

# INF5120 – Spring 2015

## Oblig 3 - “Building a DSL Graphical Modeling Workbench”

*Using Eclipse EMF and Sirius*

*Domain Specific Language (DSL) Case: The VISUAL Service Journey Language*

*Individual assignment and Group submission*

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**Submission date:** May 11<sup>th</sup>, 2015 (at noon – until 12 pm CET)

**Submit to:** Devilry for INF5120

**Submission requirements:**

A zipped copy, entitled ‘INF5120-Oblig 3-*Your group name*’, containing project folders from each group member. The project folder must be named ‘*Your name*’ and must contain:

- Part 1 - Individual: Screenshots of the graphical editor with the model of your family created using the Tutorial for Sirius.
- Part 2: - Group: your Eclipse project + A document with description of your editor - with screenshots of your metamodel and graphical editor

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### Overview:

This assignment will provide you with basic knowledge and hands-on experience in creating a domain specific language model and its graphical editor using technologies including the Eclipse Modeling Framework (EMF) with the Sirius modeling workbench tool.

<http://www.eclipse.org/sirius/>

Watch the introduction videos for Sirius here:

<http://www.eclipse.org/sirius/overview.html>

Install EcoreTools and Sirius from Eclipse Marketplace.

<http://www.eclipse.org/ecoretools/download.html>

<https://www.eclipse.org/sirius/download.html>

## Part 1: Building a Graphical Modeling Workbench- Individual

Previous experience had shown that it is very important that everyone get some personal hands on experience with the development environment and tools. The first part is thus for each individual group member to install the Eclipse/Sirius environment and complete the 4MinTutorial referenced below:

<https://wiki.eclipse.org/Sirius/Tutorials/4MinTutorial>

Others related useful links

<https://eclipse.org/sirius/getstarted.html>

<http://alain-bernard.developpez.com/tutoriels/eclipse/sirius-intro/>)

(This is the complete and best tutorial for using EMF and Sirius in Eclipse Environment, but it is in French, so translate it into English through the translation functionality in your browser if necessary)

**Sirius** OVERVIEW FEATURES GALLERY **GET STARTED** COMMUNITY DOWNLOAD

### GET STARTED

#### 4' Tutorial

This tutorial shows the first steps to create a first graphical modeling tool with Sirius.

It relies on a simple DSL and a sample model based on this DSL.

With this video, you will see how to:

- create a Sirius project (Viewpoint Specification project)
- initialize a Diagram to graphically visualize and edit the model elements
- define Nodes and Edges to display model elements on the diagram
- add a Creation Tool to create new model elements from a palette

The step-by-step scenario of this video can be found here:  
<https://wiki.eclipse.org/Sirius/Tutorials/4MinTutorial>

[Download the resources used by this video](#)

Sirius - Getting Started

Download video

**1 Overview****2 Install the sample Domain Model**

- 2.1 Import the projects defining the sample Domain Model**
- 2.2 Launch a new Eclipse runtime**
- 2.3 Select the Sirius perspective**
- 2.4 Create a new Modeling Project**
- 2.5 Import a sample model**

**3 Create a simple Modeling Workbench**

- 3.1 Create a Viewpoint Specification project**
- 3.2 Define a Viewpoint**
- 3.3 Define a Diagram**
- 3.4 Define a Layer**
- 3.5 Add a Node to the Layer**
- 3.6 Set a Style to the Node**
- 3.7 Test the diagram**
- 3.8 Improve the Style of the Node**
- 3.9 Add a second Node**
- 3.10 Add a Relation Based Edge**
- 3.11 Edit the Style of the Relation**

**4 Add a Palette with edition tools**

- 4.1 Create a Section**
- 4.2 Add a Node Creation**
- 4.3 Define the actions performed by the Create Node tool**
- 4.4 Test the Create Node tool**

<https://wiki.eclipse.org/Sirius/Tutorials/4MinTutorial>

The details steps to go through the tutorial are shown above.

After completing the tutorial, you can customize the items and model in the example to see how the model reacts to changes. And also get a good knowledge of using Sirius as a modeling tool. After the completion of the tutorial, you should gain knowledge of:

- How to create domain model
- How to define classes and attributes with the relations among them
- How to show inheritance and set cardinality of relations among the classes
- How to run an eclipse application environment
- How to create a sample data from any ecore file ( .basicfamily in this case)
- How to create and design a viewpoint using Sirius
- How to create Nodes and Relation Tool from the metamodel
- How to map the metamodel elements to the nodes or links in the modeling environment

For the submission part, create a model of your family example, save a screenshot and submit it in the devilry along with the group's zipped file. The filename should be <your-name>s-family.png/jpg/jpeg/bmp (example: user1s-family.png). This part should be done individually while the second part is for the whole team with sub-tasks division among group members.

