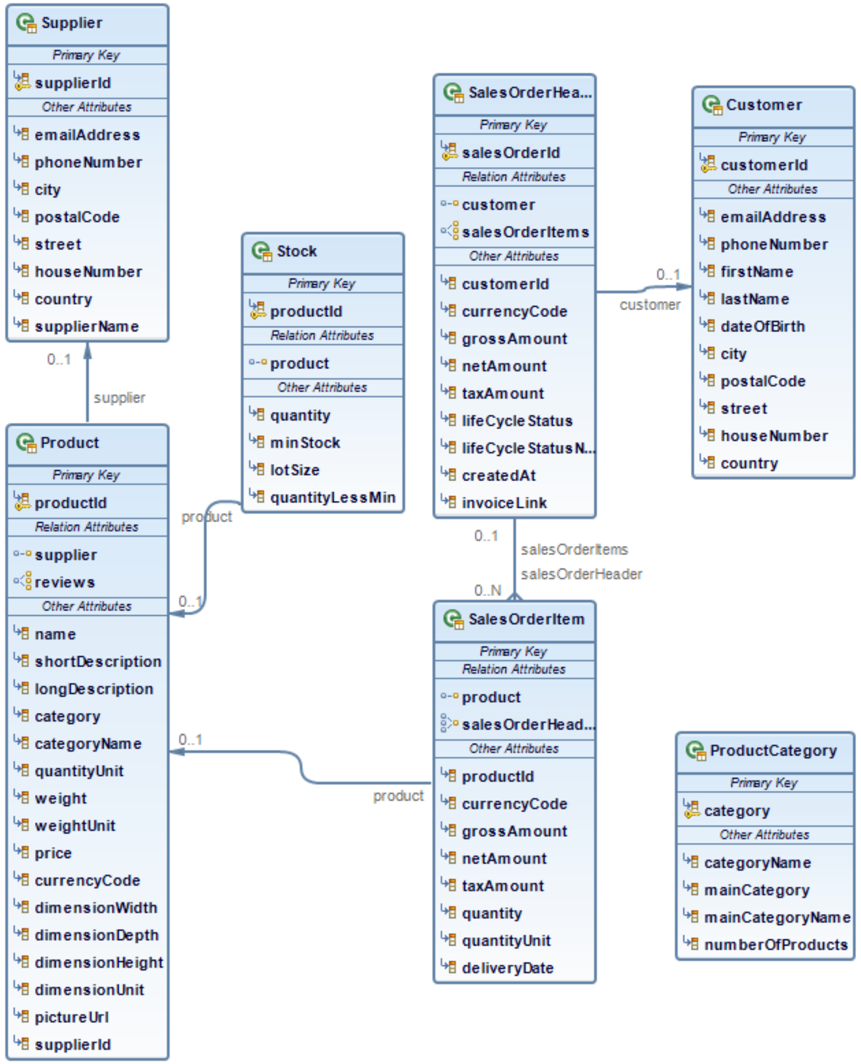
Week 2 Unit 2: **Developing the JPA Model – Practice**

Developing the JPA Model – Practice

Recap: The JPA model of the ESPM application



Supplier
Primary Key
- supplierId

Other Attributes
- emailAddress
- phoneNumber
- city
- postalCode
- street
- houseNumber
- country
- supplierName

Stock
Primary Key
- productId

Relation Attributes
- product

Other Attributes
- quantity
- minStock
- lotSize
- quantityLessMin

SalesOrderHea...
Primary Key
- salesOrderId

Relation Attributes
- customer
- salesOrderItems

Other Attributes
- customerId
- currencyCode
- grossAmount
- netAmount
- taxAmount
- lifeCycleStatus
- lifeCycleStatusN...
- createdAt
- invoiceLink

Customer
Primary Key
- customerId

Other Attributes
- emailAddress
- phoneNumber
- firstName
- lastName
- dateOfBirth
- city
- postalCode
- street
- houseNumber
- country

Product
Primary Key
- productId

Relation Attributes
- supplier
- reviews

Other Attributes
- name
- shortDescription
- longDescription
- category
- categoryName
- quantityUnit
- weight
- weightUnit
- price
- currencyCode
- dimensionWidth
- dimensionDepth
- dimensionHeight
- dimensionUnit
- pictureUrl
- supplierId

