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Course : Kotlin, implementation

Practical course - 3d - 21h00 - Ref. OTB
Price : 1940 CHF E.T.

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Kotlin is now the preferred language for Android application developers. Thanks to its near-perfect compatibility with Java, Kotlin can be used to create native Android mobile applications as well as Web applications. This course will introduce you to the Kotlin language.

Teaching objectives

At the end of the training, the participant will be able to:

- Master the basics of Kotlin
- Understanding Object-Oriented Programming with Kotlin
- Implementing functional programming
- Getting started with Android applications in Kotlin

Intended audience

Developers.

Prerequisites

Master an object-oriented programming language such as Java, C#, C++.

Course schedule

1 Implementation

- Use command-line tools.
- REPL, Kotlin runtime. Kotlin and Gradle.
- IntelliJ.

Hands-on work

Code with VI and compile from the command line. Create a project in IntelliJ.

PARTICIPANTS

Developers.

PREREQUISITES

Master an object-oriented programming language such as Java, C#, C++.

TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

2 Kotlin basics

- Val and Vars, type inference, basic types.
- Comments, packages, imports.
- String templates, ranges, loops.
- Exception handling.
- Class instantiation, referential and structural equality.
- This and visibilities. Control flows.
- Null, expression when, type hierarchy.

Hands-on work
Writing classic algorithms.

3 Object-oriented programming

- A reminder of OOP.
- Classes, access levels, nested classes, enums, static methods and companion objects.
- Properties. Interfaces.
- Inheritance. Visibility.
- Abstract classes, sealed classes.
- Redefinition, Polymorphism.
- Delegation, data classes, unstructured declaration.

Hands-on work
Create an application showcasing the language's object-oriented capabilities.

4 Null-safety, reflection, annotations

- Types nullable, smart-cast, safe null access.
- Operator elvis, safe casting, optional.
- Reflection. Annotations.

Hands-on work
Using annotations and runtime discovery.

5 Generics

- Generic functions. Generic types.

6 Functions and functional programming

- Functions and literal functions. Extension functions.
- Default and named parameters.
- Operator overloading. Recursion.
- Standard, generic and pure functions.
- Java in Kotlin, Kotlin in Java.
- First-order functions and closures. Anonymous functions and function references.
- Functional programming techniques. Custom DSL.

Hands-on work
Implementation of functional programming.

TEACHING AIDS AND TECHNICAL RESOURCES

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

7 The collections

- Class hierarchy. Arrays, Lists, Maps, Sets.
- Read-only.
- Index and sequences.

Hands-on work
Modification of previously used containers.

8 Kotlin and Android

- Android Studio and a Kotlin project.
- Basic framework classes.
- User interfaces. The component model.

Hands-on work
Create and emulate an Android application in Kotlin.