

INF5120 Oblig 2 – “Graphical Domain Specific Language (DSL) Editor for Value Networks”

Creating a DSL graphical editor using Eclipse EMF and EuGENia

Individual assignment

Submission date: **April 30, 2013** (at 23:59:59 CET)

Submit to: **arneb@ifi.uio.no** or **arne.j.berre@sintef.no**

Submit format: **.zip copy of your source files named as ‘INF5120 – Oblig 2 – Your name’**
and an example of a value network diagram created with your editor.

Overview:

This assignment will provide you with knowledge and hands-on experience in creating a basic domain specific language and its graphical editor using technologies including the Eclipse Modeling Framework (EMF) and EuGENia. In our case, we will be developing a graphical DSL editor for representing value networks.

Description:

Creating the graphical DSL editor for value networks involves the following three tasks, namely

- I. understanding the value network model,
- II. building the metamodel for the value network using EMF, and
- III. generating a graphical editor for the metamodel using EuGENia.

These steps are described briefly in this document. More information can be found in the tutorials based on the provided links in the following sections as well as Oblig 2 from Spring 2012 at

<http://www.uio.no/studier/emner/matnat/ifi/INF5120/v12/>

I. Understanding the value network model

A typical value network (refer to lecture slides 3 for more information), consisting of roles as well as tangible and intangible flows, is shown in figure 1. Please note that roles are represented as ellipses, tangible flows as solid arrows, and intangible flows as dotted arrows. A role can have many inbound and outbound flows (both tangible and intangible) from/towards other roles. Moreover, all of these three basic elements can be named.

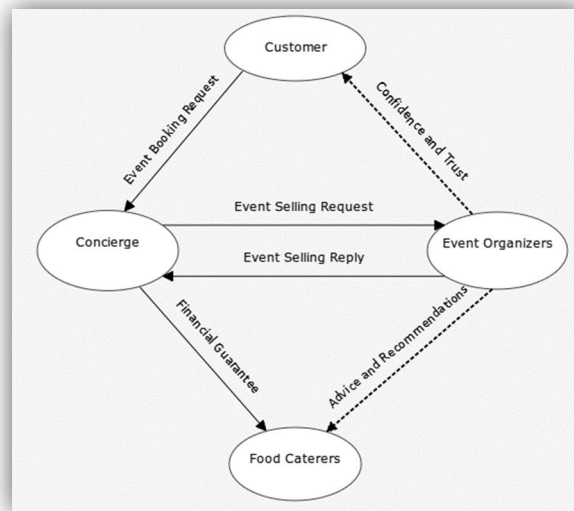


Figure 1: Value Network model for Concierge (Incomplete)

II. *Building the metamodel for the value network using EMF*

Based on the value network model shown in the previous section, you can now build its metamodel using EMF. Please make sure that your metamodel provides an accurate representation of the value network model as presented in section I. You can refer to this tutorial to help you get started: <http://www.vogella.com/articles/EclipseEMF/article.html>

The Eclipse Modeling Framework comes bundled with the “Eclipse Modeling Tools” package which can be downloaded at <http://www.eclipse.org/downloads/packages/eclipse-modeling-tools/junosr2/> Note that EMF can be separately installed as an upgrade to your existing Eclipse environment (more information is available in section 2 of <http://www.vogella.com/articles/EclipseEMF/article.html>

III. *Generating a graphical editor for the metamodel using EuGENia*

After the metamodel has been successfully built, you can then proceed with the EuGENia tool for the automatic generation of a graphical editor based on your defined metamodel. EuGENia supports various annotations on the model elements. You are welcome to test them out on your value network, but please ensure that the core requirements are being respected. A tutorial on EuGENia is available at <http://www.eclipse.org/epsilon/doc/articles/eugenia-gmf-tutorial/>

EuGENia provides a simpler approach for creating a GMF-based editor. You can get some more background about GMF here: <http://www.eclipse.org/modeling/gmp/> and you might also want to take a look at the following tutorial for how to create a GMF editor: http://wiki.eclipse.org/Graphical_Modeling_Framework/Tutorial#Get_started

In the delivery you should show an example value network diagram created with your own editor.