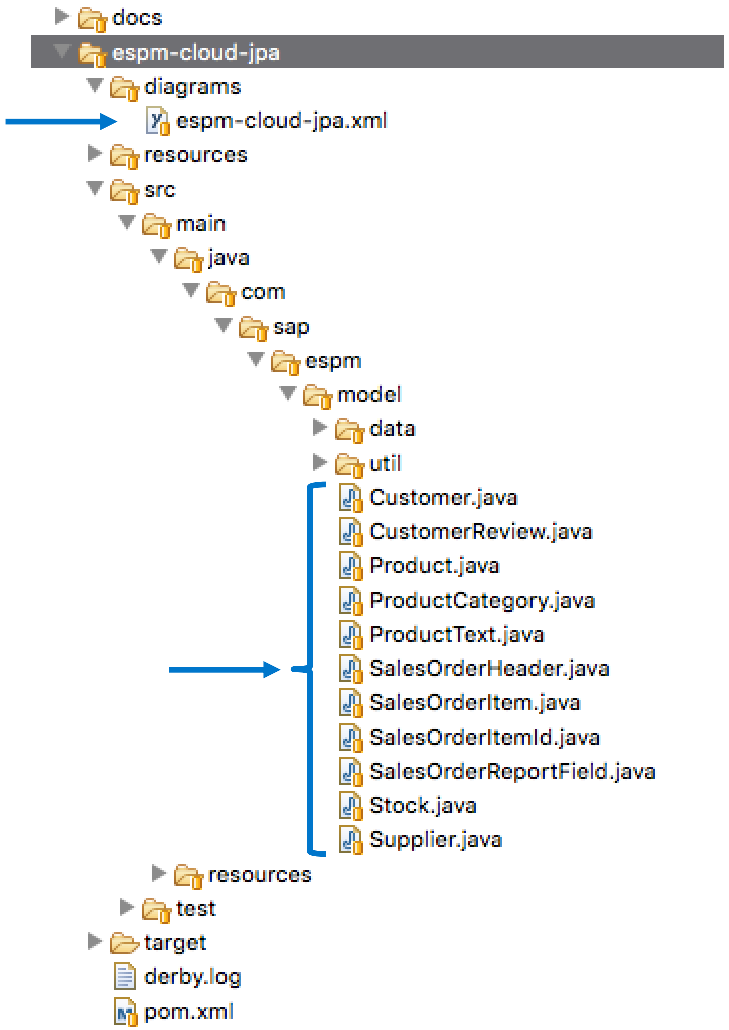
SalesOrderItem
Primary Key

Relation Attributes
- product
- salesOrderHead...

Other Attributes
- productId
- currencyCode
- grossAmount
- netAmount
- taxAmount
- quantity
- quantityUnit
- deliveryDate

ProductCategory
Primary Key
- category

Other Attributes
- categoryName
- mainCategory
- mainCategoryName
- numberOfProducts



```
▶ docs
▼ espm-cloud-jpa
  ▼ diagrams
      espm-cloud-jpa.xml
  ▶ resources
  ▼ src
    ▼ main
      ▼ java
        ▼ com
          ▼ sap
            ▼ espm
              ▼ model
                ▶ data
                ▶ util
                  Customer.java
                  CustomerReview.java
                  Product.java
                  ProductCategory.java
                  ProductText.java
                  SalesOrderHeader.java
                  SalesOrderItem.java
                  SalesOrderItemId.java
                  SalesOrderReportField.java
                  Stock.java
                  Supplier.java
      ▶ resources
    ▶ test
  ▶ target
    derby.log
    pom.xml
```

