UNIVERSITÄT KOBLENZ · LANDAU

Prof. Dr. Jan Jürjens
(juerjens@uni-koblenz.de)

Shayan Ahmadian
(ahmadian@uni-koblenz.de)

Web Engineering

Winter Semester 2015/2016

Homework #4 (contains 3 exercises – 30 points) **Due on 16.12.2015, 12:00**

Please submit your solutions (.pdf) using the repository, in the folder that is provided for your group (ass04).

In Team: https://ist.uni-koblenz.de/teams/de/user/registration/s84gfhesga you can click on "Link zum SVN-Repository" (folder icon) in front of your group name to directly go to your own folder in the repository to submit the exercises.

You have to submit your solutions till the mentioned deadline (16.12.2015, 12:00). Submitting the solutions of the exercises and reaching **50%** of the **total points (which will be 150 points over the course of the semester)** of the exercises are mandatory **to be able to take part in the final exam**.

Bonus System: By reaching 75% of the total points of the exercises, increase your point score by 5% of the total number of points that can be reached in the exam.

By reaching 90% of the total points of the exercises, increase your point score by another 5% of the total number of points that can be reached in the exam.

We will discuss the solutions of this exercise in the exercise group. Each group should present their results at least two times over the course of the semester.

Exercise 1:

a) Are there any differences between the web application development process and the classical software development processes? Please explain. (1 points)

b) Please explain the V-Model development process (2 points)

Exercise 2:

"To refresh your relevant knowledge about these kind of UML models (which are a prerequisite for this course), you may refer to standard introductory books such as "UML distilled" (cf. http://martinfowler.com/books/uml.html).

In this exercise you will model an online-shop *"StorePub"* for academic publications. In *StorePub*, we have two kinds of users: the *NonRegisteredUser* and the *RegisteredUser*. Additionally there is an administrative user: *Administrator*.

The *NonRegisteredUser* can search and select publications, add publications to the shopping cart, and get registered. The *Customer* is additionally allowed to start the checkout process for an existing shopping cart. The *Administrator* can add new publications to the publications catalog and change publications' information for already existing ones.

A user can add more than one publication to a shopping cart. Each publication in the shopping cart can be ordered with a quantity higher than one. A publication may be a dissertation, a technical report or a lecture material (to name just a few one).

During the checkout process for an existing shopping cart the *Customer* can choose a delivery address by selecting one of his predefined addresses or by adding a new address. Further, the user can select to pay by credit card (predefined or new one) or by bank transfer (predefined or new one). If the *Customer* completes the checkout process, *StorePub* creates a new order for the actual shopping cart and deletes the shopping cart. When the order is finally placed, an invoice number is associated with the order.

a) Problem domain model

Create a class diagram domain model of the case study StorePub. (7 points)

b) Use Case model

Describe the functional requirements of StorePub online-shop with a Use Case model. (6 points)

c) Lifecycle

Provide a state chart diagram which describes the lifecycle of a shopping cart. (6 points)

Exercise 3:

Take a sample (existing) web application such as Amazon, NetFlix, etc. and write 8 sample requirements for that (assuming it is still in pre-development phase). (8 points)

Non-functional Categories such as: Look and feel, Usability, Legal, Security, Internationalization, Accessibility

At least one requirement for each of above mentioned non-functional categories must be provided.

ID	Requirement	Functional/Non-functional	Non-functional Category