

# Groovy for Developers

**Duration: 4 days**

## What will you learn?

- Understand how dynamic languages differ from languages like Java or C#
- Work with Groovy closures
- Use Groovy control structures
- Build object-oriented programs in Groovy
- Use Groovy builders to reduce complexity
- Access databases using Groovy
- Write unit tests in Groovy
- Access Java classes from Groovy, and vice versa
- Build a simple web application using Grails
- Work with Groovy strings, closures, and collections
- Develop model-view-controller web applications using Grails
- Access relational databases from Grails
- Build unit and functional tests for web applications
- Groovy support in the Spring framework
- Build and test RESTful web

## Pre-Requisite:

- Working knowledge of Java.

## Who should attend?

- Java Developers

## Course Contents:

### 1. Groovy Fundamentals

- Differences between Groovy and Java
- Compiling and executing Groovy programs
- The basic Groovy data types and optional typing
- Writing Groovy scripts
- Declaring classes
- Overriding operators and type coercion
- The Groovy JDK: Groovy extensions to the Java standard library
- Groovy strings
- Regular expressions in Groovy

### 2. Object-Oriented Programming In Groovy

- Plain Old Groovy Objects (POGOs)
- Generated getters/setters

- Public vs private defaults
- Map-based constructors
- @ToString, @EqualsAndHashCode, @TupleConstructor, and @Canonical

### 3. Groovy Collections

- Ranges
- Lists
- Maps
- Iterators and polymorphic algorithms

### 4. Closures in Groovy

- Declaring closures
- Available options for calling closures

### 5. Groovy Control Structures

- The "Groovy truth"
- Conditional execution
- Looping constructs

### 6. Miscellaneous Groovy operators

- Safe navigation with the ?. operator
- The Elvis operator
- The spaceship operator

### 7. Unit Testing in Groovy

- GroovyTestCase
- JUnit tests in Groovy
- The Spock testing framework
- Spock mocks and stubs

### 8. Abstract Syntax Tree (AST) Transformations

- @Delegate
- @Immutable
- @Singleton
- @TypeChecked and @CompileStatic
- The Intercept-Cache-Invoke design pattern

### 9. Database Access with Groovy

- Basic database operations
- DataSet operations
- Groovy and ORM solutions

### 10. The Spring Framework

- Using Groovy beans in Spring applications
- "Refreshable" beans
- Inline scripted beans
- AOP using Groovy

- The Groovy BeanBuilder in Spring

#### **11. RESTful web services**

- JAX-RS annotations on Groovy classes
- JsonSlurper and JsonBuilder
- REST clients with the HttpBuilder project
- The ratpack framework
- REST additions to Grails 2.3+

#### **12. The Gradle Build Tool**

- The build challenge
- The Gradle plugin system
- Defining tasks and dependencies
- Using repositories
- Multi-project builds