



Introduction to Programming and Coding | Java Basics for Non-Developers

Kickstart Your Software Development Skills with this Gentle Introduction to Coding, Object Oriented Development and Java

www.triveratech.com

Course Snapshot

- **Course:** TPCODE101-J Introduction to Programming & Coding | Java Basics for Non-Developers
- **Duration:** 5 days
- **Audience & Skill-Level:** This is a very **basic-level** course geared for students new to programming. Students new to coding coming from an IT background, or who have some familiarity with scripting, programming or development should consider the TT2000 Java Programming for Non-Developers as an alternative.
- **Hands-on Learning:** This course is approximately **50% hands-on**, combining expert lecture, real-world demonstrations and group discussions with machine-based practical labs and exercises. Student machines are required.
- **Delivery Options:** This course is available for **onsite private classroom presentation, live online virtual presentation**, or can be presented in a **flexible blended learning format** for combined onsite and remote attendees. Please also ask about our **Self-Paced / Video / QuickSkills or Mini-Camp Flex Hours / Short Course** options.
- **Public Schedule:** This course has active dates on our live-online open enrollment **Public Schedule**.
- **Customizable:** This course agenda, topics and labs can be further adjusted to target your specific training skills objectives, tools and learning goals. Please inquire for details.

Programmers are in demand!

Companies are constantly challenged to keep their applications, development projects, products, services (and programmers!) up to speed with the latest industry tools, skills, technologies and practices to stay ahead in the ever-shifting markets that make up today's fiercely competitive business landscape. The need for application, web and mobile developers and coders is seemingly endless as technologies regularly change and grow to meet the modern needs of demanding industries and clients.

There are hundreds of roles that rely on coding knowledge and programming skills. Having programming skills can enable you to:

- Develop applications and contribute to application development projects and teams
- Integrate, change, expand or maintain outsourced development work being brought back in house
- Use or maintain software, tools, systems or networks that require coding skills to operate, handle data or complete other tasks
- Collaborate and communicate more effectively with developers
- More effectively manage development teams or projects that involve programming

To meet the need to bring this knowledge and skill in house, companies might

- Locate, engage and hire experienced developers
- Outsource development work to third party firms
- Onboard new hires or recent college graduates / cohorts with limited practical experience, then train them specifically to fill these roles
- Invest in and 're-skilling' current employees into more modern and productive roles within the firm, retaining and leveraging existing company knowledge and talent.

Learning to code, even to a basic level, is a truly worthwhile investment. Having coding skills, or even basic knowledge, can elevate your ability gain a new job in programming, help you gain longer term job security in your current organization, or can even expand your current role into other areas in your team or organization.

Overview

Introduction to Programming & Coding | Java Basics for Non-Developers is a skills-focused, hands-on coding course that teaches students the fundamentals of programming object oriented (OO) applications with Java to a very basic level. This course is presented in a way that enables interested students from any background to embrace the fundamentals of coding as well as an introduction to Java, in a gentle paced environment that focuses on coding basics, moving at the comfort level of the attendees.

Students are introduced to the application development cycle, structure of programs, and specific language syntax. The course introduces important algorithmic constructs, string and character manipulation, dynamic memory allocation, standard I/O, and fundamental object-oriented programming concepts. The course explains the use of inheritance and polymorphism early on so the students can practice extensively in the hands-on labs. Structured programming techniques and error handling are emphasized. The course includes the processing of command line arguments and environment variables, so students will be able to write flexible, user-friendly programs. Students will leave this course armed with the required skills to begin their journey as a programmer using modern coding skills and technologies.

