

DAT230 / DIT276 Requirements Engineering

Exam

Tuesday January 11, 2011

Examiner

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Contact person during exam

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Allowed tools / material

None except pen/pencil and eraser

General information

Numbers within parentheses show the maximal points awarded for each question.

Maximal points can be given if:

- The answer is correct.
- The presentation of the answer is readable and clear.
- The answer is given in English.

One sheet of paper may only contain parts of solutions belonging to one question.

Grading

The grades on this exam are based on your total score on the questions. For Chalmers students:

0 – 29 points: Fail

30 – 38 points: 3

39 – 47 points: 4

48 – 60 points: 5

For GU students:

0 – 29 points: Fail

30 – 47 points: G (Pass)

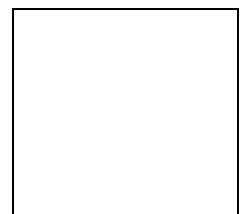
48 – 60 points: VG (Pass with distinction)

Results

Exam results will be available from the course homepage.

Review

Time and place will be announced on the course homepage.



The following sentences give a brief description of the software for a navigation system. Most of the exam questions below are based on this description so first read it in detail. Then answer the questions.

GPS Application:

When the application is started, the user is asked to enter an end destination; street, street-number and city. After the user has pushed the “OK” button a map is shown with a highlighted, in red color, route to the destination. The GPS map should show all roads. The users current position is always shown as a dot on the map that moves as the user moves. When the user reaches the end destination a label is shown on the map stating that the end destination has been reached.

1. BDD scripts for requirements capture (10p)

a) You are a requirements engineer at a company that uses Behavior-Driven Development (BDD) scripts (as presented in the course exercise) for writing and documenting requirements. Your company just got a new client that wants an application for smartphones based on the description for the GPS application above. Your job is to write down 3 of the most important features of the GPS application using BDD scripts. Every feature should have at least one scenario! **(9p)**

b) State the benefits of using BDD scripts for capturing requirements. **(1p)**

2. Mocking a user interface (8p)

a) Draw a (mock) prototype of the user interface for the GPS application and highlight all important attributes/features. **(4p)**

b) Write 2 advantages and 2 disadvantages of using prototyping as an elicitation practice. **(4p)**

3. Natural language requirements (10p)

Write 5 high-quality (good) functional natural language requirements for 5 features belonging to the described GPS application. **(10p)**

Hint: Remember to consider characteristics of “good” requirements.

4. Use cases (10p)

a) Write 2 textual use-cases based on the GPS application description. **(4p)**

b) Draw UML activity diagrams for the use cases you chose in question 4a above. **(4p)**

c) Describe two realistic requirements on the GPS application for which a use case would not be a good way to specify those requirements. State both the requirement and describe in text why a use case would not be a good specification notation. **(2p)**

5. Elicitation (8p)

a) What is requirements elicitation? **(1p)**

b) Which elicitation techniques are typically used to collect information, such as requirements, when using ethnographic techniques? **(1p)**

c) There is number of ambiguities in the GPS application description. Find 2 ambiguous statements in the GPS application description and write them down. Motivate why they are ambiguous! **(2p)**

d) Write 2 questions that could be asked to the customer to resolve the ambiguities in the GPS application description. **(2p)**

e) Write 2 commonly recognized issues/problems in requirements elicitation. Describe each issue/problem with 1 sentence only! **(2p)**

6. Market-driven Requirements Engineering (MDRE) (4p)

a) Describe the difference between MDRE and Bespoke RE **(1p)**

b) Name three (3) challenges that are specific to MDRE and describe each one shortly. **(3p)**

The exam questions continue on the next page...

7. Future of RE in distributed Software Development (10p)

Given the knowledge you have gained about Requirements Engineering (RE), how do you think the area will develop in the future? Discuss the future of the RE field and its sub-activities and focus in particular on how the area(s) will be affected by the globalization of software development i.e. that RE activities might take place in another country (and time zone and culture etc) and carried out by other people than where the actual design, development and unit testing takes place. Your answer will be graded based on *breadth* (more, well-supported ideas/arguments/areas gives more points), *depth* (how well supported an idea/argument is, without any motivation for an idea you will not get any points at all for it), as well as *realism* (unrealistic ideas gives no points). **(10p)**