

Java Persistence API



Training recipients

The training is intended for:

- Java developers who want to learn JPA from the ground up or expand their knowledge
- Architects and technical leads designing business applications
- Application maintainers working with Java applications integrated with relational databases who want to gain a deeper understanding of the ORM layer
- Students and graduates of computer science preparing to work on commercial projects
- Professionals seeking to enhance their skills and improve efficiency when working with business applications based on JPA



Benefits

After completing the training, the participant will be able to:

- understand the principles of ORM and JPA
- map Java entity classes to relational databases
- work confidently with entities and manage their lifecycle
- write JPQL queries and use the Criteria API
- apply inheritance mechanisms, relationships, and collections
- use entity lifecycle events and cascading operations
- optimize queries and deliberately apply lazy relationships



Training program

1. INTRODUCTION

- ORM definition
- persistence technologies in Java
- JPA history

- entity properties
- 2. ENTITY MANAGER
 - defining entities
 - entity manager
 - EM methods
 - transactions
- 3. OBJECT-RELATIONAL MAPPINGS
 - persistence annotations
 - access to entity state
 - mapping to tables
 - mapping data types
 - mapping to the primary key
 - primary key generation strategies
 - composite primary keys
- 4. RELATIONSHIP MAPPINGS
 - basic concepts and notations
 - unidirectional 1:1 relationship
 - bidirectional 1:1 relationship
 - unidirectional M:1 relationship
 - bidirectional 1:M / M:1 relationship
 - unidirectional 1:M relationship
 - bidirectional M:N relationship
 - lazy relationships
 - embedded objects
 - cascading operations
- 5. COLLECTION MAPPINGS
 - List collection mapping
 - collection ordering
 - Map collection mapping
- 6. OBJECT-ORIENTED CONCEPTS
 - inheritance
 - mapped superclasses
 - transient classes
 - inheritance strategies
 - single-table strategy
 - joined strategy
 - table-per-concrete-class strategy
- 7. JAKARTA PERSISTENCE QUERY LANGUAGE
 - SELECT query
 - FROM clause
 - INNER JOIN clause

- OUTER JOIN clause
- WHERE clause
- subqueries
- case expressions
- UPDATE statement
- DELETE statement

8. USING QUERIES

- defining queries
- dynamic queries
- named queries
- queries with parameters
- executing queries and retrieving results
- updating and deleting data

9. CRITERIA API

- what is Criteria API?
- defining queries
- creating queries
- basic clauses
- FROM clause
- SELECT clause
- JOIN clause
- WHERE clause
- ORDER BY, GROUP BY, HAVING clauses

10. CALLBACKS

- lifecycle events
- callback methods
- entity listener



Expected preparation of the participant

To fully benefit from the training, participants should have:

- knowledge of the Java language at least at a basic level – classes, interfaces, collections, exceptions
- a basic understanding of relational databases – concepts such as tables, primary and foreign keys, indexes, simple SQL queries
- experience working with Java SE and Java EE applications (servlets, JSP pages, EJB)
- the ability to use IntelliJ Ultimate IDE
- basic knowledge of Maven



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Language

Language: English