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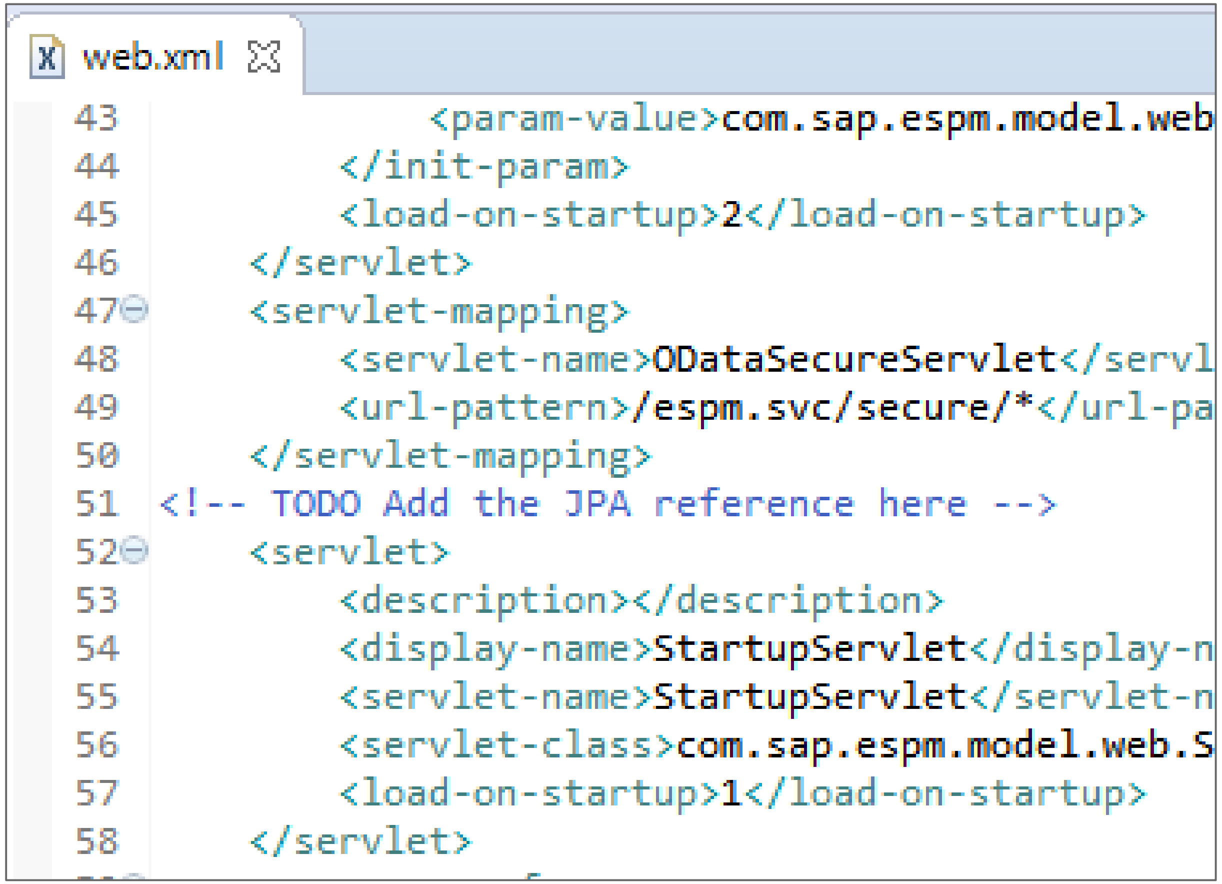
Hands-on (1)

Prepare the Web Application Project for JPA

- In Eclipse, navigate to the project espm-cloud-web
- Navigate to src/main/webapp/WEB-INF
- Open the web.xml file
- Replace the to-do part as shown in the screenshot with code snippet 1 from the file openSAP_hcp2_Week_2_Unit_2_Exercise
- Save your changes



```
            <param-value>com.sap.espm.model.web
        </init-param>
        <load-on-startup>2</load-on-startup>
    </servlet>
    <servlet-mapping>
        <servlet-name>ODataSecureServlet</servl
        <url-pattern>/espm.svc/secure/*</url-pa
    </servlet-mapping>
<!-- TODO Add the JPA reference here -->
    <servlet>
        <description></description>
        <display-name>StartupServlet</display-n
        <servlet-name>StartupServlet</servlet-n
        <servlet-class>com.sap.espm.model.web.S
        <load-on-startup>1</load-on-startup>
    </servlet>
```

