

DAT230 / DIT276 Requirements Engineering

Exam

Tuesday October 19, 2010

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)

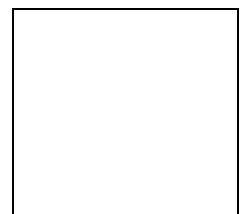
For the higher grade limits (Chalmers: 4&5, GU: VG) some students have a bonus “cushion” of max 3 points to reach the closest higher grade.

Results

Exam results will be available from the course homepage.

Review

Time and place will be announced on the course homepage.



1. Requirements quality criteria (6p)

State the name of and briefly describe six (6) important quality criteria applicable to individual software requirements. (6p)

2. Requirements elicitation (7p)

- a) What is requirements elicitation? What are the goals of this RE activity? (2p)
- b) Describe three different requirements elicitation techniques/methods and their advantages/disadvantages? (3p)
- c) How can they be used to complement each other in the elicitation of requirements for a software system? (2p)

3. Change management (7p)

- a) Describe four different reasons/sources for requirements change? (4p)
- b) Describe how a Change Control Board (CCB) analyses a requirements change to determine whether it should be accepted? Your answer should discuss at least three different types of analysis a CCB commonly would use. (3p)

4. Examples of good/bad requirements (15p)

In all of the questions below you are to write requirements for the calendar application software on a mobile phone. (Language note: singularis (one example) of the word *criteria* is the word *criterion*)

- a) Choose three (3) different and commonly recognized requirements quality criteria, state them clearly and then write a **natural language, functional requirement** that violates “its” criterion (i.e. the requirement has low/bad quality for that criterion). (3p)
- b) For each of the three (3) requirements from question 4a above rewrite the requirement into one having good quality according to its quality criteria. (3p)
- c) Choose two (2) different and commonly recognized requirements quality criteria relevant for non-functional requirements, state them clearly and then write a **natural language, non-functional requirement** that violates “its” criterium (i.e. the requirement has low/bad quality for that criterion). (2p)
- d) For both of the two (2) non-functional requirements from 4c above rewrite the requirement using PLanguage. Add as realistic and many PLanguage tags/parts with corresponding information as possible. (6p)
- e) Discuss whether the PLanguage versions (in 4d above) are better or worse requirements than their natural language versions (from 4c above) based on different requirements quality criteria (at least two (2)) that are relevant for non-functional requirements. (1p)

5. Prioritization of requirements (15p)

- a) Why is prioritization of requirements important? (1p)
- b) Describe at least three different scales/aspects/attributes on which prioritization can be done? (we are not asking for different prioritization methods) For each scale/aspect/attribute: why are they important and what could happen if they were not taken into account? (3p)
- c) Write six (6) realistic, natural and high-quality requirements for a word processor. (3p)
- d) Prioritize the six (6) requirements from 5c above using the cost-value approach of Karlsson et al discussed in the lectures and detailed in the paper. Clearly mark each step of the way and the results it produce until you arrive at the final and prioritized list of requirements. You can approximate sub-results in calculations to simplify calculations. (8p)

More questions on the following page...

6. Future of RE: Agile or not? (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 use of more agile (i.e. lightweight and less documentation heavy, as well as iterative) software development processes will affect that future. (10p)

Total: 60p