



## **Java Programming – 40 Hours**

### **Course Overview**

A full and comprehensive course about the Java programming language and environment. The course is intended for beginning developers and not seasoned developers. The course explains the basic workings of the JVM, how to write code in Java, how to structure your code and how to use the basic libraries. It also teaches the basics of multi-threading in Java.

### **Prerequisites**

- Tech affinity.
- Any experience in any other programming language is an advantage.

### **Target Audience**

This course is intended for developers who wish to study the basics of the Java programming language.

### **Topics**

#### **Introduction to Java**

- Java technology
- Java application structure
- Identifiers, keywords and types

#### **Your very first program**

- Using development environments
- Eclipse

- IntelliJ
- Using the command line
- Compiling
- Running
- Debugging

## **Types**

- Built in types
- Integers
- Floats and Doubles
- Strings
- References
- primitives vs objects

## **Flow control**

- Methods
- Conditionals
- Loops
- Expressions

## **Recursion**

- Uses of
- Limitations

## **Principles of Object Oriented programming**

- Inheritance
- Interfaces
- Abstract classes
- Referencs
- The problems of inheritance

## **Collections**

- Arrays
- Types of arrays
- Linked Lists
- Two way linked lists

- Arrays
- Their performance
- Stacks
- Queues
- HashMaps
- Performance of various data structures
- Sorting and searching algorithms

### **Input and output**

- The File class
- The Stream abstraction
- Basic file manipulation
- Dealing with directories
- Stream decorators

### **JDBC**

- Introduction
- Basics

### **Handling errors**

- Exceptions
- The problems with exceptions
- Assertions

More advanced topics:

- JFC
- Latest syntax enhancements
- Generics
- Regular expressions

### **The java memory model**

- The garbage collector
- How to help the garbage collector

### **Introduction to Java concurrency**

- Java threads
- Types of threads

- Mutexes
- Thread local storage
- Daemons
- Passing messages between threads