

Core Java 8

Java SE 8



Course Goals and Non Goals

➤ Course Goals

- Implementing OOPs features in Java
- Developing Java Desktop Applications

➤ Course Non Goals

- Developing GUI applications





Pre-requisites

- Basic Programming Concepts
- OOP

Intended Audience



Developers new to Java technology





Day Wise Schedule

Day 1:

- Lesson 1: Declarations and Access Control
- Lesson 2: Object Orientation

Day 2:

- Lesson 3: Assignments
- Lesson 4: Operators

Day 3 :

- Lesson 5: Flow Control, Exceptions
- Lesson 6: Strings



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Lesson 1: Declarations And Access Control

- Identifiers & JavaBeans
- Legal Identifiers
- Sun's Java Code Conventions
- JavaBeans Standards
- Declare Classes
- Source File Declaration Rules
- Class Declarations and Modifiers
- Concrete Subclass
- Declaring an Interface
- Declaring Interface Constants
- Declare Class Members
- Access Modifiers
- Non-access Member Modifiers
- Constructor Declarations
- Variable Declarations



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Lesson 2: Object Orientation

- Encapsulation
- Inheritance, Is-A, Has-A
- Polymorphism
- Overridden Methods
- Overloaded Methods
- Reference Variable Casting
- Implementing an Interface
- Legal Return Types
- Return Type Declarations
- Returning a Value
- Constructors and Instantiation
- Default Constructor
- Overloaded Constructors
- Statics
- Static Variables and Methods
- Coupling and Cohesion



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Lesson 3: Assignments

- Stack and Heap—Quick Review
- Literals, Assignments, and Variables
- Assignment Operators
- Casting Primitives
- Using a Variable or Array Element That Is Uninitialized and Unassigned
- Local (Stack, Automatic) Primitives and Objects
- Passing Variables into Methods
- Passing Object Reference Variables
- Does Java Use Pass-By-Value Semantics?
- Passing Primitive Variables
- Array Declaration, Construction, and Initialization
- Initializing Blocks
- Using Wrapper Classes and Boxing
- An Overview of the Wrapper Classes
- Creating Wrapper Objects
- Using Wrapper Conversion Utilities
- AutoBoxing
- Overloading
- Garbage Collection and memory Management
- Writing Code That Explicitly Makes Objects Eligible for Garbage Collection



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Lesson 4: Operators

- Java Operators
- Assignment Operators
- Relational Operators
- instanceof Comparison
- Arithmetic Operators
- Conditional Operator
- Logical Operators

Lesson 5 : Flow Control ,Exceptions

- if and switch Statements
- if-else Branching
- switch Statements
- Loops and Iterators
- Using while Loops
- Using do Loops
- Using for Loops
- Using break and continue
- Unlabeled Statements
- Labeled Statements
- Handling Exceptions
- Catching an Exception Using try and catch
- Using finally
- Propagating Uncaught Exceptions



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Lesson 5: Continues...

- Defining Exceptions
- Exception Hierarchy
- Handling an Entire Class Hierarchy of Exceptions
- Exception Matching
- Exception Declaration and the Public Interface
- Rethrowing the Same Exception
- Common Exceptions and Errors

Lesson 6 : Strings

- String, StringBuilder, and StringBuffer
- The String Class
- Important Facts About Strings and Memory
- Important Methods in the String Class
- The StringBuffer and StringBuilder Classes
- Important Methods in the StringBuffer and StringBuilder Classes



References

Books:

- Java, The Complete Reference; by Herbert Schildt
- Thinking in Java; by Bruce Eckel
- Beginning Java 8 Fundamentals by Kishori Sharan



Websites:

- Java home page: <http://java.sun.com/>
- JDK 1.8 documentation: <http://docs.oracle.com/javase/8/docs/>
- Multithreading :
<https://docs.oracle.com/javase/tutorial/essential/concurrency/index.html>