BASIC TUTORIAL: ACCELEO

# Preparation

## Installation

* Install the Acceleo tool
  + Help 🡪 Eclipse 🡪 Marketplace 🡪 Acceleo
* Click on Go
* Click on Install

## Import an ecore

* Create a new EMF project.
  + New Project 🡪 Other -🡪 Empty EMF Model
* Import an ecore into model folder
  + Import the sample ecore
* Create code from ecore and called it purchase.genmodel
  + New 🡪 Other 🡪EMF Generator Model
* Use genmodel to generate the model code
  + Click right button on the purchase.genmodel file 🡪 Generate Model Code
* Select the first entity in the ecore (System) and create dynamic instance (with extension .xmi)
* Create purchase orders and items inside that instance.

# Acceleo Project

## Creation of a new project

* Create a new Acceleo Project with name PurchaseAcceleo
* New Project 🡪 Acceleo Project
  + Name: PurchaseAcceleo
* Click on the green cross
  + Click on Runtime Version
  + Select the purchase.ecore metamodel
* Select the System in Type
* Click on Generate file and Main template
* Click on Finish

## Modify the following functions in Generate.java

* In the comments just before Acceleo.Generate.registerPackages

@generated NOT

* At the end of Acceleo.Generate.registerPackages

**if**(!isInWorkspace(PurchasePackage.**class**))

resourceSet.getPackageRegistry().put(PurchasePackage.***eNS\_URI***, PurchasePackage.***eINSTANCE***);

* Note that you need to import the implementation of PurchasePackage
* In the comments just before Acceleo.Generate. registerResourceFactories

@generated NOT

* At the end of Acceleo.Generate. registerResourceFactories

resourceSet.getResourceFactoryRegistry().getExtensionToFactoryMap() .put("xmi", new XMIResourceFactoryImpl());

* Note that you need to import this library:

**import** org.eclipse.emf.ecore.xmi.impl.XMIResourceFactoryImpl;

* Check the metamodel path in generate.mtl (it must have a relative path)

## Run the Acceleo program for the first time

* Create a folder called outputs
* Select the run configuration
  + Run 🡪 Run Configurations
* Select the metamodel
* Select input model (\*.xmi)
* Select output folder
* Run as Java Application

## Create the first page

* Type the code below in generate.mtl

**[module** generateItem('/ejemplo/purchase.ecore'**)]**

**[template** **public** generateElement**(**aSystem : System**)]**

[comment **@main**/]

**[file (**'output.html', false, 'UTF-8'**)]**

<html>

<body>

<div>

<h2>List of Orders</h2>

**[*for* (**anOrder: PurchaseOrder | aSystem.orders**)]**

<li>Order billed to **[**anOrder.billTo **/]** and shipped to **[**anOrder.shipTo **/]**</li>

**[/*for*]**

</div>

</body>

</html>

**[/file]**

**[/template]**

* Run to see the result

## Generate pages per order

* Create a new package called src/PurchaseAcceleo.files
* Create in this package a new Acceleo Module File
  + Module Name: PurchaseOrderFile
  + Select the ecore metamodel
  + Select Type: PurchaseOrder
  + Click on GenerateFile
* Type the following code

[comment encoding = UTF-8 /]

**[module** PurchaseOrderFile('/ejemplo/purchase.ecore'**)]**

**[template** **public** generate**(**aPurchaseOrder : PurchaseOrder**)]**

**[file (**aPurchaseOrder.billTo.concat('.html'), false, 'UTF-8'**)]**

<html>

<body>

<h3>Order billed to **[** aPurchaseOrder.billTo **/]**</h3>

<h3>Shipped to **[** aPurchaseOrder.shipTo **/]**</h3>

<p>Items of the order:</p>

<ul>

**[*for* (**item : Item | aPurchaseOrder.items**)]**

**[** item.productName **/]**

**[/*for*]**

</ul>

</body>

</html>

**[/file]**

**[/template]**

* Modify generate.mtl with the following code

**[module** generateItem('/ejemplo/purchase.ecore'**)]**

**[import** PurchaseAcceleo::files::PurchaseOrderFile **/]**

**[template** **public** generateElement**(**aSystem : System**)]**

[comment **@main**/]

**[file (**'output.html', false, 'UTF-8'**)]**

<html>

<body>

<div>

<h2>List of Orders</h2>

**[[*for* (**order : PurchaseOrder | aSystem.orders**)]**

<li>Order billed to <a href="**[**order.billTo.concat('.html')**/]**">**[**order.billTo **/]**</a> and shipped to **[**order.shipTo **/]**</li>**[**order.generate() **/]**