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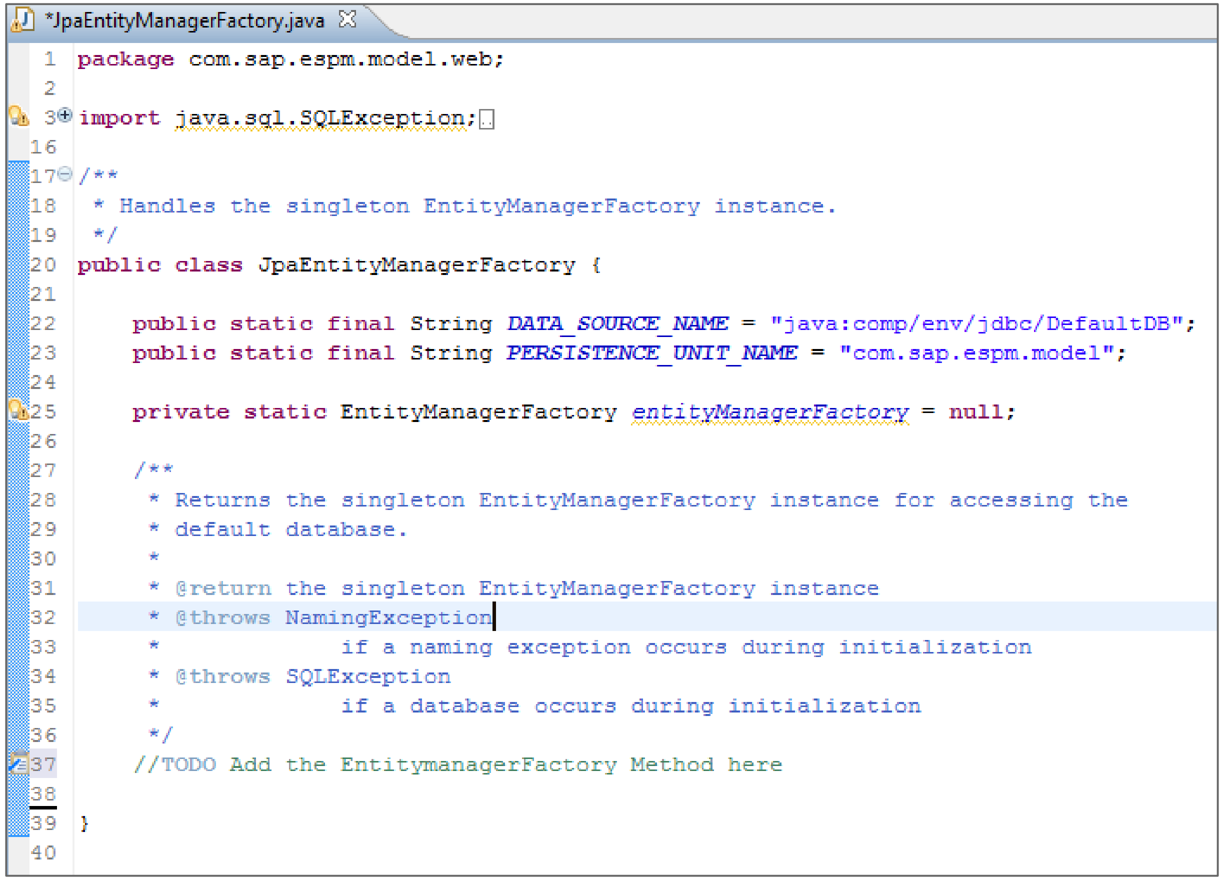
Hands-on (2)

Initialize the EntityManagerFactory

- In Eclipse, navigate to the project espm-cloud-web
- Navigate to src/main/java → com.sap.espm.model.web
- Open the JpaEntityManagerFactory.java file
- Replace the to-do part as shown in the screenshot with code snippet 2 from the file openSAP_hcp2_Week_2_Unit_2_Exercise
- Save your changes



```
package com.sap.espm.model.web;

import java.sql.SQLException;

/**
 * Handles the singleton EntityManagerFactory instance.
 */
public class JpaEntityManagerFactory {

    public static final String DATA_SOURCE_NAME = "java:comp/env/jdbc/DefaultDB";
    public static final String PERSISTENCE_UNIT_NAME = "com.sap.espm.model";

    private static EntityManagerFactory entityManagerFactory = null;

    /**
     * Returns the singleton EntityManagerFactory instance for accessing the
     * default database.
     *
     * @return the singleton EntityManagerFactory instance
     * @throws NamingException
     *             if a naming exception occurs during initialization
     * @throws SQLException
     *             if a database occurs during initialization
     */
    //TODO Add the EntitymanagerFactory Method here

}
```

