



Lesson Objectives

- Course Goals
 - Implementing OOPs features in Java
 - Developing Java Desktop Applications
 - Use of Core JDK 1.8 API
 - Testing using Junit 4
- Course Non Goals
 - Developing GUI applications



Pre-requisites



- Basic Programming Concepts
- OOPs

Intended Audience

- Developers new to Java technology



Day Wise Schedule



▪ **Day 1**

- Lesson 1: Introduction to Java
- Lesson 2: Eclipse 4.4 (Luna) as an IDE
- Lesson 3: Language Fundamentals
- Lesson 4: Classes and Objects
- Lesson 5: Exploring Basic Java Class Libraries

▪ **Day 2**

- Lesson 6: Inheritance and Polymorphism
- Lesson 7: Abstract Classes and Interfaces

Day Wise Schedule



▪ **Day 3**

- Lesson 8: Regular Expressions
- Lesson 9 : Exception Handling
- Lesson 10: Array

▪ **Day 4**

- Lesson 11: Collection
- Lesson 12: File IO

▪ **Day 5**

- Lesson 13: Introduction to JUnit 4 /Test NG
- Lesion 14: Advanced Testing Concepts

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- Lesson 1: Introduction to Java
 - 1.1: Introduction to Java
 - 1.2: Features of Java
 - 1.3: Simple Program in Java
 - 1.4: Developing software in Java
- Lesson 2: Eclipse 4.4 (Luna) as an IDE
 - 2.1: Installation and Setting up Eclipse
 - 2.2: Introduction to Eclipse IDE
 - 2.3: Creating and Managing Java Projects
 - 2.4: Miscellaneous Options

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- Lesson 3: Language Fundamentals
 - 3.1 Keywords
 - 3.2: Primitive Data Types
 - 3.3: Operators and Assignments
 - 3.4: Variables and Literals
 - 3.5: Flow Control: Java's Control Statements
 - 3.6: Best Practices
- Lesson 4: Classes and Objects
 - 4.1: Classes and Objects
 - 4.2: Packages
 - 4.3: Access Specifies
 - 4.4: Constructors - Default and Parameterized
 - 4.5: this reference
 - 4.6 using static keyword
 - 4.7: Best Practices

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- Lesson 5: Exploring Basic Java Class Libraries
 - 5.1: The Object Class
 - 5.2: Wrapper Classes
 - 5.3: Type casting
 - 5.4: Using Scanner Class
 - 5.5: String Handling
 - 5.6: Date and Time API
 - 5.7: Best Practices
- Lesson 6: Inheritance and Polymorphism
 - 6.1: Inheritance
 - 6.2: Using super keyword
 - 6.3: Instance Of Operator
 - 6.4: Method & Constructor overloading
 - 6.5: Method overriding
 - 6.6: @override annotation
 - 6.7: Using final keyword
 - 6.8 Best Practices

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- Lesson 7: Abstract Classes and Interfaces
 - 7.1: Abstract class
 - 7.2: Interfaces
 - 7.3: default methods
 - 7.4: static methods on Interface
 - 7.5 : Runtime Polymorphism
- Lesson 8: Regular Expressions
 - 8.1: Regular Expressions
 - 8.2: Validating data
 - 8.3: Best Practices

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- Lesson 9: Exception Handling
 - 9.1: Introduction
 - 9.2: Exception Types
 - 9.3: Exception Hierarchy
 - 9.4: Try-catch-finally
 - 9.5: Try-with-resources
 - 9.6: Multi catch blocks
 - 9.7: Throwing exceptions using throw
 - 9.8: Declaring exceptions using throws
 - 9.9: User defined Exceptions
 - 9.10: Best Practices

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- Lesson 10: Array
 - 10.1: One dimensional array
 - 10.2: Multidimensional array
 - 10.3: Using varargs
 - 10.4: Using Arrays class
- Lesson 11: Collection
 - 11.1: Collections Framework
 - 11.2: Collection Interfaces
 - 11.3: Implementing Classes
 - 11.4 Iterating Collections
 - 11.5: Best Practices

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- Lesson 12: File IO
 - 12.1: Overview of I/O Streams
 - 12.2: Types of Streams
 - 12.3: The Byte-stream I/O hierarchy
 - 12.4: Character Stream Hierarchy
 - 12.5: Buffered Stream
 - 12.6: The File class
 - 12.7: The Path Interface
 - 12.8: Object Stream
 - 12.9: Best Practices

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- Lesson 13: Introduction to JUnit 4
 - 13.1: Introduction
 - 13.2: JUnit
 - 13.3: Installing and Running JUnit
 - 13.4: Testing with JUnit
 - 13.5: Testing Exceptions
 - 13.6: Test Fixtures
 - 13.7: Best Practices
- Lesson 14: Advanced Testing Concepts
 - 14.1: Advanced Testing concepts
 - 14.2: Test Suites
 - 14.3: Parameterized Tests
 - 14.4: Mocking Concepts

Additional Reading



- 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/>

