MNS

Training Centre

Java Fundamentals & Introduction to AI Coding Assistants

Hands-On Java Training for Developers

Date: **18-22 August 2025** | Course Fee: **MUR 28,000**

MQA
Approved
90% HRDC
Refund

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bsi ISO/IEC 27001 Information Security Management CERTIFIED

Course Overview

Learning Java can feel overwhelming for beginners, with scattered resources and steep concepts. This course, built on real-world experience, focuses on the core Java and OOP fundamentals that matter most taught through visual, hands-on learning. You'll apply key concepts in real-world scenarios and explore how to boost coding efficiency using AI tools and IntelliJ best practices. The skills you gain are transferable across languages and tech stacks. As a bonus, you'll also learn how to optimize your learning process to stay adaptable in the ever-evolving tech industry.

Course Objectives

- Gain a solid understanding of Java's core principles and foundational concepts
- Apply essential Java skills to solve real-world programming challenges
- Leverage AI tools to boost productivity and streamline the development process
- Improve coding speed and quality using Java IDE features like shortcuts, live templates, and best practices
- Explore techniques to enhance software performance using effective design patterns, data structures, algorithms, and hardware-aware decisions
- Build lifelong learning strategies to stay current and competitive in the dynamic tech landscape

Target Audience

Designed for graduates and developers to start Java and master its core concepts.

Certification

Participants will receive a certificate upon completing the Java course.

Course Content

Module 1

Day 1 | Session 1 | 09:00 – 12:00

Java Installation

- Procedures for installing OpenJDK on Windows, MacOS and Linux (Ubuntu)
- Technique for managing multiple versions of Java on a single machine

JVM Introduction

- Understanding terminologies such as JVM, JDK, and JRE
- Use of fundamental JDK tools such as javac, java, jar and javadoc
- Comprehension of the compilation, packaging, and execution processes of Java programs
- Basic exploration of hardware components' roles during a Java program execution (e.g. RAM – heap and stack memory, CPU, and hard disk)

Integrated Development Environment (IDE)

- Installation and configuration of IntelliJ IDEA (Community Edition)
- Learn how to use the IntelliJ Java Debugger tool
- Boost productivity with IntelliJ shortcuts

Primitive Data Types

- Learn about all the eight primitive data types (byte, short, char, int, long, float, double and boolean)
- Implicit and explicit type casting of primitive data types

Module 2

Day 1 | Session 2 | 13:00 – 16:00

Java String

- Learn about Java core String API
- Learn about the Java String Pool and String immutability

Operators

- Understanding various types of Java operators (unary, binary, ternary, equality, relational, logical, and conditional)

Control Statements

- Learn about the control flow keywords such as if, else if, else, switch, while, do-while, for, for-each, break and continue

Module 3

Day 2 | Session 3 | 09:00 – 12:00

Classes and Objects

- Learn the difference between a class and an object
- Learn the difference between primitive and object data types
- Static and instance variables
- Constructors
- Static and instance block
- Visualize how objects and variables are stored in the stack and heap memory

Methods

- Static and Instance methods
- Variable scope
- Local variables, parameters, and arguments
- Visualize how the stack and heap memory are important during a method execution

Module 4

Day 2 | Session 4 | 13:00 – 16:00

Java Garbage Collection

- A basic introduction on how Java performs automatic cleaning of unused objects
- Use JVisualVM to visualize the effect of the garbage collector on the RAM memory usage

Comments and Javadoc

- Single line, multiline and Javadoc comments
- Use of the JDK javadoc tool to generate documentation

Packages and Access Modifiers

- Organization of Java classes in packages
- Understanding of access modifiers: public, protected, default, and private

Module 5

Day 3 | Session 5 | 09:00 – 12:00

Inheritance and Polymorphism

- Concepts about inheritance and polymorphism
- Method overloading, method overriding, method hiding and variable hiding
- Object typecasting

Module 6

Day 3 | Session 6 | 13:00 – 16:00

Abstract Classes and Interfaces

- Learn all the Java rules about abstract classes and interfaces
- Execution order of static block, instance block and constructors of parent and child classes
- Visualize the use of abstract classes in the heap memory

Final keyword and Enum

- Understanding the application of the final keyword on classes, methods, and variables
- Understanding the use of Java Enum

Java Collection and Stream API

- Introduction to Java Arrays (1D and 2D)
- Basic introduction to data structures and algorithms
- List, Map and Set
- Introduction to Stream API
- Equals and Hashcode

Module 7

Day 4 | Session 7 | 09:00 – 12:00

Exceptions

- Learn about Runtime Exception, Checked Exception and Error Classes
- Handling exceptions using try, catch and finally keywords

File Handling

- Overview of character encoding and related terms (ASCI, ANSI, Unicode, UTF-8, UTF-16, and Codepoint)
- Understanding the importance of streaming and buffering
- Learn how to read and write data to files
- Learn how to use try-with-resource

Module 8

Day 4 | Session 8 | 13:00 – 16:00

AI Productivity Tools

- Learn how to integrate GitHub Copilot and Amazon CodeWhisperer to accelerate code writing, debug effectively, and implement best practices
- Prompt engineering for Chat bots (ChatGPT, ClaudeAI or Gemini) to get accurate Java related solutions
- Build custom OpenAI agents to get better solutions when existing Chat bots cannot provide accurate or satisfactory answers

Module 9

Day 5 | Session 9 | 09:00 – 12:00

Live Demo (Dictionary App)

- Live demonstration of coding a dictionary command-line application
- Utilization of inheritance and polymorphism in real-life applications (an introduction to the Strategy and Factory design pattern)
- Selection of appropriate data structures (Java Collection API) and searching algorithms for optimal performance considering trade-offs such as increased RAM memory usage and slower loading time
- Performance analysis when reading from RAM memory and hard disk
- Organization of Java classes in packages based on functionality
- Utilization of IntelliJ shortcuts and live templates to boost productivity

Bonus

- Efficient note taking using Notion
- Expert tips to boost your learning speed as a Software developer
- Expert tips to quickly elevate your Java skills to an advanced level

Meet our trainer

KRISNASAMY (YOVEN)
AYASSAMY

- **Expert Java Architect** with proven ability to enhance performance, streamline operations, and deliver stable, high-performing applications
- **AI Innovator** who developed a custom solution for converting English instructions into Python/Groovy scripts tailored to specific project requirements. Also developed a chatbot for natural language search across a company's internal systems, documents, and websites
- **Led Java architecture** for high-performance systems including Electronic Tax Refund System(ETRS), Director of Public Prosecution (DPP), and Phytosanitary System(SPS) projects in Malawi and Mauritius
- **Passionate Java** educator delivering engaging training through real-world exercises, with experience teaching locally, internationally, and at universities

(**Closing Date:** 07 August 2025)

Register Now

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