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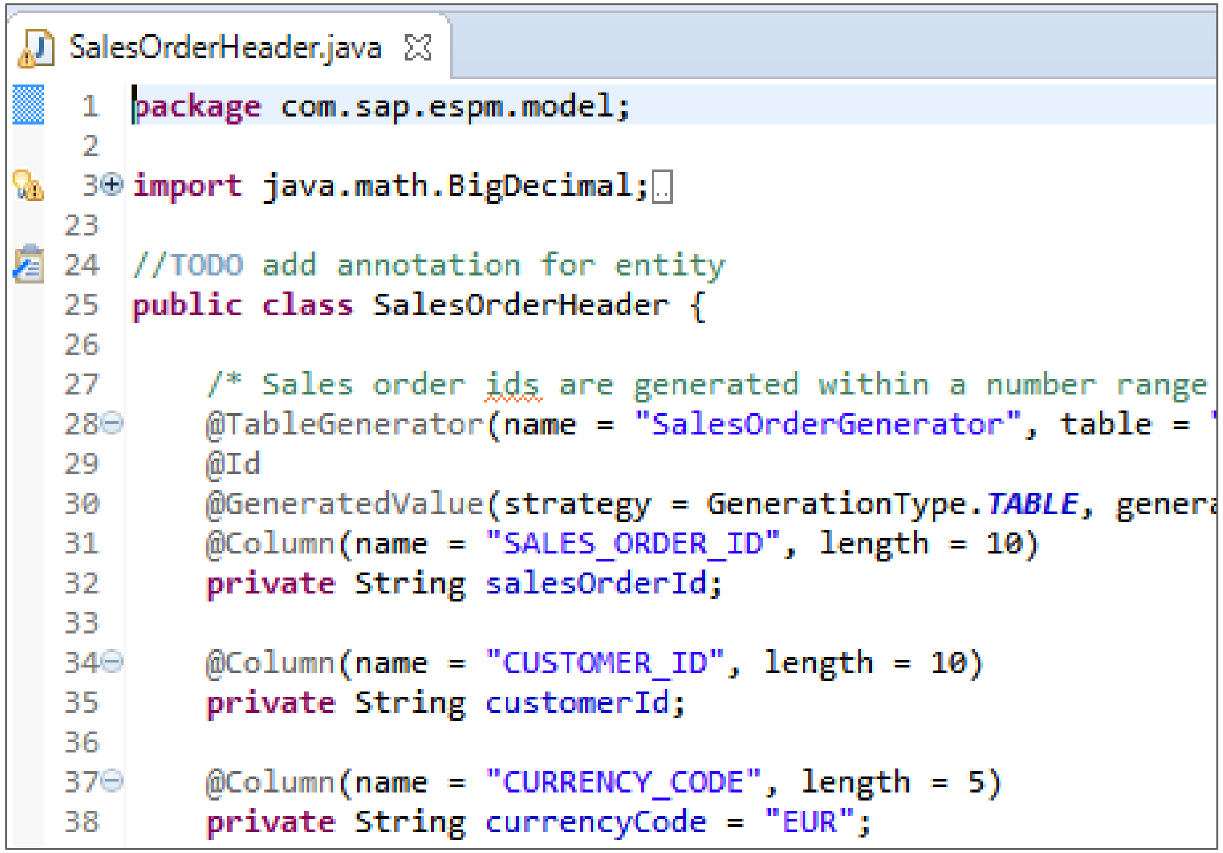
Hands-on (3)

Create an Entity – Part 1

- In Eclipse, navigate to the project espm-cloud-jpa
- Navigate to src/main/java → com.sap.espm.model
- Open the SalesOrderHeader.java file
- Replace the to-do part as shown in the screenshot with code snippet 3 from the file openSAP_hcp2_Week_2_Unit_2_Exercise
- Save your changes



```
package com.sap.espm.model;

import java.math.BigDecimal;

//TODO add annotation for entity
public class SalesOrderHeader {

    /* Sales order ids are generated within a number range
    @TableGenerator(name = "SalesOrderGenerator", table = "
    @Id
    @GeneratedValue(strategy = GenerationType.TABLE, genera
    @Column(name = "SALES_ORDER_ID", length = 10)
    private String salesOrderId;

    @Column(name = "CUSTOMER_ID", length = 10)
    private String customerId;

    @Column(name = "CURRENCY_CODE", length = 5)
    private String currencyCode = "EUR";
```

