Model Engineering Lab 188.923 IT/ME VU, WS 2014/15	**Assignment 3**
Deadline: Upload (ZIP) in TUWEL until Monday, December 15th, 2014, 23:55 Assignment Review: Wednesday, January 14th, 2015	25 Points

Model-to-Model Transformations

The goal of this assignment is to develop a Model-to-Model transformation for transforming entity models into form models with ATL.

Given are the following artifacts:

- Metamodel of the Form Modeling Language (including the entity as well as form language)
  - *forms.ecore*
- Example entity model
  - *publicationEntityModel.xmi*
- Expected form model resulting from the transformation of the entity model
  - *publicationFormsModel.xmi*

Task Description

Write an ATL model transformation to translate entity models (source models) into form models (target models). The transformation has to be tested with the provided example models. The transformation is considered to be correct, if it generates the same form model (target) as the given expected example form model out of the example entity model (source). Of course, the transformation should be defined in a general way. This means, that the transformation should work properly for all possible entity models. Please note that it is not required to have the same ordering of the elements as in the given expected example form model and identifier values may be assigned arbitrarily as long as they are unique. Make use of the following predefined strategies for the mapping of elements of source entity models to elements of target form models:

Entity modeling concept	Form modeling concept
EntityModel	FormModel
Entity	Form with Details Page
Attribute	AttributePageElement (choose appropriate subtypes based on the attributes' types and set the formatting rules for Year, Integer, and Email typed attributes in the corresponding AttributePageElements)
Relationship	Page with List

Additional Requirements:

- As welcome form, the form should be used that is produced from the first entity inside the entity model which is not referenced by any other entity, i.e., there is no relationship pointing to this entity.
- The target models, i.e., the form models, have to reference elements from the source model, i.e., entities, attributes, and relationships. This is possible by activating in the ATL launch configuration the option to have cross-links between the source/target models, which is already properly configured in the example launch configuration delivered with the example Eclipse project. To set the cross-links in the transformation, be aware that you have to define the corresponding bindings in the **do** block of the transformation rules. Otherwise, the resolveTemp function will be automatically triggered when defining these bindings in the **to** block of the transformation rules.

- Forms produced from entities which have super entities should also contain in the details pages corresponding AttributePageElements for the features of all super entities.

Important ATL Information:

- Create at least one helper function
- Avoid imperative code (*do* section) as much as possible
- Use at least one rule inheritance construct

Additional Information

- Import the archive file *ME_WS14_Lab3_Resources.zip,* which is provided in TUWEL, as a project into Eclipse. The folder *metamodel* contains the metamodel of the Forms language. The folder *transformation* contains a predefined ATL file *Entities2Forms.atl*. This is the only file you need to change in this assignment. Modify the Entities2Forms.*atl* file in order to implement the transformation of entity models into form models.
- To run the ATL transformation the launch configuration *Entities2Forms* is already provided by the project. This launch configuration will run the transformation for the provided example entity model *publicationEntityModel.xmi* and produce the target form model *output.xmi*.
- The xmi files can be viewed without the generation of EMF editor code. This is achieved by registering the corresponding Ecore metamodel. In order to do so, right-click on the metamodel *metamodel/forms.ecore* and select *EPackages registration → Register EPackages into repository*.
- Using the *EMF Compare Framework*, two models can be compared. Select the two models to be compared, right click and choose *Compare With → Each Other*. This can be used to compare your transformation output (output.xmi) with the provided expected target model (publicationFormsModel.xmi).
- Literature to solve this assignment is provided in the TUWEL course. Furthermore, you can find additional information, examples, and use cases on the ATL project homepage http://www.eclipse.org/atl/. All relevant ATL concepts for this assignment can be found in the ATL user manual.
- How to setup ATL in Eclipse is explained in the *Eclipse Setup Guide* provided in TUWEL.

Submission & Assignment Review

At the assignment review, you will have to present your ATL transformation from entity models to form models.

Upload the following components in TUWEL:

- The ATL file named according to the following pattern: WS14_LAB3_<Groupnumber>.atl

All group members have to be present at the assignment review. Registration for the assignment review can be done in TUWEL. The assignment review is divided into two parts:

- Submission and **group evaluation:** 20 out of 25 points can be reached.
- **Individual evaluation:** Every group member is interviewed and evaluated separately. The remaining 5 points can be reached. If a group member does not succeed in the individual evaluation, the points reached in the group evaluation are also revoked for this student, which results in a negative grade for the entire course.