



JPA

Authored by : Asfiya Khan Presented by : Asfiya Khan

Agenda

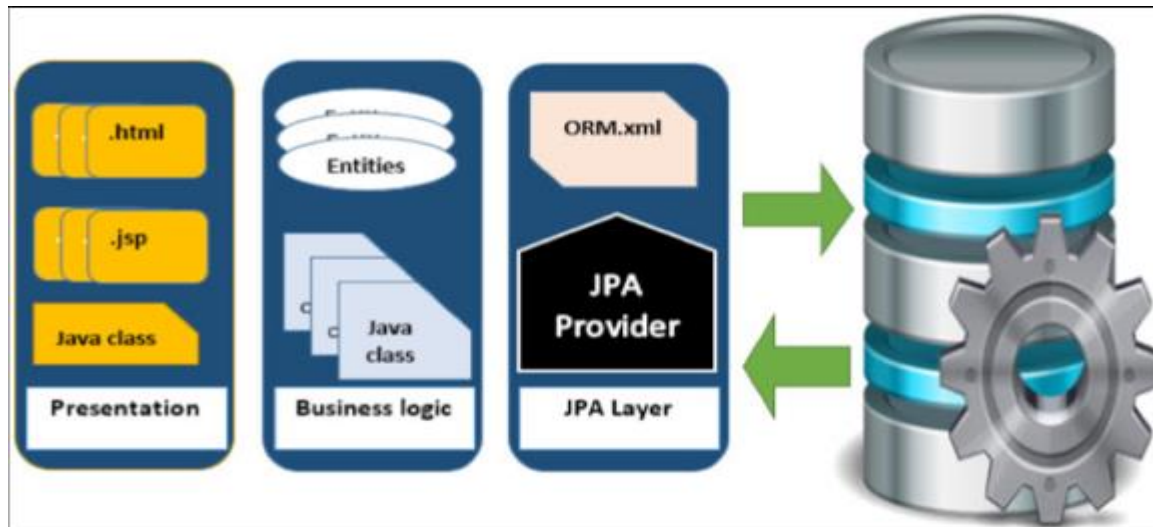
- What is JPA?
- ORM Architecture
- JPA Providers
- JPA Components
- JPA Architecture
- Example



What is JPA?

Java Persistence API is a collection of classes and methods to persistently store the vast amounts of data into a database which is provided by the Oracle Corporation.

To reduce the burden of writing codes for relational object management, a programmer follows the 'JPA Provider' framework, which allows easy interaction with database instance. Here the required framework is taken over by JPA.



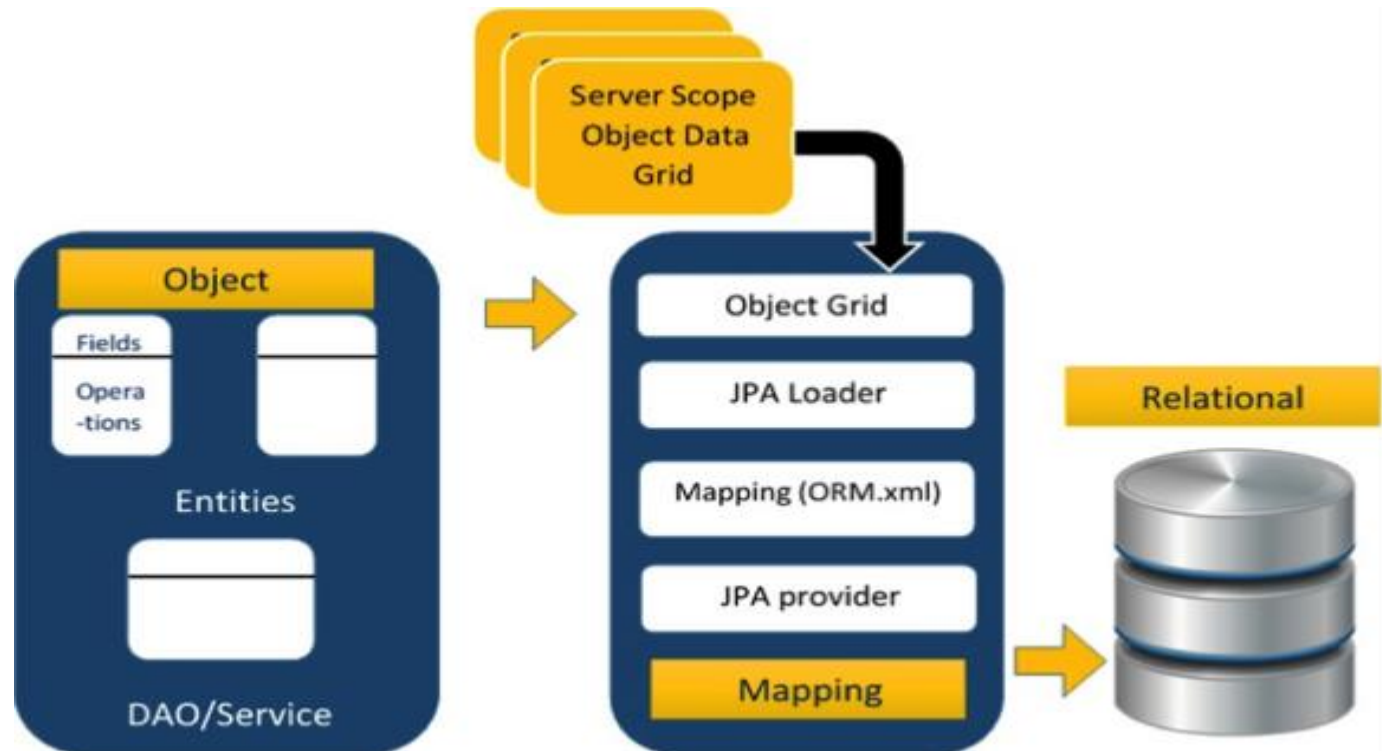
What is JPA?