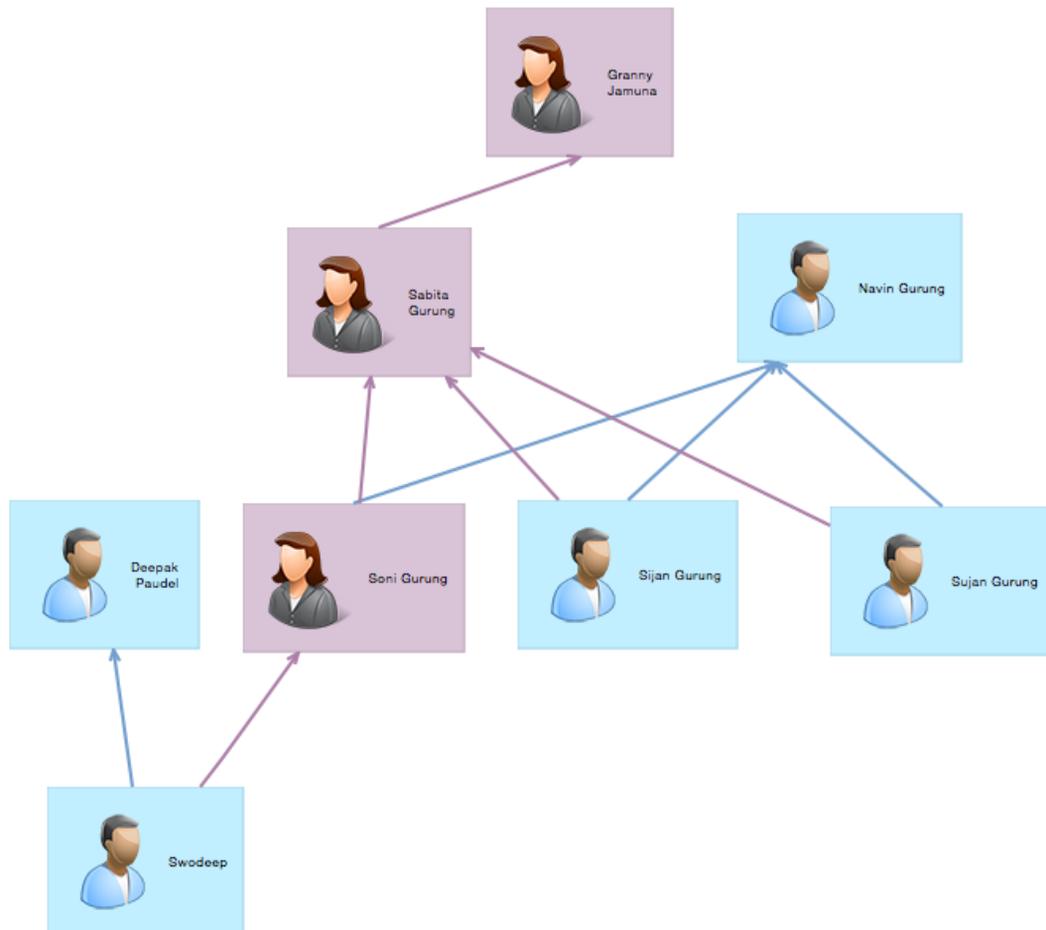


Fig: Sample Screenshot of family.

## Part 2: Building a Graphical Modeling Workbench- Group

The objective is to create a graphical editor for the Visual Customer Journey diagram that was presented in the lecture on February 16<sup>th</sup>, 2015

<http://www.uio.no/studier/emner/matnat/ifi/INF5120/v15/timeplan/2015-02-16-lecture-inf-5120.pdf>

To demonstrate the usage of the editor, create a customer journey diagram example with the tool – for a customer journey from the usage of the SenseIt App that you created in Oblig 2. For the purpose of Oblig 3, building a graphical model editor involves the following three tasks, namely:

1. Create a domain model for the Customer Journey
2. Create a Customer Journey Modeling Workbench
3. Add items to palette in groups as editing tools
4. Use the workbench to create a customer journey diagram example with input from Oblig 1/2.

These three tasks are summarized in the basic work flow diagram shown below.

