Assignment #2 – Requirements Modeling (6%)

The second assignment is to be done individually and is due on ***Monday, October 29th, 2018, at 23:30***. You are required to submit a jucm file with your ***URN model*** in myCourses. The URN model must be based on the descriptions below and compatible with jUCMNav version 7.0. Clearly state the course name and number, term, and your name in a comment on your feature model. The assignment is graded out of ***100*** marks.

URN Model

The goal of this assignment is to use feature modeling, goal modeling, and scenario modeling to describe the requirements of a system. You are not required to model a complete system, i.e., you may choose a large system and only model a part of it. You are free to choose any system you would like to work on, as long as you adhere to the following constraints:

- You must use jUCMNav version 7.0 to create and analyze your requirements model. For installation instructions, see the folder of the first URN tutorial in myCourses.
- The **feature model** of your system must contain at least one mandatory feature, at least one optional feature, and at least one XOR or OR feature group. Note that you will not get bonus marks for modeling a larger system (i.e., a feature model with **at least 6 features** is sufficient – the root feature, one mandatory feature, one optional feature, one parent feature for the XOR/OR feature group, and two features in the XOR/OR feature group). In addition, add a **comment** with a two-paragraph description of your chosen system to your feature model.
- The **goal model** must describe **exactly 1 stakeholder** and show how the features of your system impact the goals of the stakeholder (especially the variable features). In addition, you need to show the situation without your system in place (i.e., the impacts of the current manual system or an old system that needs to be replaced by your system). Make sure that you have additional tasks in your goal model that represent the situation without your system in place. The goal tree for your stakeholder must contain **at least 8 intentional elements** (not counting features and the tasks for the old/manual system). Again, you will not get bonus marks for modeling a larger system.
- The **scenario model** must contain a **root map** that shows the causal relationships of the features in the feature model, i.e., which feature must occur before or after another feature, which ones may occur in parallel, and which ones are alternatives. Each feature must be modeled as a stub. A **URN link** must be created between each pair of corresponding feature and stub. If a feature (i.e., the child) is part of another feature (i.e., the parent), then place the stub of the child feature on the plug-in map of the stub of the parent feature.
- In addition to a stub for each feature, **exactly 1 variable feature** must be described with a **detailed plug-in map** for the stub of the feature. The plug-in map of the chosen variable feature must include **at least one alternative path**.
- To analyze the system requirements, you must create **3 strategies**. In the preferences, you must select the "Feature Model Evaluation Algorithm" for your evaluations and set "Should we include GRL intentional elements as variables for UCM scenarios?" to yes to initialize GRL variables.
    1. The **"base" strategy** describes the current manual or old system. For this strategy, "automatic selection of mandatory features" needs to be turned off in the preferences.
    2. The **"feature in" strategy** describes a feature configuration of your system where your variable feature (the one you modeled in more detail with a plug-in map) is selected. For this strategy, "automatic selection of mandatory features" needs to be turned on in the preferences. The evaluation of this strategy must show that the strategy is a valid feature

configuration, show the impact on the stakeholder's high-level goals, and enable/disable the variable feature in your scenario model accordingly with its GRL variable.

3. The **"feature out" strategy** describes a feature configuration of your system where your variable feature is not selected. Otherwise, the same rules apply to the "feature out" strategy and the "feature in" strategy.

- To further analyze the system requirements, you must create **2 scenario definitions**. Both of them start at a start point of your root map and either end with an end point of your root map or with an end point of the plug-in map of your variable feature. Furthermore, the two scenario definitions must go through different alternative paths on the plug-in map of your variable feature. Clearly specify which scenario definition can be executed with which strategy.

Marking Scheme

Part of Assignment	***Marks***
Feature Model	10/15
Comment with description of system	5/15
Goal Model – Stakeholder	20/20
Scenario Model – Root map with all feature stubs including URN links	15/25
Scenario Model – Detailed plug-in map for variable feature	10/25
Analysis – "Base" strategy for manual/old system	6/40
Analysis – Strategy for feature configuration "feature in"	6/40
Analysis – Strategy for feature configuration "feature out"	6/40
Analysis – First scenario definition	7/40
Analysis – Second scenario definition	7/40
Analysis – GRL variables to enable/disable features in scenario model	8/40
Total Marks:	100