Java Persistence consists of four areas:

- The Java Persistence API
- The query language
- The Java Persistence Criteria API
- Object/relational mapping metadata

ORM Architecture

The **Object data** phase contains POJO classes, service interfaces and classes. It is the main business component layer, which has business logic operations and attributes.



ORM Architecture

Mapping or persistence phase which contains JPA provider, mapping file (ORM.xml), JPA Loader, and Object Grid.

JPA Provider : The vendor product which contains JPA flavor (javax.persistence). For example EclipseLink, Toplink, Hibernate, etc.

Mapping file : The mapping file (ORM.xml) contains mapping configuration between the data in a POJO class and data in a relational database.

JPA Loader : The JPA loader works like cache memory, which can load the relational grid data. It works like a copy of database to interact with service classes for POJO data (Attributes of POJO class).

Object Grid : The Object grid is a temporary location which can store the copy of relational data, i.e. like a cache memory. All queries against the database is first effected on the data in the object grid. Only after it is committed, it effects the main database.

ORM Architecture

The last part is of relational data which is logically connected to the business component. As discussed, only when the business component commit the data, it is stored into the database physically. Until then the modified data is stored in a cache memory as a grid format. Same is the process for obtaining data.

The mechanism of the programmatic interaction of above three phases is called as object relational mapping.

