

Introduction to R Programming

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About Me

- I am Alan Zhou
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What is R?

- Programming language for statistical computing, machine learning, graphics, and data visualization
- Has a dynamic typing discipline
 - Allows variables to change data types during runtime
 - Type checking is performed at runtime
- Compatible with multiple operating systems
- Uses packages to create graphs and perform tasks
- Uses data frames to store data

Data Frame

- 2D array-like Data structure that is used to store data in any type
- Consists of vectors of the same length
 - Each vector has different data types
- Can be accessed and summarized
- Can be created from CSV files using `read.csv()`

Packages

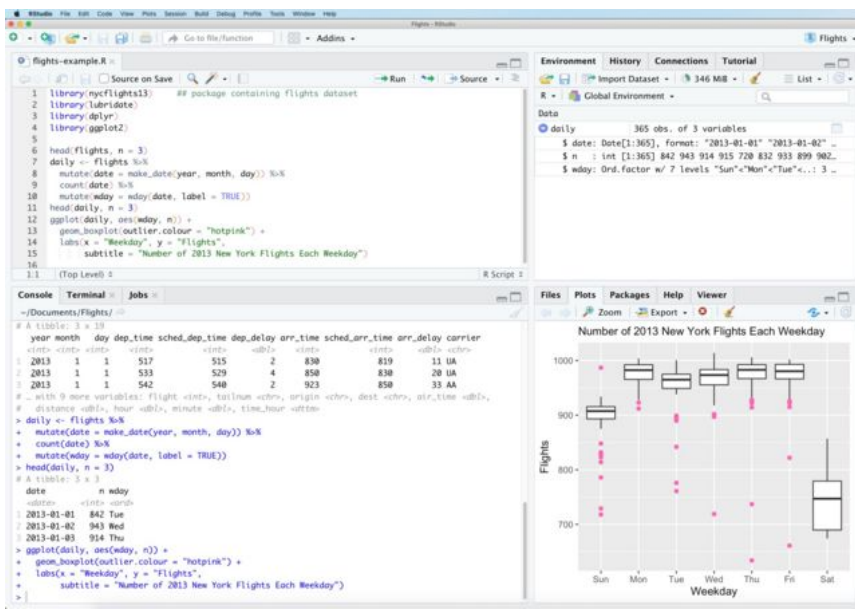
- Reproducible and reusable R code that adds additional functionality
- Available in the Comprehensive R Archive Network (CRAN)
- Installed with `install.package("package name")`
- Included with `library("package name")`
- Examples are XML, iGraph, ggplot2, Tidyverse
 - ggplot2 is part of Tidyverse



Using R

R-Studio

- IDE for R
- Supports R markdown and Shiny



Visual Studio Code

- Open-source text editor
- Uses extensions to compile and run R code
- Uses integrated terminal to display results



History

- Began as an implementation of the S language
- Began development by Ross Thaka and Robert Gentleman
- Announced and appeared on August 1993
- Got the GNU General Public Licence in 1995
- Present, used by companies and still developed

Why use R?

- Useful in many companies and academia
- Flexible way to create graphs
- Create web applications with Shiny without knowledge of web development
- Has helpful communities such as an unofficial discoRd server.

Thanks for coming!
