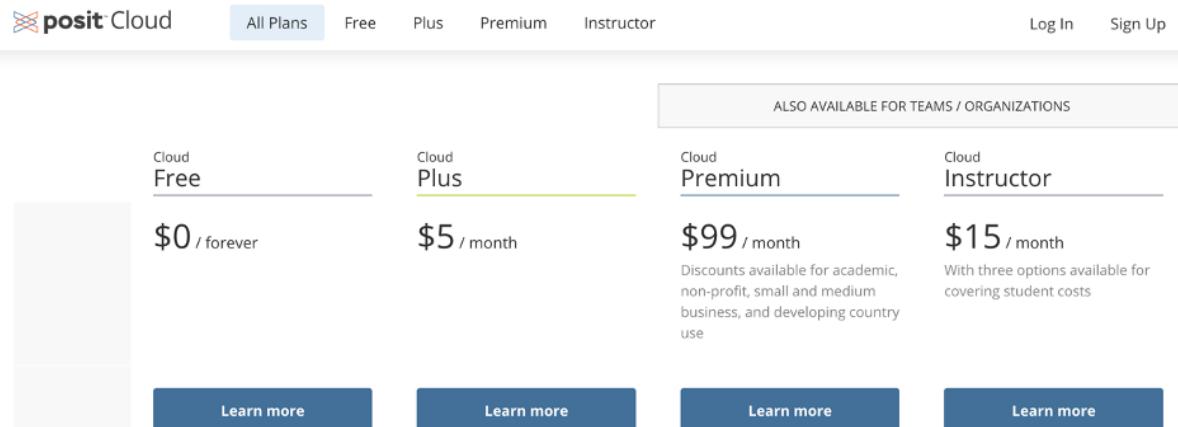


Figure 3: Posit.Cloud Plans

- **Key Differences between Plans:**

- Cloud Free offers limited resources (1GB RAM, 25 compute hours/month).
- Cloud Instructor offers enhanced features for educators (e.g., 300 compute hours/month, shared spaces for classes).

4. Why Posit.Cloud is Useful for Your Class

- **For Students:**
 - Accessible from anywhere without needing to install RStudio locally.
 - Easy to collaborate with classmates and instructors.
- **For Instructors:**
 - Provides a collaborative environment for teaching R in courses.
 - Instructors can manage class workspaces, ensuring students have access to all resources needed.

Key Takeaways

- You now understand the basics of R, RStudio, and Posit.Cloud.
- R is essential for statistical computing, and RStudio simplifies the workflow.
- Posit.Cloud allows you to run RStudio in a web-based environment, making it easier to work from anywhere.

Looking Forward

- In the next lecture, we'll go over how to set up a Posit.Cloud account and join your class workspace, so you're ready to start coding in R.