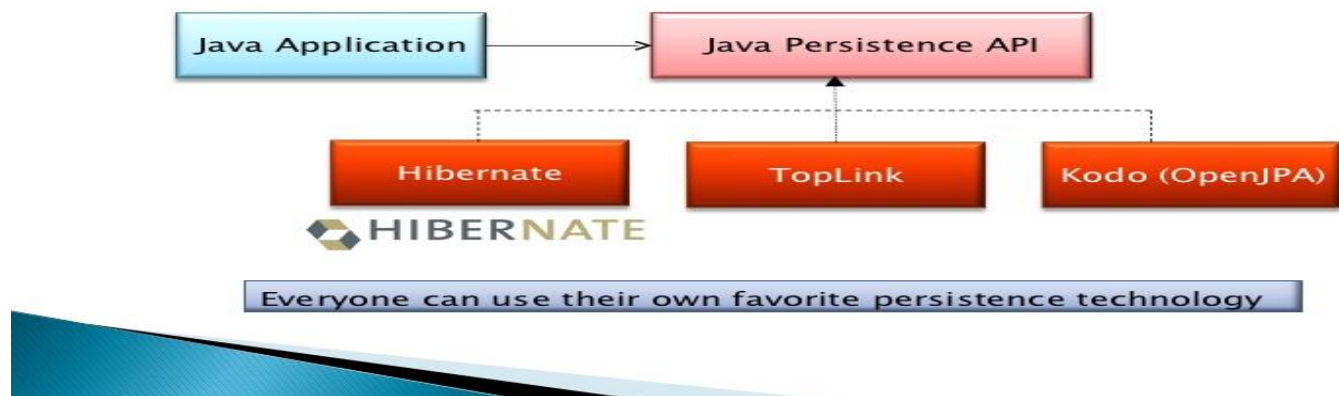
JPA Providers

JPA Providers

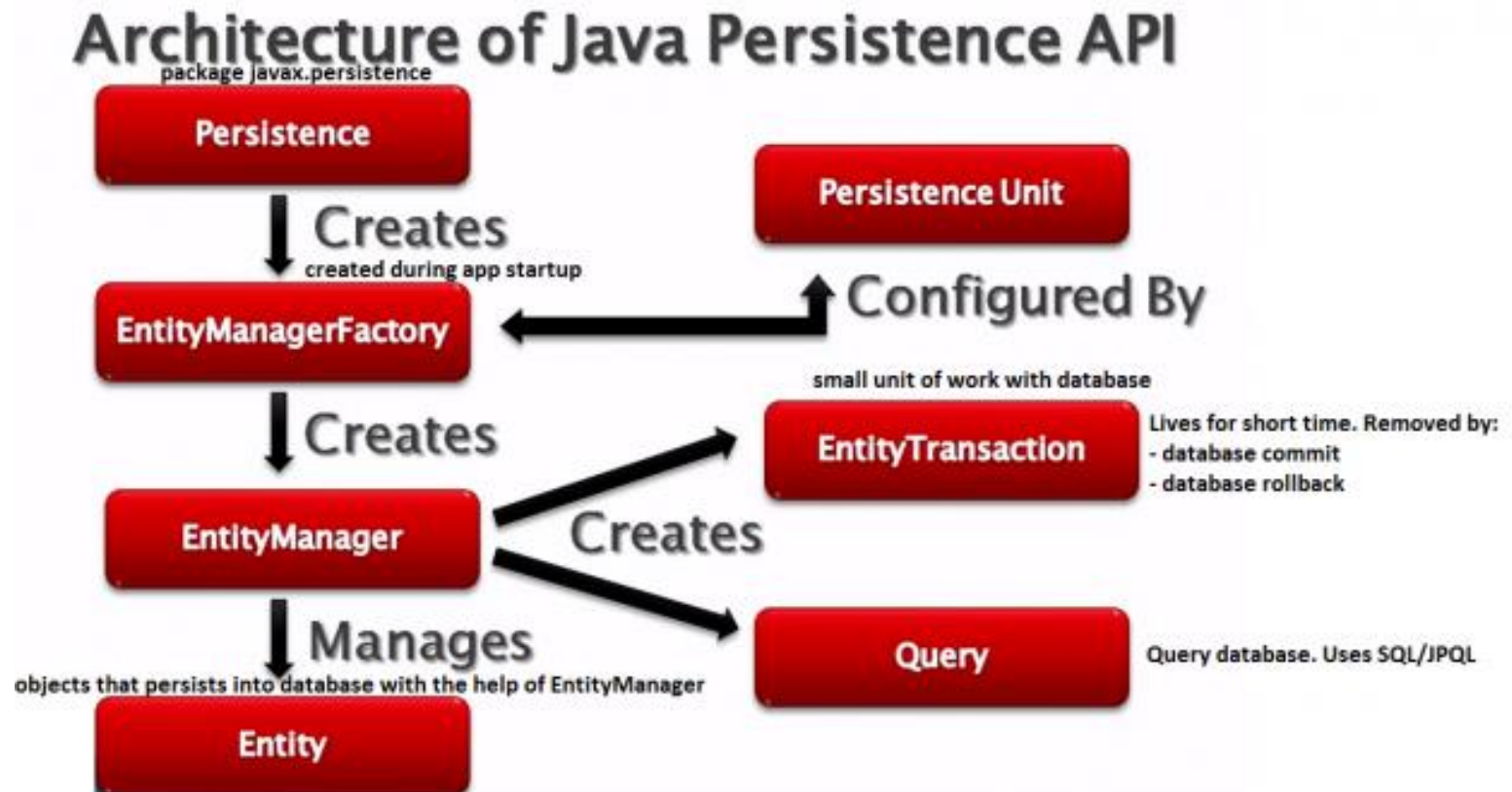
JPA is an open source API, therefore various enterprise vendors such as Oracle, Redhat, Eclipse, etc. provide new products by adding the JPA persistence flavor in them. Some of these products include:

Hibernate, Eclipselink, Toplink, Spring Data JPA, etc.

JPA Architecture



JPA Architecture



JPA Components

- **Entity Classes**
- **EntityManagerFactory**
- **EntityManager**
- **Persistence**
- **EntityTransaction**
- **Query**
- **Persistence Unit**

Example

Step 1: Model or POJO

Entity POJO(Employee.java)

Step 2: Persistence

Persistence.xml

Step 3: Services: (CRUD operations)

1. CreatingEmployee
2. UpdatingEmployee
3. FindingEmployee
4. DeletingEmployee

Any Questions?





Thank you!