

JakartaEE (JPA)

pom.xml

packaging and properties

```
<packaging>war</packaging>

<properties>
  <maven.compiler.source>11</maven.compiler.source>
  <maven.compiler.target>11</maven.compiler.target>
  <jakarta.version>8.0.0</jakarta.version>
  <junit-jupiter.version>5.5.2</junit-jupiter.version>
</properties>
```

dependencies

```
<dependencies>
  <dependency>
    <groupId>jakarta.platform</groupId>
    <artifactId>jakarta.jakartaee-api</artifactId>
    <version>${jakarta.version}</version>
    <scope>provided</scope>
  </dependency>
  <dependency>
    <groupId>org.junit.jupiter</groupId>
    <artifactId>junit-jupiter</artifactId>
    <version>${junit-jupiter.version}</version>
    <scope>test</scope>
  </dependency>
  <dependency>
    <groupId>org.assertj</groupId>
    <artifactId>assertj-core</artifactId>
    <version>3.14.0</version>
    <scope>test</scope>
  </dependency>
  <dependency>
    <groupId>javax.xml.bind</groupId>
    <artifactId>jaxb-api</artifactId>
    <version>2.3.1</version>
    <scope>provided</scope>
  </dependency>
</dependencies>
```

```

<dependency>
  <groupId>org.apache.derby</groupId>
  <artifactId>derbyclient</artifactId>
  <version>10.14.2.0</version>
</dependency>
<dependency>
  <groupId>org.eclipse.persistence</groupId>
  <artifactId>javax.persistence</artifactId>
  <version>2.2.1</version>
</dependency>
<dependency>
  <groupId>org.eclipse.persistence</groupId>
  <artifactId>org.eclipse.persistence.jpa</artifactId>
  <version>2.6.8</version>
</dependency>
</dependencies>

```

model.java

```

@Entity
@Table(name = "MY_MODEL")
@NamedQueries({
    @NamedQuery(name = "Person.findAll", query = "select p from Person p"),
    @NamedQuery(name = "Person.findByName", query = "select p from Person p where
p.name = :NAME")
})
public class Model {

    @Id
    @GeneratedValue(strategy = GenerationType.IDENTITY)
    private Long id;
    private String name;

    @ManyToOne
    private AnderesModel anderesModel;
}

```

assoziativTabelle.java

```

@ManyToOne
private Person person;
@ManyToOne
private Hobby hobby;

```

RestConfig.java

```
@ApplicationPath("api")
public class RestConfig extends Application {
}
```

InitBean.java

```
@ApplicationScoped
public class InitBean {

    @PersistenceContext
    EntityManager em;

    @Transactional
    private void init(@Observes @Initialized(ApplicationScoped.class) Object init) {

        em.persist(new Person("Susi", "Leonding"));

        em.persist(new PerformsHobby(
            em.find(Person.class, 1L),
            em.find(Hobby.class, 1L)
        ));
    }
}
```

Read CSV <https://stuetzpunkt.wordpress.com/2016/12/28/how-to-access-file-in-resources-folder-javaee/>

```

try {
    BufferedReader br = new BufferedReader(new InputStreamReader(getClass()
        .getResourceAsStream("/data.csv")));

    // erste Zeile überspringen falls es Header gibt
    br.readLine();

    String line;
    while ((line = br.readLine()) != null) {
        String[] row = line.split(";");
        // row[0] -> 1. Spalte aus CSV
        // row[1] -> 2. Spalte aus CSV
        // row[2] -> 3. Spalte aus CSV

        List<Weekday> weekdays = this.em
            .createNamedQuery("Weekday.getByDay", Weekday.class)
            .setParameter("DAY", row[0])
            .getResultList();

        Weekday currentDay;

        currentDay = new Weekday(row[0]);
        this.entityManager.persist(currentDay);

        this.entityManager.persist(new Meal(row[1], currentDay));
        this.entityManager.persist(new Meal(row[2], currentDay));
    }
} catch (IOException e) {
    e.printStackTrace();
}

```

DatabaseEndpoint.java

```

@Path("")
public class DatabaseEndpoint {

    @PersistenceContext
    EntityManager em;
}

```

GET

```

@GET
@Path("getAll")
@Produces(MediaType.APPLICATION_JSON)
public List<Person> getAll() {
    return em
        .createNamedQuery("Person.findAll", Person.class)
        .getResultList();
}

@GET
@Path("getById/{id}")
@Produces(MediaType.APPLICATION_JSON)
public Response getById(@PathParam("id") long id) {
    return Response.ok(em.find(Person.class, id)).build();
}

@GET
@Path("{id}")
@Produces(MediaType.APPLICATION_JSON)
public Vehicle getOpel(@PathParam("id") long id) {
    return em.find(Vehicle.class, id);
}

```

POST

```

@POST
@Path("postPerson")
@Produces(MediaType.TEXT_PLAIN)
@Consumes(MediaType.APPLICATION_JSON)
public Response getJsonObject(JsonObject json) {
    String text = json.getString("name");
    return Response.ok(text).build();
}

```

DELETE

```

@Transactional
@DELETE
@Path("delete/{id}")
@Produces(MediaType.APPLICATION_JSON)
public Response delete(@PathParam("id") long id) {
    Person person = em.find(Person.class, id);
    em.remove(person);
    return Response.ok(person).build();
}

