

Fundamentals of R

Detailed Content

Introduction

Introduction to R
Base R and contributed
packages
Download and installation of
base R
Installing R packages

The RStudio IDE

Download and installation Overview of the RStudio environment The main panes Working directory Workspace Projects Create a project

Using R as a Calculator

Executing commands from the command line and the source pane
Arithmetic operators
Relational operators
Logical operators

Creating Objects

Objects in R
Assignment operators
Naming rules
Basics of R Syntax
Creating objects
Viewing objects in RStudio
Viewing objects in the console

Data Types and Classes

Basic data types
Data structures in R
Vectors
Factors
Matrices
Arrays
Lists
Data frames
Tibbles

Which data structure should I use?

Changing data types

Implicit coercion Explicit coercion

Naming parts of data objects

Column names Row names Dimension names Names

Accessing Data within Data Structures

Referring to data by position Referring to data by name

Replace parts of an object

Replace names Replace values

Add to a data object

Add elements to vectors Add rows or columns Add by position Add by name

Removing data from a data object

Remove elements from vectors Remove rows or columns from matrices Remove rows or columns from data frames and lists

Evaluation in R

Vector arithmetic
Order of operations
Vector recycling
Vectorised operations
Applying functions to elements
of data structures

Using Functions

What is a function?
Syntax for using functions in R
Arguments
Getting help with a function
Overview of help
documentation in R
Basic statistical summary
functions
Masking of functions
Explicitly specifying the
package name when calling a
function
Package: conflicted

Importing Data

Importing data in RStudio Importing data from text files (csv)

Exporting Data

Export data to text file

Basic Data Visualisation

The plot function Add reference lines Add text Add a legend Exporting plots