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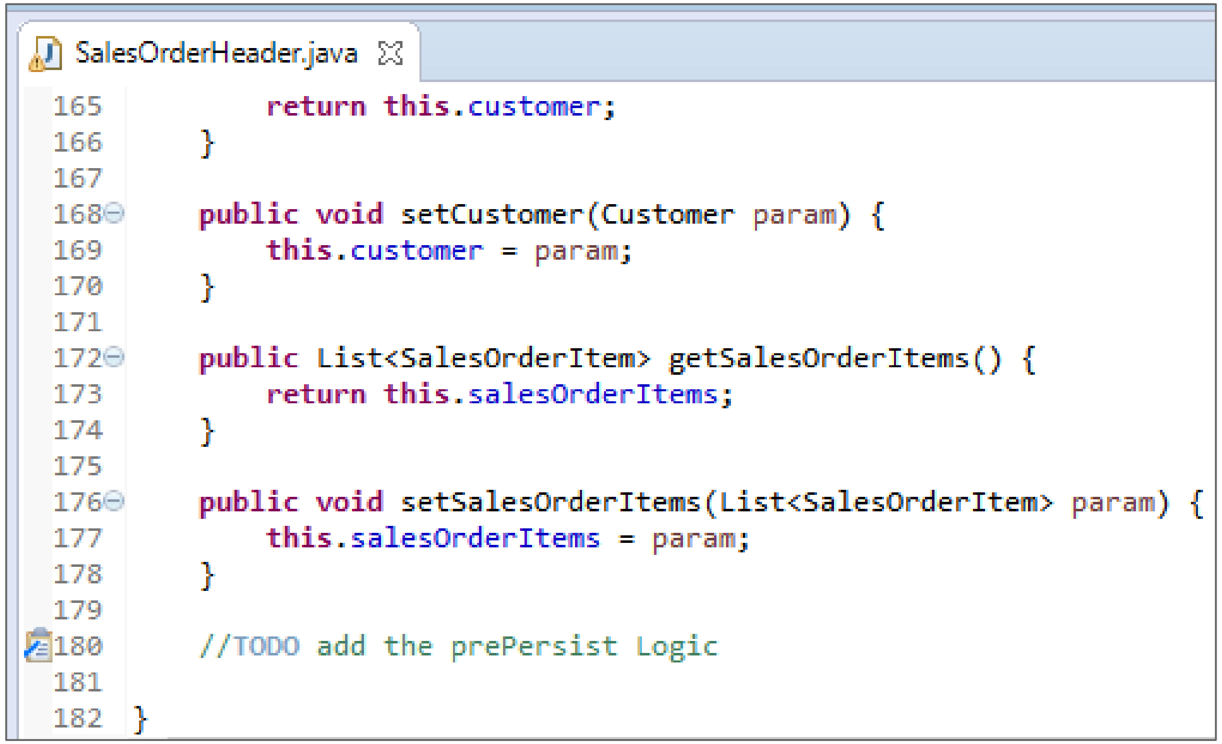
Hands-on (4)

Create an Entity – Part 2

- In Eclipse, navigate to the project espm-cloud-jpa
- Navigate to src/main/java → com.sap.espm.model
- Open the SalesOrderHeader.java file
- Replace the to-do part as shown in the screenshot with code snippet 4 from the file openSAP_hcp2_Week_2_Unit_2_Exercise
- Save your changes



```
        return this.customer;
    }

    public void setCustomer(Customer param) {
        this.customer = param;
    }

    public List<SalesOrderItem> getSalesOrderItems() {
        return this.salesOrderItems;
    }

    public void setSalesOrderItems(List<SalesOrderItem> param) {
        this.salesOrderItems = param;
    }

    //TODO add the prePersist Logic

}
```

