

COMP-533 Object-Oriented Software Development

# Concern-Oriented Reuse Project

(40% of final grade)

October 1, 2017

As already announced at the beginning of the class, the COMP-533 project consists in developing a reusable concern. There are three options you can choose from:

- Option a) - Developing a new concern
- Option b) - Continue to work on an already existing concern from the TouchCORE library
- Option c) - Developing a concern-oriented interface for an existing Java framework

Remember that you are working in groups of 2. Once you found your partner, please enroll in one of the project groups on *myCourses*. Also, whether you choose option a), b) or c), please talk to me before starting any significant work on the project so I can ensure that the scope of the project is adequate, and that no other group has chosen to work on the same topic.

## Part 1 - Variation Interface and Domain Model (50% of Project Grade)

**Option a) - Developing a New Concern** If you decide to develop a new software development concern, ensure that in the (first version of the) feature model of the variation interface of the concern the variability is such that it allows for at least 4 different valid configurations. The variation interface should also have at least 2 impacts defined to discriminate between the different possible configurations. Please justify the specified contribution values.

**Option b) - Extending an Already Existing Concern from the TouchCORE Library** The TouchCORE tool comes with a library of reusable design concern models, which includes concerns related to fault tolerance, concerns related to security, concerns that encapsulate design patterns and other utility concerns. Most of them are not complete, i.e., one can easily come up with additional features / design realization variants that the concern could offer. If you go with option b), you are asked to extend the concern with 2-4 features. Whether you should do 2, 3 or 4 features depends on the complexity of interactions that the new features have with the already existing ones. Please consult with me to decide on the number. Furthermore, to discriminate between the newly added features and the already existing ones, you should add at least one new impact to the impact model as well as specify the contribution values of the new features to the already existing impacts.

**Option c) - Developing a Concern-Oriented Interface for an existing Java Framework** If you happen to be an expert in some existing Java framework or library, you can also decide to create a concern interface for the framework. Depending on the size of the framework, the goal is to identify all the features of the framework, and as many impacts as possible.

In addition to the variation interface, you are also to create domain models that realize all the features of your concern. This applies to option a) and c), but also to option b), since the models of the concerns in TouchCORE do not yet have any domain models.

## Part 1 - Hand-In

Please join one of the project groups in *myCourses* and upload your solution, i.e., a **zip** file of the concern folder (i.e., the folder with the **.core** file that contains (a first version of) the variation interface specification of the concern that you decided to develop or extend and **.ram** files for each domain model) as well as a short text that contains a description of the concern, the features, the impacts and the justification of the contribution values by Friday October 20th 2017.

## Part 2 - Realization Models (50% of Project Grade)

In the second part of the project you are to focus on creating *realization models* for the features in your concern. Once you elaborate realizations, it is of course possible that you want to update the variation interface you created in part 1. In particular you might discover new impacts due to your realization and update the impact model accordingly.

More details about part 2 will follow.