**[/*for*]**

</div>

</body>

</html>

**[/file]**

**[/template]**

* Run it

## Generate information about the items

* Create the package src/PurchaseAcceleo.common
* Create in this package a new Acceleo Module File (Right Click)
  + Module Name: generateItem
  + Select the ecore metamodel
  + Select Type: Item
* Type the following code

**[module** generateItem('/ejemplo/purchase.ecore'**)]**

**[template** **public** generateElement**(**anItem : Item**)]**

<li>**[**anItem.quantity**/]** **[**anItem.productName**/]** - **[**anItem.price**/]** euros.</li>

**[/template]**

* Modify PurchaseOrderFile.mtl with the following code

[comment encoding = UTF-8 /]

**[module** PurchaseOrderFile('/ejemplo/purchase.ec'**)]**

**[import** PurchaseAcceleo::common::generateItem **/]**

**[template** **public** generate**(**aPurchaseOrder : PurchaseOrder**)]**

**[file (**aPurchaseOrder.billTo.concat('.html'), false, 'UTF-8'**)]**

<html>

<body>

<h3>Order billed to **[** aPurchaseOrder.billTo **/]**</h3>

<h3>Shipped to: **[** aPurchaseOrder.shipTo **/]**</h3>

<p>Items of the order:</p>

<ul>

**[*for* (**item : Item | aPurchaseOrder.items**)]**

**[** item.generateElement() **/]**

**[/*for*]**

</ul>

</body>

</html>

**[/file]**

**[/template]**

* Run it

## Generate more information about the items

* In the package src/PurchaseAcceleo.common
* Create a new Acceleo Module File (Right Click)
  + Module Name: generateDiscountedItem
  + Select the ecore metamodel
  + Select Type: DiscountedItem
* Type the following content

**[module** generateDiscountedItem('/ejemplo/purchase.ecore'**)]**

**[import** PurchaseAcceleo::queries::ItemQueries **/]**

**[template** **public** generateElement**(**aDiscountedItem : DiscountedItem**)]**

<li>Offer **[**aDiscountedItem.discount**/]**%!! **[**aDiscountedItem.quantity**/]** **[**aDiscountedItem.productName**/]** - **[**aDiscountedItem.price**/]** euros.</li>

**[/template]**

* Include this template in PurchaseOrderFile.mtl
* Run it.

## Generate a query

* Create the package src/PurchaseAcceleo.queries
* Create in this package a new Acceleo Module File (Right Click)
  + Module Name: ItemQueries
  + Select the ecore metamodel
  + Select Type: Item
  + Write the following content

[comment encoding = UTF-8 /]

**[module** ItemQueries('/ejemplo/purchase.ecore'**)]**

**[query** **public** totalPrice**(**anItem : Item**) :** Real **=**

anItem.quantity \* anItem.price **/]**

**[template** **public** kindOfProduct**(**anItem : Item**)]**

**[*if*** **(**anItem.price < 10**)]**

Cheap product

**[*elseif*(** anItem.price < 20 **)]**

Regular product

**[*else*]**

Expensive product

**[/*if*]**

**[/template]**

* Modify generateDiscountedItem.mtl with the following code

**[module** generateDiscountedItem('/ejemplo/purchase.ecore'**)]**

**[import** PurchaseAcceleo::queries::ItemQueries **/]**

**[template** **public** generateElement**(**aDiscountedItem : DiscountedItem**)]**

<li>Offer **[**aDiscountedItem.discount**/]**%!! **[**aDiscountedItem.quantity**/]** **[**aDiscountedItem.productName**/]** - **[**aDiscountedItem.price**/]** euros. Total: **[**aDiscountedItem.totalPrice()**/]** euros</li>

**[/template]**

* Modify generateItem.mtl with the following code

**module** generateItem('/ejemplo/purchase.ecore'**)]**

**[import** PurchaseAcceleo::queries::ItemQueries **/]**

**[template** **public** generateElement**(**anItem : Item**)]**

<li>**[**anItem.quantity**/]** **[**anItem.productName**/]** - **[**anItem.price**/]** euros (**[**anItem.kindOfProduct()**/]**). Total: **[**anItem.totalPrice()**/]** euros </li>

**[/template]**

* Run it.