Universität Zürich
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Requirements Engineering II

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Assignment 1: Requirements Traceability

1. Tasks

- Read the mandatory items in the reading list
- Be prepared to answer the questions given below in class
- Prepare a 15 minutes presentation (5-10 slides) on the theme assigned to your course group. Browse/read additional papers and/or web pages where necessary.
- Generate a requirements-to-stakeholders traceability matrix for the requirements document that you produced in exercise 2 of Requirements Engineering I.

2. Reading list

Mandatory reading

[Jarke 1998] and [Dick 2005] provide a motivation and introduction. [Gotel and Finkelstein 1994] is the first systematic treatment of the problem. [Ramesh and Jarke 2001] establishes reference models for traceability. [Huffman Hayes, Dekhtyar and Sundaram 2005] describe how traceability information can be retrieved from existing artifacts, instead of of entering and maintaining traceability links by requirements engineers.

Mandatory browsing

Get an overview of the tracing capabilities of requirements management tools by browsing the given web sites.

Optional reading

[Cleland-Huang et al. 2005], [Huffman Hayes, Dekhtyar and Osborne 2003]

3. Questions

- What is requirements traceability?
- What is the benefit of requirements traceability and what does it cost?
- How can one establish and maintain traces?
- What is the role of requirements management tools?

4. Themes for presentation

(Will be assigned by the research assistant who tutors this course; your group can apply for the theme you would like to work on)

A. An overview of the requirements traceability problem

B. Establishing requirements traceability

C. Requirements traceability tools

References

Cleland-Huang, J., R. Settimi, O. BenKhadra, E. Berezhanskaya, S. Christina (2005). Goal-Centric Traceability for Managing Non-Functional Requirements. *Proceedings of the 27th International Conference on Software Engineering*, St. Louis, USA. 362-371.

Dick, J. (2005). Design traceability. *IEEE Software* **22**, 6 (Nov./Dec. 2005). 14-16.

Gotel, O., A. Finkelstein (1994) An Analysis of the Requirements Traceability Problem, *Proceedings of the First International Conference on Requirements Engineering,* Colorado Springs. 94-101.

Huffman Hayes, J., A. Dekhtyar, J. Osborne (2003). Improving Requirements Tracing via Information Retrieval. *Proceedings of the 11th IEEE International Requirements Engineering Conference*, Monterey Bay. 138-147.

Huffman Hayes, J. A. Dekhtyar, S. K. Sundaram (2005). Inproving After-the-Fact Tracing and Mapping: Supporting Software Quality Predictions. *IEEE Software* **22**, 6 (Nov./Dec. 2005). 30-37.

Jarke, M (1998). Requirements Traceability. *Communications of the ACM* **41***,* 12 (Dec. 1998). 32-36.

Ramesh, B., M. Jarke (2001). Toward Reference Models for Requirements Traceability. *IEEE Transactions on Software Engineering* **27**, 1 (Jan 2001). 58-92.

Web resources

Selected commercial tools:

- Caliber RM (http://www.borland.com/us/products/caliber)
- DOORS (http://www.telelogic.com/products/doors/doors/index.cfm)
- IRqA (http://www.irqaonline.com/)
- RequisitePro (http://www-306.ibm.com/software/awdtools/reqpro/)

Open source tool:

- OSRM (http://www.osrmt.com/)

Tool lists:

- Ludwig Consulting Services list: http://www.jiludwig.com/Requirements_Management_Tools.html
- INCOSE list: http://www.incose.org/productspubs/products/setools/tooltax/reqtrace_tools.html