

Day 1 Cheatsheet

Basic R

Major concepts

- **Package** - a package in R is a bundle or “package” of code (and or possibly data) that can be loaded together for easy repeated use or for sharing with others. Like an “expansion pack”.
- **Function** - a function is a particular piece of code that allows you to dosomething in R. You can write your own, use functions that come directly from installing R, or use functions from additional packages.
- **Argument** - an option that you specify to a function.
- **Object** - an object is something that can be worked with in R - can be lots of different things!
- **Tidyverse** - This is a newer set of packages designed for data science that can make your code more intuitive as compared to the original older Base R.
- The R console is a full calculator:
 - +, -, /, * are add, subtract, divide and multiply
 - ^ or ** is power
 - parentheses – (and) – work with order of operations
 - %% finds the remainder
- # is the comment symbol; nothing to its right is evaluated.

Functions

Library/Package	Piece of code	Example of usage	What it does
Base R	<code><-</code>	<code>x <- 1</code>	Assigns a name <code>x</code> to something in the R environment.
Base R	<code>c()</code>	<code>x <- c(1, 3)</code>	Combines values into a vector.
Base R	<code>str()</code>	<code>str(x)</code>	Gets a summary of the object <code>x</code> structure.
Base R	<code>class()</code>	<code>class(x)</code>	Returns the type of the values in object <code>x</code> .
Base R	<code>length()</code>	<code>length(x)</code>	Returns how long the object <code>x</code> is.
Base R	<code>seq()</code>	<code>seq(from = 0, to = 100, by = 5)</code>	Generate regular sequences.
Base R	<code>rep()</code>	<code>rep(1, times = 10)</code>	Replicates the values in <code>x</code> . Can take <code>times</code> or <code>length.out</code> argument.

Library/Package	Piece of code	Example of usage	What it does
Base R	<code>sample()</code>	<code>sample(1:12)</code>	Takes a sample of the specified size from the elements of x using either with or without replacement. <code>replace = TRUE</code> samples with replacement.
Base R	<code>install.packages()</code>	<code>install.packages("tidyverse")</code>	Installs packages
Base R	<code>library()</code>	<code>library(tidyverse)</code>	Loads and attaches additional packages to the R environment. Done every time you start R.

RStudio

Major concepts

- **RStudio** - an Integrated Development Environment (IDE) for R - makes it easier to use R.
- **Source/Editor** - “Analysis” Script + Interactive Exploration - In a .R file (we call a script), code is saved on your disk
- **R Console** - Where code is executed (where things happen) - Code is not saved on your disk
- **Workspace/Environment** - Tells you what objects are in R. What exists in memory/what is loaded?/what did I read in?
- **R Markdown** - Files (.Rmd) help generate reports that include your code and output.
- **R Project** - Helps you organize your work. Helps with working directories (discussed later). Allows you to easily know which project you’re on.
- RStudio Keyboard shortcuts

Functions

Library/Package	Piece of code	Example of usage	What it does
Base R	<code>View()</code>	<code>View(mtcars)</code>	allows you to view data in a spreadsheet format.
Base R	<code>head()</code>	<code>head(mtcars)</code>	Returns the top 6 rows of an object in the environment by default. You can specify how many rows you want by including the <code>n</code> =argument.
Base R	<code>tail()</code>	<code>tail(mtcars)</code>	Returns the bottom 6 rows of an object in the environment by default. You can specify how many rows you want by including the <code>n</code> = argument.

* This format was adapted from the cheatsheet format from AlexsLemonade.