Advanced Java (5 Days)

# Objective

The course discusses advanced Java programming techniques for creating more scalable and robust java applications. It also helps participants understand the internal details of popular Java frameworks increasing their productivity.

# Duration

5days

# Prerequsite

* Understanding of core java

# Course Outline

# Day 1

## Generics, Collection and Enumerators

* Understanding Generics
* Generic Collections
* Creating Generic Collections
* Understanding Enumerators
* Case Study

## Introduction to Maven

* What is Maven
* Why Maven Makes sense
* Maven based project
* Best Practices

## Unit Testing and TDD

* Introduction to Unit Testing
* Getting to Unit Test
* Assertions
* TDD approach

# Day 2

## Introduction to Java 8 Features

* Interface Changes
* Default Interface Methods
* Static Interface Methods
* Functional Interface Lambda Expression
* Method Reference
  + Static method
  + Instance methods
  + Constructors

# Day 2+3

## Java 8 Streams

* Enumerators vs streams
* Collection improvement
* forEach, forEachRemaining, removeIf
* Stream Generators
* SplitIterators
* Pipeline
* Terminators

## Java IO Improvement

* Files.list()
* Files.ines()
* Files.find()
* BufferedReader.lines()

# Day 4

## Multithreading and Concurrency

* Overview of Multi-threading
* Thread and Runnable
* Creating and Controlling a Thread
* Thread.sleep()
* Join()
* Critical and Worker Threads
* Syncrhonization

# Day 5

## Java Concurrency API

* ThreadPool
* Executors
* Callable
* ThreadLocks
* Concurrent Collection
* Signals

## Reflection and Annotation Driven Programming

* Understanding Java Reflection
* Why Reflection is important
* Using Class, Method, Field
* Property get/set
* Method Invoke
* Annotation Processing
* Case study

# System Requirement

* Java 8 SE
* Eclipse