ID2207 - Modern Methods in Software Engineering

Home work 1

Deadline 2007-09-17

General Instructions

- There are 4 homeworks in the course.

- 5 Bonus Points, for in-time submission & **approval** of ALL home-works ☺

- In case of late submission & approval of **any** homework, No bonus points will be awarded for the "in-time submission of homeworks" ☹

- Bonus Points are only valid for the first Exam.

- Homework can be submitted till 11:59 pm on respective Submission Date.

General Instructions

- Few Bonus Point(s) Questions in each homework. ☺

- Bonus Point Questions are <u>not mandatory</u> for homework approval.

- Even in case of losing "in-time submission bonus points" you can still get bonus points for the Bonus questions. ☺

- **Some students may be asked to present their submitted solution for some question and justify/argue their answer infront of class.**

Homework 1

Question 1: What is the difference between an abstract class and an interface?

Question 2: i). Give an account of advantages and disadvantages of inheritance and composition. **ii).** Give an example of when inheritance is better and when composition is better

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Question 3: i). What are some of the advantages and disadvantages of waterfall method of development, and spiral model over each other? **ii).** Describe development circumstances under which you would prefer to follow waterfall method of development, instead of spiral model?

Question 4: Draw a class diagram for the case of our course. We assume that there are at least the following classes: Person, Student, Instructor and Assistant (you can add as many additional classes as you would like). You should draw associations between them, possible attributes and operations

Homework 1

Question 5, 6: Prepare a class diagram

Question 7: Draw the Publish/Subscribe protocol as sequence diagrams (publisher, subscriber and subscription consumer).

"Subscriber subscribes consumer at a publisher to receive notification message and publisher sends confirmation to subscriber and notification to consumer (who may be the same or different)."

Homework 1

Question 8: Draw a sequence diagram of scenario "WarehouseOnFire" given in figure 2-15 in Book.

Question 9: i). Draw a Collaboration diagram of the similar scenario as of Question 8. **ii).** Analyse which type of Interaction diagram you would prefer. **iii).** If you are given a scenario with numerous concurrent flows of control then which Interaction diagram will you opt for.

Homework 1

Question 10: Draw an activity:

"Opening account, deposit/withdraw iterations (with conditions checking) and closing account" as state chart diagram(s).

Question 12: Draw activity diagram of Boehm's Spiral Model in Figure 15-10. (01 Bonus Point)

Question 13: Give a scenario in which you would prefer to use Entity-Centred models over Activity-Centred Models. (01 Bonus Point)

Instructions

- Use appropriate example(s) to elaborate your answers.

- Give bulleted and precise points (no detailed description needed).

- For UML Diagrams, use appropriate UML tool, and elaborate your Diagram and give **rationale** of your proposed solution.

- Be specific in answering questions.

- Clearly state assumptions.

Deliverables

- A Report in DOC, PDF, or PS format.

- Email your report with subject "MMSE07 Homework 1" to **ahaseeb@kth.se**

- After due date, verify your name in list of submitted homeworks.

- List of approved Homeworks will be uploaded after few days of submission.

- **Homework will be approved if all questions are approved.**