Audience & Pre-Requisites

This course is intended for anyone who is new to software development and wants, or needs, to gain an understanding of the fundamentals of coding and basics of Java and object-oriented programming concepts. This course is for Non-Developers, or anyone who wants to have a basic understanding of and learn how to code Java applications and syntax

Attendees might include:

- Anyone who wants exposure to basic coding skills, or who wants to begin the process of becoming an OO application developer
- Technical team members from non-development roles, re-skilling to move into software and application development roles within an organization
- Recent college graduates looking to apply their college experience to programming skills in a professional environment, or perhaps needing to learn the best practices and standards for programming within their new organization
- Technical managers tasked with overseeing programming teams, or development projects, where basic coding knowledge and exposure will be useful in project oversight or communications needs

NOTE: Students new to coding, but coming from an IT background, or who have some familiarity with scripting, programming or development, should consider the TT2000 Java Programming for Non-Developers as an alternative. It moves at a slightly quicker pace.

Pre-Requisites

Before attending this course, students must have:

- Ability to use computers to start programs, open and save files, navigate application menus and interfaces
- Ability to understand logical concepts such as comparisons
- Understand number theory
- Ability to create, understand, and follow structured directions or step-by-step procedures
- Ability to understand and apply abstract concepts to concrete examples

Follow On Courses: Our Skills Academy Developer Tracks include a wide variety of follow-on courses and learning paths for leveraging Java for next-level development, testing, security and more. Please see our **Java & JEE Developer Training Suite & LearningPaths** list of courses, or inquire for recommendations based on your specific role and goals.

Enhanced Learning Services: Please also ask about our **Pre-Training Class OnRamp & Prep / Primer** offerings, **Skills Gap Assessment Services, Case Studies, Knowledge Check Quizzes, Skills Immersion Programs & Camps, Collaborative Mentoring Services and Extended Learning Support & Post Training** services.

Course Topics / Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We'll work with you to tune this course and level of coverage to target the skills you need most. Topics, agenda and labs are subject to change, and may adjust during live delivery based on audience skill-level, interests and participation.

Fundamentals of the Program Development Cycle

- Computer Architecture
- The Notion of Algorithms
- Source Code vs. Machine Code
- Compile-Time vs. Run-Time

- Software Program Architecture
- Standalone
- Client/Server
- Distributed
- Web-Enabled
- IDE (Interactive Development

Environment) Concepts

Application Development Fundamentals

- Structure of a Java Program
- Memory Concepts

- Fundamental Data Type Declarations
- Fundamental I/O Concepts
- Fundamental Operators
- Arithmetic Operators
- Logical Operators
- Precedence and Associativity
- Building and Deploying a Java Program

Introduction to Classes and Objects

- Classes, Objects and Methods
- Object Instances
- Declaring and Instantiating a Java Object
- Declaring Methods
- set and get Methods
- Initiating Objects with Constructors
- Primitive Types vs. Reference Types

Flow Control

- Conditional Constructs
- Looping Constructs
- Counter-Controlled Repetition
- Sentinel-Controlled Repetition
- Nested Control Constructs
- break and continue Statements
- Structured Programming Best Practices

Writing Methods (Functions)

- Static vs. Dynamic Allocation
- Declaring Methods
- Declaring Methods with Multiple Parameters
- Method-Call Stack
- Scope of Declarations
- Argument Promotion and Casting
- Designing Methods for Reusability
- Method Overloading

Arrays

- Purpose of Arrays
- Declaring and Instantiating Arrays
- Passing Arrays to Methods
- Multidimensional Arrays
- Variable-Length Argument Lists
- Using Command-Line Arguments
- Using Environment Variables

Deeper Into Classes and Objects

- Controlling Access to Class Members
- Referencing the Current Object Using this
- Overloading Constructors
- Default and No-Argument Constructors
- Composition of Classes
- Garbage Collection and Destructors
- The finalize Method
- Static Class Members

Defining Classes Using Inheritance

- Superclasses and Subclasses
- Advantages of Using Inheritance
- protected Class Members
- Constructors in Subclasses

Increasing Convenience by Using Polymorphism

- Purpose of Polymorphic Behavior
- The Concept of a Signature
- Abstract Classes and Methods
- final Methods and Classes
- Purpose of Interfaces
- Using and Creating Interfaces
- Common Interfaces of the Java API