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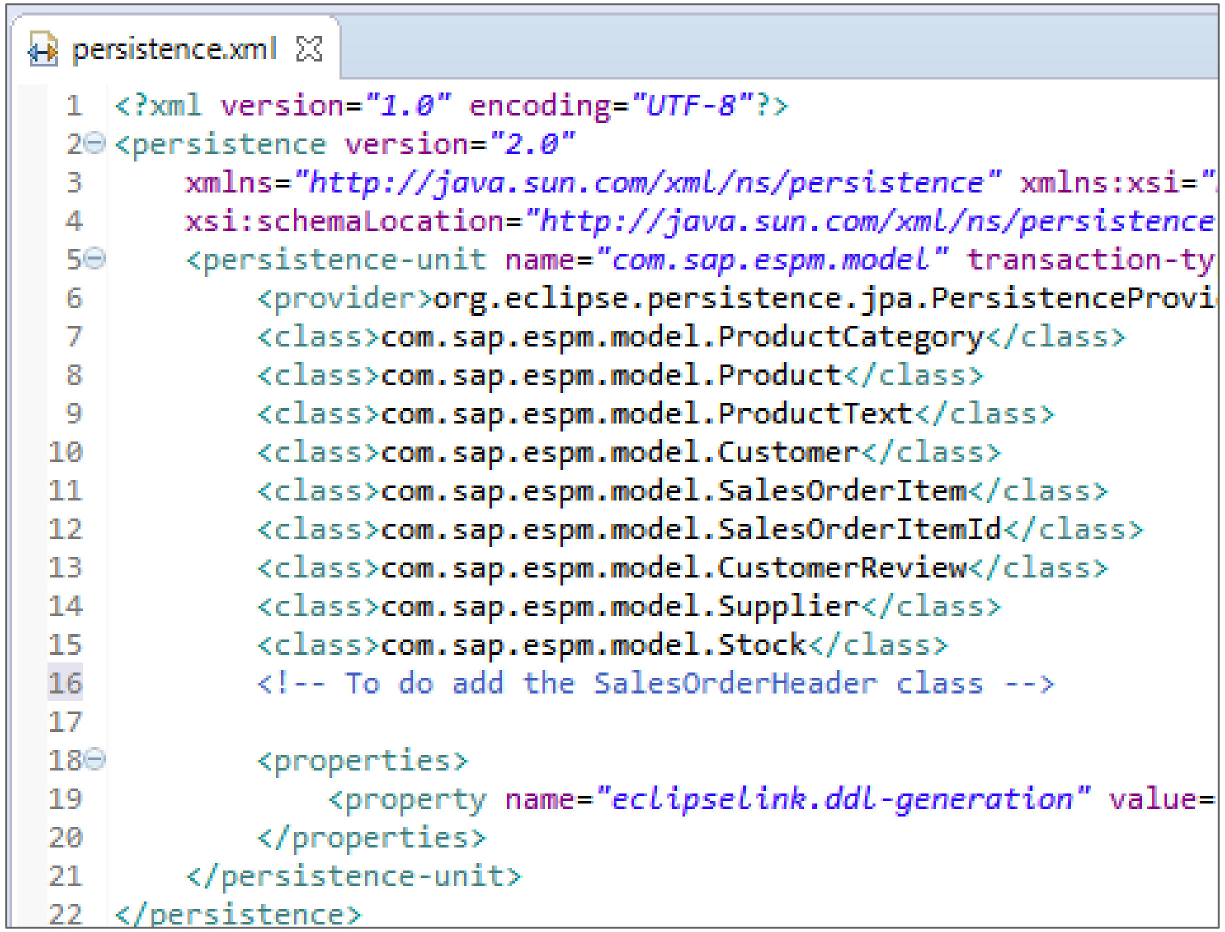
Hands-on (5)

