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Course : JPA, data persistence in Java

Practical course - 3d - 21h00 - Ref. JPA
Price : 1650 € E.T.

Inspired by the Hibernate and Toplink frameworks, JPA has become the standard for managing the persistence of Java objects associated with a database. In this training course, you will implement the concept of object-relational mapping, guaranteeing greater portability for your Java EE applications.

Teaching objectives

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

- Mapping Java objects to relational tables
- Create, update and delete persistent objects
- Master the JPQL query language
- Manage transactions

Intended audience

Developers, software architects and project managers.

Prerequisites

Good knowledge of Java and the JDBC API.

Practical details

Hands-on work

Exercises are carried out using the JPA implementation of Hibernate, Eclipse, MySQL/MariaDB and Tomcat.

Course schedule

1 Java and JPA persistence techniques

- Different persistence mechanisms: Java APIs and frameworks.
- The Java Persistence API (JPA) solution.
- Integrating JPA into a Java EE application.

PARTICIPANTS

Developers, software architects and project managers.

PREREQUISITES

Good knowledge of Java and the JDBC API.

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 Developing a persistent class

- Code the persistent class.
- Object/relational mapping.
- Configure and start the JPA engine.
- Perform a JPQL query.
- Save a persistent object.

Hands-on work
Mapping a class. JPQL query execution.

3 Object/relational mapping with JPA

- Context and objectives of an ORM.
- Principle of persistent class development.
- Use annotations to configure Object/Relational mapping.
- Mapping classes and associations.
- Mapping strategy for inheritance.

Hands-on work
Choosing an identifier generator. Implementing one-to-one, one-to-many and inheritance relationships.

4 Handling persistent objects

- Different reading techniques.
- Loading strategies.
- Principle of lazy loading.
- CRUD (Create/Read/Update/Delete) operations.
- Lifecycle of persistent objects.
- Synchronization with the database.

Hands-on work
Create, update and delete persistent objects.

5 Advanced mapping

- Compound primary key, multitable mapping.
- Control INSERT and UPDATE queries.
- List, map and many-to-many associations.

Hands-on work
Mapping a secondary table. Implementing a many-to-many association.

6 The JPQL language

- Query requests.
- Operations on character strings and temporal data.
- Internal, external and patch joints.
- Principle of subqueries.
- Set queries.

Hands-on work
Perform an optimized JPQL query.

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 Competing transactions and access

- Reminder of transaction properties.
- Transaction management with JPA.
- Integration into Web and EJB applications.
- Pessimistic and optimistic locks.

Hands-on work

Implementation of transactional management.