

Exam Software Engineering (400071)

29 August 2007

Part of this exam is centered on the following case study:

A media company specialized in e-news portals aims at enlarging its market share as an 'active' provider of e-news & e-newspapers. They want to develop a system offering its clients a number of software services to subscribe to. The clients can get short news and complete newspapers in electronic format (e-news).

They will start offering two types of subscriptions. The "standard subscription" will include a standard package of local and international e-news. The "personalized subscription" will deliver customized e-news per e.g. subject (e.g. sport, business), location (e.g. Europe, Amsterdam), type (e.g. scientific, gossip, breaking news, IT), etc.

In addition, all clients can subscribe to a paper version of the e-news service, which periodically (e.g. on Sunday, twice a week) produces a paper version of the newspaper or of the tailored news (e.g. sport news-paper, business news-paper, scientific news-paper) to be delivered at the home address. To this end, the system will be integrated with a network of distribution companies.

Note: this problem description may be ambiguous and incomplete. In answering the questions, you are free to complete it (if needed) and to briefly motivate your assumptions.

Questions about the theory

1. What is the main difference between incremental development and RUP? [1 point] (select one or more answers from the following possible answers):
 - 1.a) Incremental development does not include the first RUP phase (Inception).
 - 1.b) Incremental development delivers functionality in small increments, whereas the RUP delivers the complete functionality altogether.
 - 1.c) In RUP iterations occur within each of its four phases, whereas in incremental development each iteration executes all phases exactly once.
2. What is requirements elicitation? [1 point] (select one or more answers from the following possible answers):
 - 2.a) It is the process of making explicit the implicit requirements users and/or clients have on a software system.
 - 2.b) It is the process of describing the requirements users and/or clients have on a software system by means of a textual and/or graphical notation.
 - 2.c) It is the process of making explicit the functional and quality requirements end-users have on the GUI of an interactive system.
3. What is a test case? [1 point] (select one answer from the following possible answers):
 - 3.a) it is a criteria used for measuring the quality of a testing technique.
 - 3.b) it is a set of data used for testing.
 - 3.c) it is a testing technique used for testing.
4. What is the difference in UML between a communication diagram and a sequence diagram? [1 point] (select one answer from the following possible answers):
 - 4.a) Unlike the sequence diagram, the communication diagram shows a usage scenario carried out by a number of class instances (objects).
 - 4.b) Unlike the sequence diagram, the communication diagram uses mandatory sequence numbers to emphasize the ordering of messages exchanged among objects.
 - 4.c) Unlike the sequence diagram, the communication diagram shows the static structure of a software system.
5. With which design criteria is "information hiding" strongly related? Why? [1 point] (select one or more answers from the following possible answers):
 - 5.a) It is strongly related with "abstraction", because if you hide something, the user may abstract from that fact.
 - 5.b) It is strongly related with "coupling", because the hidden information decreases the dependency between a module and its environment.
 - 5.c) It is strongly related with "cohesion", because the *secret* is the reason including the parts in its module.

Questions related to the case study

6. For the case study, draw a UML diagram to specify the functional requirements. Explain why you selected that UML diagram [2.5 points].

7. Use a UML component diagram to describe a possible design solution for the complete case study. Define in a clear way each operation offered by the interface(s) of all components. If needed, use additional text [2.5 points].

Exam rules:

- No books or reference material.
- No calculator or similar electronic device.
- No mobile phones.