

# Java SE: Programming I (D102470)

ID D102470 Preis 2.390,- € (exkl. MwSt.) Dauer 5 Tage

## Kursüberblick

This entry-level course is aimed at programmers who are new to Java and who need to learn its concepts, language constructs, and data types. Included in the agenda are topics on exception handling, lambda expressions, and modular programming.

The course is designed for programmers who will apply these language skills to develop programs using the latest versions of the JDK, such as Java 10 and Java 11. Students practice the skills learned in each lesson through hands-on labs, using the latest major version of Java.

- Use a Predicate Lambda expression as the argument to a method
- Define and implement a simple class hierarchy that supports application requirements
- Write Java code that uses variables, arrays, conditional and loop constructs of achieve program objectives
- Identify modular programming principles
- Access and create static fields and methods
- Encapsulate a class using access modifiers and overloaded constructors
- Manipulate numeric, text, and string data using appropriate Java operators
- Set environment variables to allow the Java compiler and runtime executables to function properly

## Zielgruppe

- System Analysts
- Architect
- Java Developers
- Technical Consultant

## Voraussetzungen

Suggested Prerequisites

- Familiarity with general computer programming concepts and techniques
- Experience with another programming language

## Kursziele

- Create simple Java classes and use object references to access fields and methods in a class
- Demonstrate polymorphism by implementing a Java interface
- Handle a checked exception in a Java application

## Kursinhalt

- What is a Java Program
- Creating a Java Main class
- Data in the Cart
- Managing Multiple Items
- Describing Objects and Classes
- Manipulating and Formatting the Data in Your Program
- Creating and Using Methods
- Using Encapsulation
- More on Conditionals
- More on Arrays and Loops
- Using Inheritance
- Using Interfaces
- Handling Exceptions
- Deploying and Maintaining the Soccer Application
- Understanding Modules
- JShell

## Detaillierter Kursinhalt

### What is a Java Program

- Running and testing a Java program
- Java technology and development

- environment
- Key features of the Java language

### Creating a Java Main class

- Java classes
- Adding a Main method
- The Main method

### Data in the Cart

- Manipulating numeric data
- Working with numbers
- Introducing variables
- Working with strings

### Managing Multiple Items

- Working with a list of items
- Working with conditions
- Using IF statements
- Processing a list of items

### Describing Objects and Classes

- Working with object references
- Doing more with arrays
- Declaring, instantiating, and initializing objects
- Defining fields and methods
- Working with objects and classes

### Manipulating and Formatting the Data in Your Program

- Using the StringBuilder class
- More about primitive data types
- Using the Java API docs
- More numeric operators
- Using the String class
- Promoting and casting variables

### Creating and Using Methods

- How arguments are passed to a method
- Using methods
- Overloading a method
- Static methods and variables
- Method arguments and return values

### Using Encapsulation

- Access control
- Overloading constructors

- Encapsulation

### More on Conditionals

- More ways to use IF/ELSE constructs
- Using the Netbeans debugger
- Relational and conditional operators
- Using switch statements

### More on Arrays and Loops

- The ArrayList class
- Nesting loops
- Parsing the args array
- Alternate looping constructs
- Working with dates
- Two-dimensional arrays

### Using Inheritance

- Working with subclasses and superclasses
- Creating and extending abstract classes
- Overriding methods in the superclass
- Overview

### Using Interfaces

- Using the List interface
- Using interfaces
- Introducing Lambda expressions
- Polymorphism in the JDK foundation classes
- Local-variable type inference
- Polymorphism

### Handling Exceptions

- Propagation of exceptions
- Overview
- Handling multiple exceptions and errors
- Catching and throwing exceptions

### Deploying and Maintaining the Soccer Application

- Application modification and requirements
- Packages, JARs, architecture

### Understanding Modules

- Module declarations
- Modular JDK
- JARs
- The Module system

## **JShell**

- Testing code
- JShell basics
- JShell in an IDE