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

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

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