Files and Streams

- Concept of a Stream
- Class File
- Sequential Access
- Object Serialization to/from Sequential Access Files
- Additional java.io Classes

Fundamental Searching and Sorting

- Introduction to Searching Algorithms
- Linear Search
- Binary Search
- Introduction to Sorting Algorithms
- Selection Sort
- Insertion Sort
- Merge Sort

Fundamental Data Structures

- Dynamic Memory Allocation
- Linked Lists
- Stacks
- Queues
- Trees

Exception Handling

- Types of Exceptions
- Exception Handling Overview
- Exception Class Hierarchy
- Extending Exception Classes
- When to Throw or Assert Exceptions

Formatted Output

- printf Syntax
- Conversion Characters
- Specifying Field Width and Precision
- Using Flags to Alter Appearance
- Printing Literals and Escape Sequences
- Formatting Output with Class Formatter

Strings, Characters and Regular Expressions

- Fundamentals of Characters and Strings
- String Class
- String Operations
- StringBuilder Class
- Character Class
- StringTokenizer Class
- Regular Expressions
- Regular Expression Syntax
- Pattern Class
- Matcher Class

Fundamental GUI Programming Concepts

- Overview of Swing Components
- Displaying Text and Graphics in a Window
- Event Handling with Nested Classes
- GUI Event Types and Listener Interfaces
- Mouse Event Handling
- Layout Managers

Student Materials: Each participant will receive a **Student Guide** with course notes, code samples, software tutorials, step-by-step written lab instructions, diagrams and related reference materials and resource links. Students will also receive the project files (or code, if applicable) and solutions required for the hands-on work.

Hands-On Setup Made Simple! Our dedicated tech team will work with you to ensure our 'easy-access' cloud-based course environment is accessible, fully-tested and verified as ready to go well in advance of the course start date, ensuring a smooth start to class and effective learning experience for all participants. Please inquire for details and options.

For More Information

All courses can be presented **onsite** or **online**, or in a **combined / flex / blended learning format**, tailored to target your specific audience, needs and learning goals. We also offer focused, flexible **short courses, self-paced learning options, recorded sessions** and more. We train beginner to advanced skills in all areas we cover, and offer **New Hire / Cohort Training, Boot Camps, Skills Immersion Programs, Reskilling Programs, Skills Migration & Transition Programs**, and more. We collaborate with you to ensure all courses are truly targeted to meet your specific needs and learning skills, maximizing your valuable training time, as well as your important budget.

Please also visit our extensive **Public Training Schedule** for training for smaller groups or individuals. Please contact us for course details, **Corporate Rates** and **Special Discount Offers**.

For more information about our dedicated training services, collaborative coaching services, courseware licensing and development services, public course schedule, training management services, partner programs, or to see our complete list of course offerings and special offers please visit us at www.triveratech.com, email Info@triveratech.com or call us toll free at **844-475-4559**. Our pricing and services are always satisfaction guaranteed.

TRIVERA TECHNOLOGIES • Collaborative IT Training, Coaching & Skills Development Solutions
www.triveratech.com • toll free +1-844-475-4559 • Info@triveratech.com • Twitter TriveraTech

ONSITE, ONLINE & BLENDED TRAINING SOLUTIONS • PUBLIC / OPEN ENROLLMENT COURSES • COURSEWARE LICENSING & DEVELOPMENT MENTORING • ASSESSMENTS • LEARNING PLAN DEVELOPMENT • SKILLS IMMERSION PROGRAMS / RESKILLING / NEW HIRE / BOOT CAMPS PARTNER & RESELLER PROGRAMS • CORPORATE TRAINING MANAGEMENT • VENDOR MANAGEMENT SERVICES

Trivera Technologies is a Woman-Owned Small-Business Firm

Explore Trivera's Ways to Learn...