Add class in persistence.xml

- In the Project Explorer view, expand the espm-cloud-jpa/JPA-Content
- Open the persistence.xml file
- Replace the to-do part as shown in the screenshot with code snippet 5 from the file openSAP_hcp2_Week_2_Unit_2_Exercise
- Save the persistence.xml
- After building the project you can run it



```
<?xml version="1.0" encoding="UTF-8"?>
<persistence version="2.0"
    xmlns="http://java.sun.com/xml/ns/persistence" xmlns:xsi="
    xsi:schemaLocation="http://java.sun.com/xml/ns/persistence
    <persistence-unit name="com.sap.espm.model" transaction-ty
        <provider>org.eclipse.persistence.jpa.PersistenceProvi
        <class>com.sap.espm.model.ProductCategory</class>
        <class>com.sap.espm.model.Product</class>
        <class>com.sap.espm.model.ProductText</class>
        <class>com.sap.espm.model.Customer</class>
        <class>com.sap.espm.model.SalesOrderItem</class>
        <class>com.sap.espm.model.SalesOrderItemId</class>
        <class>com.sap.espm.model.CustomerReview</class>
        <class>com.sap.espm.model.Supplier</class>
        <class>com.sap.espm.model.Stock</class>
        <!-- To do add the SalesOrderHeader class -->

        <properties>
            <property name="eclipselink.ddl-generation" value=
        </properties>
    </persistence-unit>
</persistence>
```

Developing the JPA Model – Practice

What you’ve learned in this unit

- Recap: The JPA model of the ESPM application
- How to initialize the EntityManagerFactory
- How to use JPA entity annotations
- How to edit the JPA persistence.xml file

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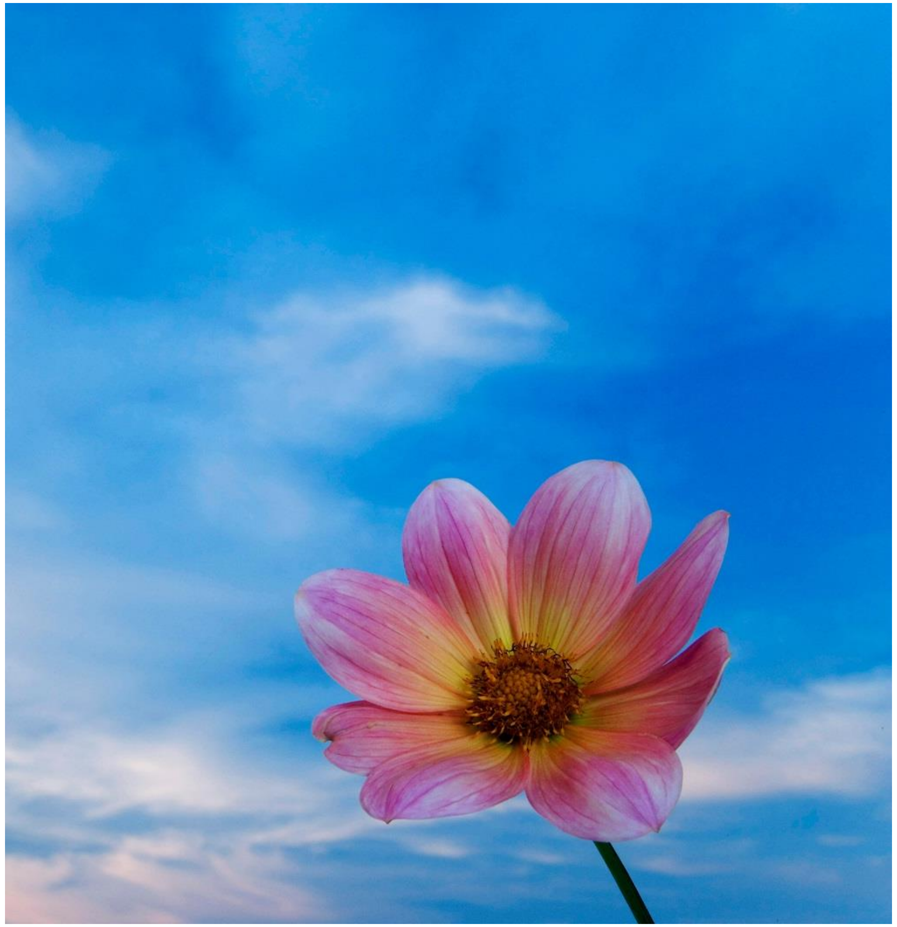
Further reading

i Additional Material

- Persistence Service in SAP HANA Cloud Platform – https://help.hana.ondemand.com/help/frameset.htm?e7b3c275bb571014a910b3fb4329cf09.html



Thank you

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