Develop in Java, for C/C++ programmers

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DPIC-26 **5 Days (35 Hours)**

Description

An intensive course that will allow you to acquire in-depth mastery of the Java 5 language in the application of the principles of Object programming. You will use graphics libraries (AWT and Swing), input/output and database access libraries (JDBC). You will also cover the basics of Web programming and Applet programming.

Who is this training for ?

For whom

Designer, developer, engineer, operational project manager.

Prerequisites

Aucune

Training objectives

- Implement the principles of object-oriented programming
- Master the syntax of the Java language
- Master the main Java standard libraries
- Master an integrated development environment for programming in Java

Training program

Les techniques Objet

- The general principles of Object modeling and programming.
- Abstraction and encapsulation: interfaces.
- The different forms of inheritance, polymorphism.
- Introduction to UML modeling: the static model, the dynamic model, the cooperation model, scenarios.
- Practical work The application of concepts to a case study which will be one of the guiding threads of the following exercises.

La programmation objet avec Java

- Syntax basics: variables, types, expressions, instructions, arrays, control structures and autoboxing.
- Defining and instantiating classes.
- Fields , methods, constructors, fields and static methods.
- Methods with variable number of arguments.
- Methodological aspects: class design.
- Compilation units and packages: control of class visibility, the import mechanism.
- The different forms of inheritance: extension and implementation.
- Interfaces and the implementation of interfaces.
- Pomorphism and its implementation.
- The construction of class hierarchies.
- The definition of derived classes, constructors, references.
- Code factorization: abstract classes.
- Simultaneous use of the implementation and the extension.
- Abstract classes.
- Generic types.
- Methodological aspects: grouping of constants, specification of services.
- Practical work Getting started with the development environment and programming a simple program.
- Programming the case study.
- Design and construction of a hierarchy of classes and of interfaces.
- Implementation of polymorphism and genericity.
- Introduction of exceptions.

La conception d'interfaces graphiques (AWT, Swing)

- Basic concepts: principles of visualization and event management, some generic classes.
- Visualization of graphic components.
- Containers and Layouts: BorderLayout, FlowLayout, GridLayout, GridBagLayout and CardLayout.
- Construction of hierarchical containers.
- Some graphic components: labels, buttons, menus, text boxes, check boxes, canvas.
- Event management.
- Listeners and Adapters.
- The association of handlers with graphical components.
- The particularities of Swing .
- Practical work Construction of small applications or a small graphical interface for a few objects in the case study.
- Construction of a small editor or support counts events in the case study GUI.

Introduction à la programmation Web : les applets

- The principles and constituents of the Web.
- Applets: principles, life cycle, the Applet class.
- Integration of an Applet in a page? HTML, passing parameters, security issues.
- Practical work Construction of an Applet.

Les entrées/sorties et quelques classes utilitaires

- I/O.
- The hierarchy of input/output classes.
- Some classes for handling file systems.
- Some input/output classes working on byte streams, on char streams.
- Keyboard input/output.
- Serialization.
- Type encapsulation classes.
- System classes.
- Container classes.
- Observer classes.

La connexion aux bases de données : JDBC

- The JDBC model and general principles.
- SQL reminders.
- Connection to a DBMS.
- Execution of queries and processing responses.
- The use of precompiled queries.
- Transactional concepts (A.
- C.
- I.
- D): atomicity, consistency, isolation, durability.
- Practical work Backup/consultation of data in a database.