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## Basic Java 8 and OO Programming for Developers New to OO (TT2120-J8)

### Overview

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This course provides hands-on Java 8 training for developers who have little or no prior working knowledge of object-oriented programming languages such as C, COBOL, and 4GL. You will gain the best practices for writing great object-oriented programs, using sound development techniques, new improved features for better performance, and new capabilities for addressing rapid application development. Special emphasis is placed on object oriented concepts and best practices. In addition, you will explore new features in Java 9 and Java 10, including the Java Modular System and Local Variable Type Inference. You will leave this course able to participate in projects that are still on Java 8, while also ready to move onto projects using Java 10

### Prerequisite Comments

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Continued Java & JEE training: Intermediate to Advanced Java, JEE Essentials, Java for Web, Spring / Spring Boot, Microservices / Web Services / REST, RXJava, Tuning, Patterns & More

TDD / Test Driven Development, JUnit / Unit Testing, Agile development training

Secure Java Coding / Java Security and secure application development training

Mobile developer / Android training

Please contact us for recommended next steps tailored to your longer-term education, project, role or development objectives.

### Target Audience

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This is a basic-level programming course designed for attendees with prior development experience in another language, such as COBOL, 4GL, Mainframe or other non-object oriented languages. This course is not geared for non-developers.

### Course Objectives

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This "skills-centric" course is about 50% hands-on lab and 50% lecture, designed to train attendees in core OO coding and Java development skills, coupling the most current, effective techniques with the soundest industry practices. Our engaging instructors and mentors are highly experienced practitioners who bring years of current "on-the-job" experience into every classroom.

Working in a hands-on learning environment, guided by our expert team, attendees will learn to:

Understand what OO programming is and what the advantages of OO are in today's world

Work with objects, classes, and OO implementations

Understand the basic concepts of OO such as encapsulation, inheritance, polymorphism, and abstraction

Understand not only the fundamentals of the Java language, but also its importance, uses, strengths and weaknesses

Understand the basics of the Java language and how it relates to OO programming and the Object Model

Learn to use Java exception handling

Understand and use classes, inheritance and polymorphism

Understand and use collections, generics, autoboxing, and enumerations

Become familiar with the concept of functional programming using Lambda Expressions

Process large amounts of data using the Stream API introduced in Java 8

Discover the new Date/Time API

Use the JDBC API for database access

Work with annotations

Take advantage of the Java tooling that is available with the programming environment being used in the class

Java 8 Features: Lambda Expressions, Method and Constructor references, The Streams API, Collectors, The Optional class

## Course Outline

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### 1 - Java: A First Look

The Java Platform  
Using the JDK  
The Eclipse Paradigm  
Writing a Simple Class

### 2 - OO Concepts

Object-Oriented Programming  
Inheritance, Abstraction, and Polymorphism

### 3 - Getting Started with Java

Adding Methods to the Class  
Language Statements  
Using Strings  
Specializing in a Subclass

### 4 - Essential Java Programming

Fields and Variables  
Using Arrays  
Java Packages and Visibility

### 5 - Advanced Java Programming

Inheritance and Polymorphism  
Interfaces and Abstract Classes  
Exceptions

### 6 - Java Developer's Toolbox

Utility Classes  
Enumerations and Static Imports  
The new Date/Time API  
Formatting Strings

### 7 - Collections and Generics

Introduction to Generics  
Collections

## 8 - Lambda Expressions; Collections and Streams

Introduction to Lambda Expressions  
Java 8 Collection Updates  
Streams  
Collectors

## 9 - Java Application Development

Introduction to Annotations  
Java Data Access JDBC API

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