Module Title   :   Java SE 17 Developer

Duration   :   5 days

Overview

By the end of the live online course, you'll understand:

- Language features such as switch expressions, sealed classes, and pattern matching
- Core APIs such as date/time, Stream/parallel Stream, and executor services
- Tricky, and recently added, features of Java

Prerequisites

- Working knowledge of Java programming
- Good familiarity with Java's long-standing features, up to Java 8

Outline

Segment 1: Introduction

- What to expect
- Study and learning guidance

Segment 2: Scope and declarations

- Declaring variables using var
- Primitive and String literals
- Text blocks

Segment 3: Operators

- Bitwise operators
- Logical and short circuit operators

Segment 4: Equality and immutability

- General equality of primitives and Objects
- References, reference assignment, and null
- Equality in core library classes, String, StringBuilder, List, Set, and date/time classes
- Working with immutable core classes, String and date/time types

Segment 5: Resolving identifiers

- Resolving variable expressions and methods
- Implicit and explicit uses of this and classnames
- Accessing methods and expressions in static contexts

Segment 6: Introduction to Java

- Conditional statement
- Looping
- IO Operations
- Database CRUD
- Object-oriented
  - Class and object
  - Inheritance
  - Interface class
  - Polymorphism
- Small ATM Project

Segment 7: Using instanceof

- Generalized references and methods available
- Testing object type with instanceof
- Casting
- Pattern matching with instanceof

Segment 8: Many forms of switch/case

- Colon and arrow forms of case
- Expression and statement forms of switch

Segment 89 Exceptions

- Review of try, try with resources, catch, multiple catch blocks, and multi-catch
- Review of checked vs unchecked exceptions
- Permitted and required catch clauses
- AutoCloseable

Segment 10: Working with Methods

- Argument passing
- Overloading methods, widening conversions, and method resolution

Segment 11: Advanced type declarations

- Enumerations
- Nested, inner, and member classes
- Record types

Segment 12: Subclassing, overriding, and closures

- Overriding methods
- Liskov substitution requirements

- Accessibility rules for overrides
- Exception rules for overrides
- Return type rules for overrides
- Closures

Segment 13: Interfaces

- Interface methods
- Accessibility
- Abstract, default, static, and private interface methods
- Resolving default methods

Segment 14: Initializations

- Static initializers
- Instance initializers
- Constructor invocations and constructor invocation order
- Using this() and super() in constructors
- Initializing record types

Segment 15: Lambda syntax

- Declaring block lambdas
- Declaring expression lambdas
- Variations of lambda argument syntaxes

Segment 16: Primitive Wrapper Types

- Primitive wrapper uses
- Primitive wrapper features

Segment 17: Sealed types

- Declaring sealed types
- Subtypes of sealed parents

Segment 18: Resource bundles

- Selecting a resource bundle
- Accessing resources in a bundle

Segment 19: Reachability and garbage collection

- Reachability analysis and eligibility for GC

Segment 20: The Java Platform Module System

- Java Platform Module System purpose/goals
- Migration approaches
- Automatic modules

- Service provision

Segment 21: Serialization

- Overview of serialization and the Serializable interface
- Using object streams
- Serializing and deserializing objects in a class hierarchy

Segment 22: Key features of the core Java SE libraries

- Date, time, and timezone operations
- Arrays and Collections class features
- Key collections API features

Segment 23: Overview of remaining objectives

- What to look out for in the objectives not discussed
- Additional resources and training
- Additional topics and questions