

## Java Modules and Other New Features (to Java 11)

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### Course Summary

#### Description

Java's new release cycle introduces new features at a rapid pace. This course covers the important new features of Java 9 through Java 11. It starts with coverage of Java 9 modules, which are a core change in how Java finds the libraries it needs. It goes on to cover the many significant improvements that are present in these releases.

This concise course is focused on introducing the new capabilities and how to use them. It includes numerous code examples and programming labs that illustrate all of the new capabilities.

The course is hands on, and requires that students be comfortable with writing general Java code at an intermediate level.

#### Objectives

By the end of this course, students will be able to:

- Understand the release cycle and Long Term Support (LTS) releases
- Understand, create, and use modules (introduced in Java 9)
- Migrating to modules - working with jars and classpath
- Be familiar with and use JShell - the Java Read-Eval-Print-Loop (REPL)
- Understand and use Local-Variable type inference (Java 10), and Local-Variable syntax for lambda parameters (Java 11)
- Be familiar with and use the HttpClient (Java 9-11)
- Use the enhancements to the Collection API (Java 9,10)
- Be familiar with other significant smaller enhancements/additions
- Be familiar with significant deprecated and removed features

#### Topics

- Introduction
- Working with Java 9 Modules
- JShell - a Java Read-Eval-Print Loop (REPL)
- Type Inference
- HttpClient
- API Changes/Additions
- Other Capabilities

#### Audience

Suitable for Java developers that want to ramp up on the new features in Java 11 and beyond, with special focus on Java 9+ modules

#### Prerequisite

Working knowledge of Java programming, including use of inheritance, interfaces, and exceptions.

#### Duration

Two Days

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### Course Outline

- I. *Introduction***
  - A. New Java Release Cycle
  - B. Java 9 Overview
  - C. Java 10 Overview
  - D. 11 Overview
  
- II. *Working with Java 9 Modules***
  - A. ClassPath Shortcomings
  - B. Introduction to Java 9 Modules
  - C. Module Descriptors, requires, exports
  - D. Types of modules
  - E. Creating and Using Modules
  - F. Migration - Working with Jars and Classpath
  - G. Services
  
- III. *JShell - a Java Read-Eval-Print Loop (REPL)***
  - A. Introduction to JShell
  - B. Evaluating Code (Snippets)
  - C. Using Libraries (Modules, Jars, etc.)
  - D. Other JShell Capabilities (Commands, Scripts, etc.)
  
- IV. *Type Inference***
  - A. Local-Variable Type Inference
  - B. Brief Overview of Lambdas
  - C. Local-Variable Syntax for Lambdas
  
- V. *HttpClient***
  - A. Overview
  - B. API
  - C. Usage and Features
  
- VI. *API Changes/Additions***
  - A. Collections
  - B. String
  - C. Other API Changes
  - D. Deprecated/Removed Features
  
- VII. *Other Capabilities***
  - A. Overview of Other Changes