

Course Outline | R Programming for Developers

3 day(s)

Overview

Learn how to program by diving into the R language, and then use your newfound skills to solve practical data science problems. With this course you will learn how to load data, assemble and disassemble data objects, navigate R's environment system, write your own functions, and use all of R's programming tools.

Prerequisites

Previous experience of a programming language or attendance of our R Programming Introduction is required for this course.

Course Outline

Getting Started

- The R User Interface
- Objects
- Functions
- Sample with Replacement
- Writing Your Own Functions
- The Function Constructor
- Arguments
- Scripts

Packages and Help Pages

- Packages
- `install.packages`
- `library`
- Getting Help with Help Pages
- Parts of a Help Page
- Getting More Help

Atomic Vectors

- Doubles
- Integers
- Characters
- Logicals
- Complex and Raw

Attributes

- Names
- Dim

Storing Data

- Matrices
- Arrays
- Class
- Dates and Times
- Factors
- Coercion
- Lists
- Data Frames
- Loading Data
- Saving Data

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R Notation

- Selecting Values
- Positive Integers
- Negative Integers
- Zero
- Blank Spaces
- Logical Values
- Names
- Dollar Signs and Double Brackets

Modifying Values

- Changing Values in Place
- Logical Subsetting
- Logical Tests
- Boolean Operators
- Missing Information
- na.rm
- is.na

Environments

- Environments
- Working with Environments
- The Active Environment
- Scoping Rules
- Assignment
- Evaluation
- Closures

Strategy

- Sequential Steps
- Parallel Cases
- if Statements
- else Statements
- Lookup Tables
- Code Comments

S3

- The S3 System
- Attributes
- Generic Functions
- Methods
- Method Dispatch
- Classes
- S3 and Debugging
- S4 and R5

Loops

- Expected Values
- expand.grid
- for Loops
- while Loops
- repeat Loops

Speed

Course Outline | R Programming for Developers

- Vectorized Code
- How to Write Vectorized Code
- How to Write Fast for Loops in R
- Vectorized Code in Practice
- Loops Versus Vectorized Code