

JEE - Java Enterprise Edition

EJBs - Architectural Overview (continued)



EJB Architectural Overview

- Formerly 3 types of EJBs server-side components
 - *Session Beans*
 - *Message-driven Beans (MDB)*
 - ***Entity Beans (< EJB3.0)***
- Now own specification for persistence
- ***Java Persistence API (JPA)***

EJB Architectural Overview

Java Persistence API

- Way to **map *Pojos* to a database**
- The Pojos are then called ***Entity Beans***
- Entity Beans are mapped to a database using Java Persistence **metadata**
- **No** need for writing **JDBC connection code**
- Own **query language** defined
- Managed by a **persistence service**
- **Usable in regular applications**



EJB Architectural Overview

Java Persistence API

- Entity Beans **model real-world objects**
- To implement an Entity Bean you need:
 - *Bean Class*:
 - Plain Old Java Object
 - tagged with: **@*javax.persistence.Entity***
 - at least a **primary key field** tagged with **@*javax.persistence.Id***
 - a lot of other annotations for Entity Beans
 - *Primary Key*:
 - provide a **pointer into the database**
 - **class or primitive**



EJB Architectural Overview

Java Persistence API

- To implement an Entity Bean (continued):
 - *Bean Class (...)*
 - *Primary Key (...)*
 - *persistence.xml*:
 - **XML deployment descriptor**
 - name of ***EntityManager*** service
 - **used database**
 - vendor specific properties



EJB Architectural Overview

EntityManager

- central service for all **persistence actions**
- manages **O/R mapping** between a fixed set of entity classes and a data source
- provides API for:
 - creating queries
 - finding objects
 - synchronizing objects
 - inserting objects
- Entity Beans are either *managed (attached)* or *unmanaged (detached)*



EJB Architectural Overview

EntityManager

- **Persistence Context**
 - Set of **managed entity object instances**
 - Managed by the entity manager
 - When a persistence context is closed, all managed entities become detached
- **Persistence Unit**
 - The **set of classes** the EntityManager maps to a particular database
 - Defined in a ***persistence.xml*** file
 - Tied to **exactly one database**



EJB Architectural Overview

Course demonstration

NetBeans Demonstration

Be aware: No Step-by-Step!



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EJBs - Architectural Overview - Questions?

