None-Functional Requirements and Interviews

School of Computer Science | Software Requirements and Design
Marta Kristín Lárusdóttir, Associate professor
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Content of this lecture

- Non-functional software requirements
  - Usability is our focus
- Interviews
- Interviewees and results

- Reading material
  - ID ch. 11.3 – What are requirements?
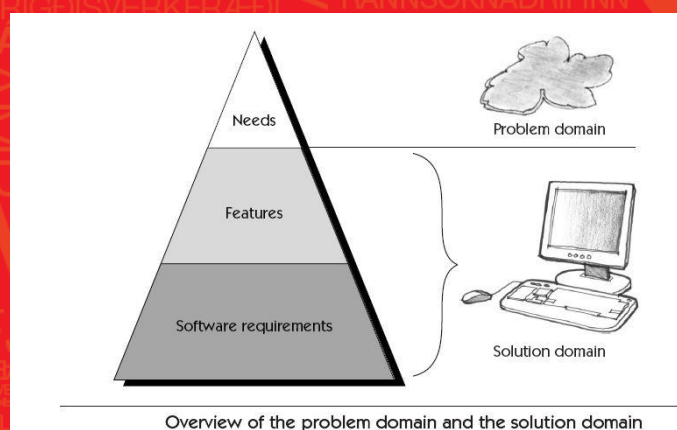 - ID ch. 8.4 - Interviews

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How Will You Benefit from this Lecture?

- You will make a requirement list during the next problem solving class
  - Including non-functional requirements

- You will conduct interviews in the group assignment
  - The purpose is to gather information for testing the requirement list
- You will use that experience in your group assignment

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Non- Functional Software Requirements

Overview of the problem domain and the solution domain

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The computer system is a Tool

Users

Tasks - goals

Tool

Useful and

Easy to use

Definition of usability (easy to use)

- "The extent to which a *product, system or service* can be used by *specified users* to achieve *specified goals* with *effectiveness*, *efficiency* and *satisfaction* in a *specified context of use*"

    ISO 9241-210:2010

- Specified users
    – Described user groups analysis
- Specified goals
    – Described in the requirement list
- Specified context of use
    – Described in the user groups analysis

What is Usability?

- Usability is a **quality** attribute that assesses how easy user interfaces are to use. *(Jakob Nielsen, 2003)*

- Famous early usability researchers
  - Donald Norman
  - Jakob Nielsen
  - Ben Schneiderman
    - http://en.wikipedia.org/wiki/Usability

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The Factors of Usability

Effectiveness:

Accuracy and completeness with which user achieve specified goals (p. 2)

Efficiency:

Resources expended in relation to the accuracy and completeness with which users achieve goals (p. 2)

Satisfaction:

Freedom from discomfort, and positive attitudes towards the use of the product (p. 2)

Defined in the ISO 9241-210 standard, 2010

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An example – Ordering ingredients

- Effectiveness
  - 80% of the users are able to order Vegan food for next week
- Efficiency
  - The average time for ordering Vegan food for next week should be below 2 minutes
- Satisfaction
  - 90% of users give 4 or higher grade when grading how satified they are with our product

Functional and non-functional requirements

- Functional requirements
  - implemented features
    - "it should be possible to borrow a book"
  - rules
    - "a user may not borrow more than 3 books simultaneously"
  - etc.

- Non-functional requirement such as:
  - Extensibility/scalability
  - Portability, reusability
  - Performance, hardware concerns
  - Cost savings
  - Usability/user experience
  - Training needs, etc…

Performance vs. Usability requirements

- Performance
  - The system response time is less then 30 seconds when 1000 users are using the system simultaniously
  - Focuses on the system

- Usability
  - Efficiency
  - The average time for ordering Vegan food for next week should be below 2 minutes
  - Here we are focusing on how the system is from the users perspective – how long time does it take for them

Gathering Information on Requirements

- Methods for eliciting information from various stakeholders on the requirements:
  - Direct
    - Interviews
    - Observations through contextual Interviews
    - Focus groups
  - Indirect
    - Corporate documentation
    - Logs and notes
    - Questionnaires

Nordstorm Innovation Lab

- https://www.youtube.com/watch?v=2NFH3VC6LNs

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How Can You Know The Right Requirements?

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Interviews

Interviewing Users – Viðtöl við notendur

- When you interview, you talk to a person and ask questions
  - At the same time and same place
  - It easy and friendly
  - You are talking together

- Needs good planning
  - Whom do we want to interview?
  - What questions do we want?
  - How long is the interview?
  - How should we record the results?
  - How do we want to describe the results?