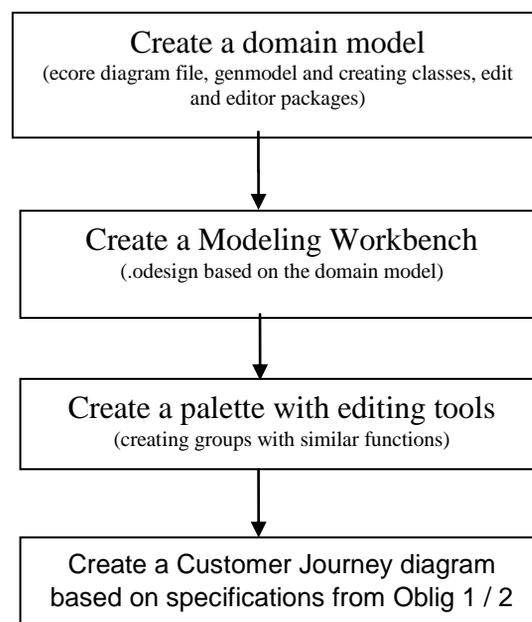


Figure 1: Basic Implementation Work Flow

The main objective will be to involve all the group members to complete the second part of the Oblig. You can divide the sub-tasks among each other, but gaining the full knowledge of the full project will be advised and preferred for each of the group-members.

## Customer Journey Diagram

See the lecture from February 16<sup>th</sup>, 2015.

<http://www.uio.no/studier/emner/matnat/ifi/INF5120/v15/timeplan/2015-02-16-lecture-inf-5120.pdf>

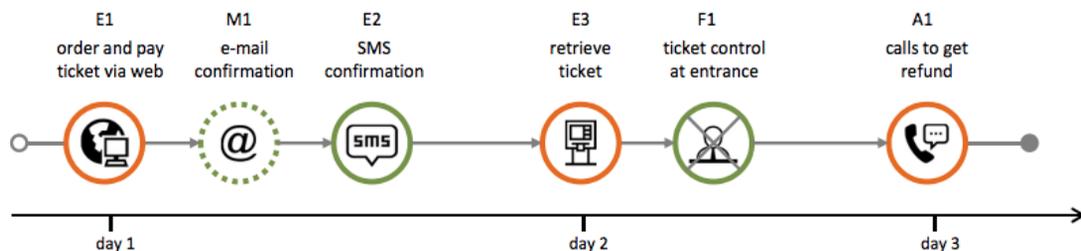


Fig: Simple customer journey with sequential view

We will in particular focus on the Customer journey diagram, sequential view – with an option for doing also the deviation view. We will not require the support for the swimlane diagram. See examples in slides 28 to 33 in the lecture above. There is also information and examples of the Visual Customer journey diagram (with visual icons you can use) on the following web pages:

<http://visualproject.org/this-is-visual/>

<http://visualproject.org/visual-make-diagrams/>

Demonstrate the usage of the Customer journey diagram by creating a customer journey diagram for the UV sensor and app usage according to an example from your design and specifications for Oblig 1/Oblig 2.

### Installation and Demo Guides:

A video tutorial has been made to guide you through the process of installing the various tools required for Oblig 3. The tutorial video with a sample project is provided in an INF5120-2015 Dropbox folder, and an invitation for this has been sent to all the registered students. You can download or link it to your own dropbox account as per need. This video can also be downloaded from the UiO course page.

For further help please mail at [sijan@eventeye.no](mailto:sijan@eventeye.no) with Subject “Oblig 3 Help”

## Reference Material:

### (1) Eclipse EMF Tutorials

[http://help.eclipse.org/kepler/topic/org.eclipse.emf.doc/tutorials/clibmod/clibmod.html?cp=19\\_1\\_0](http://help.eclipse.org/kepler/topic/org.eclipse.emf.doc/tutorials/clibmod/clibmod.html?cp=19_1_0)  
<http://www.vogella.com/articles/EclipseEMF/article.html>

### (2) Sirius User Guide

<http://www.eclipse.org/sirius/doc/>  
<http://alain-bernard.developpez.com/tutoriels/eclipse/sirius-intro/> \*

*\* is in French, so use translate on your browser.*

### (3) EcoreTools

<http://eclipse.org/ecoretools/>

### (4) Sirius Presentations Videos

<https://www.youtube.com/watch?v=fi4SVKILs5E>  
<https://www.youtube.com/watch?v=SEnfhNl47iA>  
<https://www.youtube.com/watch?v=08XIW8hZOyQ>  
<https://www.youtube.com/watch?v=rUqSaxu6SqM>