```

PUT

```

@Transactional
@PUT
@Path("put/{id}")
@Produces(MediaType.APPLICATION_JSON)
public Response updateById(@PathParam("id") long id, @QueryParam("name") String
name) {
    Person person = em.find(Person.class, id);
    person.setName(name);
    em.persist(person);
    return Response.ok(person).build();
}

```

resources/META-INF/persistence.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<persistence xmlns="http://xmlns.jcp.org/xml/ns/persistence" version="2.1">
    <persistence-unit name="myPU" transaction-type="JTA">
        <jta-data-source>java:jboss/datasources/dbDS</jta-data-source>
        <properties>
            <!--
            <property name="hibernate.show_sql" value="true"/>
            <property name="hibernate.format_sql" value="true"/>
            <property name="hibernate.transaction.flush_before_completion"
value="true"/>
            <property name="hibernate.dialect"
value="org.hibernate.dialect.DerbyDialect"/>
            -->
            <property name="javax.persistence.schema-generation.database.action"
value="drop-and-create"/>
            <!--
            <property name="javax.persistence.schema-generation.scripts.action"
value="drop-and-create"/>
            <property name="javax.persistence.schema-generation.scripts.create-target"
value="sampleCreate.ddl"/>
            <property name="javax.persistence.schema-generation.scripts.drop-target"
value="sampleDrop.ddl"/>
            <property name="javax.persistence.sql-load-script-source"
value="insert.sql"/>
            -->
        </properties>
    </persistence-unit>
</persistence>

```

rest-requests/Person.http

```
### Send GET request for all persons
GET http://localhost:8080/person/api/person
Accept: application/json

###

GET http://localhost:8080/person/api/person/name?name=Susi
Accept: application/json

###

POST http://localhost:8080/person/api/person/jsondemo
Content-Type: application/json

{
  "name": "Sepp",
  "city": "New York"
}

###

DELETE http://localhost:8080/jpawithrest/api/person/delete/2
Content-Type: application/json

###

PUT http://localhost:8080/jpawithrest/api/person/put/1?name=Karl
Content-Type: application/json

###
```

JavaSE (assertJ)

pom.xml

packaging and properties

```
<packaging>jar</packaging>

<properties>
  <maven.compiler.source>11</maven.compiler.source>
  <maven.compiler.target>11</maven.compiler.target>
  <junit.jupiter.version>5.5.1</junit.jupiter.version>
</properties>
```

dependencies

```
<<dependencies>

    <dependency>
        <groupId>org.eclipse.persistence</groupId>
        <artifactId>javax.persistence</artifactId>
        <version>2.2.1</version>
    </dependency>
    <dependency>
        <groupId>org.eclipse.persistence</groupId>
        <artifactId>org.eclipse.persistence.jpa</artifactId>
        <version>2.6.8</version>
    </dependency>
    <dependency>
        <groupId>org.apache.derby</groupId>
        <artifactId>derbyclient</artifactId>
        <version>10.14.2.0</version>
    </dependency>
    <dependency>
        <groupId>org.junit.jupiter</groupId>
        <artifactId>junit-jupiter</artifactId>
        <version>${junit.jupiter.version}</version>
        <scope>test</scope>
    </dependency>
    <dependency>
        <groupId>org.assertj</groupId>
        <artifactId>assertj-core</artifactId>
        <version>3.14.0</version>
        <scope>test</scope>
    </dependency>

</dependencies>
```

Test.java

```
static EntityManager em;

@BeforeAll
private static void init() {
    em = Persistence
        .createEntityManagerFactory("myPU")
        .createEntityManager();
}
```



```

@Test
void test01DatabaseConnection() {
    Vehicle opel = new Vehicle("Opel", "Kadett");
    em.getTransaction().begin();
    em.persist(opel);
    opel.setType("Commodore");
    em.getTransaction().commit();
}

@Test
void test02readOneVehicle() {
    Vehicle opel = em.find(Vehicle.class, 1L);
    assertThat(opel.getBrand(), is("Opel"));
    assertThat(opel.getType(), is("Kadett"));
}

```

resources/META-INF/persistence.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<persistence xmlns="http://xmlns.jcp.org/xml/ns/persistence" version="2.1">
    <persistence-unit name="myPU" transaction-type="RESOURCE_LOCAL">
        <class>at.htl.jpasedemo.model.Vehicle</class>
        <exclude-unlisted-classes>true</exclude-unlisted-classes>
        <properties>
            <property name="eclipselink.logging.level" value="FINE"/>
            <property name="eclipselink.target-database" value="DERBY"/>
            <!--
            <property name="javax.persistence.jdbc.driver"
                value="org.apache.derby.jdbc.EmbeddedDriver"/>
            <property name="javax.persistence.jdbc.url"
                value="jdbc:derby:memory:myDb;create=true"/>
            <property name="javax.persistence.jdbc.user" value=""/>
            <property name="javax.persistence.jdbc.password" value=""/>
            -->
            <property name="javax.persistence.jdbc.driver"
                value="org.apache.derby.jdbc.ClientDriver"/>
            <property name="javax.persistence.jdbc.url"
                value="jdbc:derby://localhost:1527/db;create=true"/>
            <property name="javax.persistence.jdbc.user" value="app"/>
            <property name="javax.persistence.jdbc.password" value="app"/>
            <property name="javax.persistence.schema-generation.database.action"
                value="drop-and-create"/>
        </properties>
    </persistence-unit>
</persistence>

```