Java Developer (code: LC-JAVA-1)

Overview

Ask for details
Phone +44 203 608 6289
info@alx.academy

The course is intended for people who have **never programmed in any language**, but are willing to start and they have chosen **Java** as their first programming language. Java is one of the most popular (together with C) programming languages (according to Tiobe index). It powers most of the world business applications and it is used in most mobile phones (these with Android system or older). It's the base of applications in such companies as Google, Facebook, Twitter, Oracle. Java is the language combining object and imperative paradigm, so it can also be a starting point for learning other popular technologies, for example C# or C++.

That's the course designed especially for people who haven't been programming before. During the classes we spend a lot of time on well understanding some basic issues: the idea of variables, linking basic instructions, creating one's own functions. That's why people who have had a chance to program a little bit in any other language and want to learn Java as their next language should rather choose our different course: most probably Java 8 for programmers.

Duration

8oh

Agenda

1. **Introduction to programming**
   - How to communicate with a computer?
     - Machine code and source code
     - Programming languages, compilers, interpreters
     - Process, program, application
   - A look at the modern world of programming technologies
     - Types of applications: frontend vs backend, batch, graphical, web and mobile applications; adequate technologies
     - Overview of programming languages and paradigms
     - Java platform - why it was created, its place in today's IT world, characteristics and applications
     - Libraries and frameworks
2. **Configuration of the work environment**
   - Installation and configuration of the Java platform
     - Basics of working with the command line
     - Compiling and starting
     - Interactive jshell interpreter
   - Installation and configuration of the selected development environment (IDE)
     - Overview of Java-specific environments
     - Advantages of IDE and techniques that allow for efficient work
3. **First steps in Java**
   - Building a program in Java
   - Project structure: source and compiled files, directories, packages, classes
   - Code formatting and naming conventions
   - Simple methods of communicating with the user: standard input and output, dialog boxes
4. **Basic programming techniques**
   - Variables and types

- Basic data types: integers and fractions, strings, logical type
- Arithmetic and logical expressions
- Java control statements
  - Conditional statements: if, switch
  - Loops: while, for
  - Writing simple algorithms
- Tables
- Elements of the procedural programming style
  - Methods in Java
  - Creating parameterised functions and procedures
  - Isolating repetitive code fragments; basics of refactoring

5. **Object-oriented programming in Java**
   - Object-oriented programming style
     - What are objects, what are classes?
     - References to real-world concepts
   - Technical objects and classes
     - Components of classes, structure of objects
     - Memory structure of the Java virtual machine; stack and heap; references to objects
   - Inheritance and interfaces
     - Extending classes and overriding methods
     - Polymorphism, substitution principle
     - Interfaces and abstract classes
   - Encapsulation
     - Visibility modifiers
     - Techniques and benefits of encapsulation
   - Exceptions in Java
6. **Applications with graphical user interface**
   - GUI in object-oriented programming: graphical components as objects
   - Swing technology as one of the possibilities of creating GUI in Java
   - Event handling in a window application
   - Building the user interface in two ways: by writing appropriate code in Java and using a graphical editor
7. **The most important tool classes of the Java SE platform**
   - Strings
     - String class: possibilities and limitations
     - Building strings
     - Text processing, including the basics of regular expressions
   - Collections: lists, sets, dictionaries; Java Collections Framework
     - Use in algorithms and data processing schemes
     - The impact of the proper selection of data structures on application performance
   - Basics of functional programming techniques: lambdas and streams
   - Date and time support
   - File handling
     - Binary and text files, bytes and characters, character encodings
     - I/O streams and basic file handling in Java programs (with more emphasis on text files)
     - The Files class and operating on entire files
     - Popular formats for saving structured data and the basics of their handling in Java: CSV, XML, JSON
     - Access to remote Web API / Rest API services

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Target audience and prerequisites

We require the participants to have a general familiarity with computers (ability to copy files, use text editors) and the ability to type quickly. Programming is difficult, especially at the beginning. Programming might be compared with learning foreign language or playing musical instruments. Therefore, apart from attending the classes, it's important to have enough time to practice at home.

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Certificates

Course participants receive completion certificates signed by ALX.

Locations

— Warsaw (English) – Jasna 14/16A
— Online (English) – your home, office or wherever you want
— any other location (London, UK, EU) on request

Price

1290 EUR

The price includes:

— course materials,
— snacks, coffee, tea and soft drinks,
— course completion certificate,
— one-time consultation with the instructor after course completion.