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Various goals of interviews

- What are the business operations and processes?
  - Questions to users: What do you do?
  - Think about: What are the real tasks? What are the important tasks?
- How should those operations be performed?
  - Questions to users: How do you do it? What steps do you follow?
- What information is needed to perform those operations?
  - Questions to users: What information do you use? What forms or reports do you use?

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Running the interview (see pg. 276)

- *Introduction*
  - introduce yourself, explain the goals of the interview, reassure about the ethical issues, ask to record, present any informed consent form.
- *Warm-up session*
  - make first questions easy and non-threatening.
- *Main session*
  - present questions in a logical order
- *A cool-off period*
  - include a few easy questions to defuse tension at the end
- *Closing session*
  - thank interviewee, signal the end, e.g, switch recorder off.

TRY TO MAKE THE INTERVIEWEE FEEL GOOD

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Introduction

1. Introduce yourself and the goal of the project
2. Explain the focus of this particular interview
3. Tell them the estimated time the interview will take
4. Explain how you will keep the information confidential
5. Get permission to record the interview (if you want that)
6. Ask about their background
7. Ask about their background to the subject of the interview

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Main body - Interview questions

- Two types:
  - 'closed questions' have a predetermined answer format, e.g., 'yes' or 'no'
  - 'open questions' do not have a predetermined format
- Closed questions are easier to analyze
- Avoid:
  - Long questions
  - Compound sentences - split them into two
  - Jargon and language that the interviewee may not understand
  - Leading questions that make assumptions
    - e.g., why do you like …?
  - Unconscious biases e.g., gender stereotypes

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Closure

- Ask if the interviewee has something to add
- You summarise what you learned from the interviewee
- Ask about pet issues
  - You want the interviewees opinion about those
- Thank the participant
  - give the gift if you had one
- Schedule the interpretation within 48 hours

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An Example

Interview guide – Interviewing Researchers

Introduction: People at the meeting, the form of the meeting.

1. Tell us a little bit about yourself in less than 5 minutes?

Now we want to talk a little bit about you professional profile

2. What is the most influental paper you have written?
   - What are your research interests?

3. How is you current situation now, how is the division between research, teaching and service?

4. Tell us about your teaching, what do you think is most important in teaching?

5. What courses would you like to teach? - What courses would you like to introduce?

6. Have you supervised students? - What is your supervision style?

7. What circumstances do you think make your best work environment?

8. What do you find most challenging in your work?

9. There are always conflicts in all job situation, how do you deal with those?
   - Tell us about an example

Closure: Now we would like to focus on more personal matters.

10. Can you tell us about your family situation?

11. Why Iceland? – How do you vision yourself in Iceland? Is the family planning to move with you?

12. Do you have any pending job applications?

13. Any other comments or questions you might have?

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Interviewees and Results

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Who to interview?

- If you are developing software
  - Interviewees: Current or potential users of you system
  - One or two from each user group
- System requirements
  - Interviewees: Stakeholders
- It really depends on the goal of the interviews
  - It is very important to define the group involved carefully

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To find interviewees

- How can we find users?
  - From our customers
  - From our marketing department
  - From our user support
  - Get managers agreement
  - Get connections from users representatives
  - Get a list from the customer
  - Advertise

In what environment?

- Very good to interview in the environment where the system will be used
- If used in different environments
  - Office environment
  - At home
  - In school
  - Different geographical areas

	Viðskiptavinur	Umsjónarmaður	Leiðsögumaður	
Skrifstofuuumhverfi	2	2		4
Heima	2	1	2	5
Úti á landi			2	2
	4	3	4	

- Take 2 – 3 in each environment
  - 2 users in each environment
    - If the environment is homogeneous take different groups

Data recording

- Notes, audio, video, photographs

- Notes plus photographs
- Audio plus photographs
- Video

Analysing and Describing Results of Interviews

- Summarise the background of your interviews
  - We had 10 interviewees, 6 males and 4 females. Their age range was from 34 – 67. They had been working for the company from 6 months to 16 years.
  - 6 were fabric seekers, 2 agents and 2 manifacturers
    - Refer to the user groups
- Summarise the results
  - If you have asked the same questions to all
    - Summarise what the interviewees said for each question in your own words
    - Often good to take examples.
      - Like one of the interviewees stated: „I only use this system, when nothing else works".
  - If you have asked particularly about some issues
    - Summarise what the interviewees said

In the Group Assignment

- Use the interviews to change the requirement list

First requirements - Brainstormed	⇨	Interviews based on first requirements	⇨	Hand-in requirements - Based on requirements

- List of all changes you did from fist requirement list to the hand-in version
- For each requirement in the hand-in version
  - Describe why you have this requirement

Example

- Requirement #6 - Check the ingredients of a meal
- Rational: 3 users we interviewed (i2, I3 and I5) told us that it is important for them to be able to see the ingredients of the meal, because they have allergies and one is vegan

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