

Lecture 07: Techniques for Gathering Requirements

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Outline

- n Techniques:
 - n Use Cases / Usage Scenarios
 - n Commonality and Variability Analysis
 - n Frequent Customer Feedback
 - n Throwaway Prototyping
- n Risks from Inadequate Requirements Processes
- n Discussion Questions

Note: The list of techniques is necessarily incomplete.

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Resources

- n "Software Requirements", by Karl Wieggers
- n "Use Cases and The Ever Unfolding Story", seminar by Dan Rawsthorne

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Requirements Engineering

"The goal of requirements engineering is to develop high quality – not perfect – requirements that allow you to proceed with construction at an acceptable level of risk."
-- from "Software Requirements", Karl Wieggers

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Use Cases

- n Describe the typical paths for a user to interact with a system
- n Increasing level of detail depending on the complexity of the interaction
 - n "The ever unfolding story" (Dan Rawsthorne)
- n Questions to consider (in that order):
 1. Who are the actors?
 2. What are they (normally) doing?
 3. What can go wrong with that?
 4. How do we handle this situation?

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Use Cases

- n Example: Reading your web-based mail (e.g., @ hotmail, yahoo, gmail, etc.)

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Commonality and Variability Analysis

- Commonalities are the enduring concepts of the domain you're modeling.
 - They would give stability to your designs.
- Variabilities are only defined in the context of existing commonalities.

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Commonality and Variability Analysis

- Example: Computing the price for a purchase at an e-commerce site

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Frequent Customer Feedback

- Are requirements going to change?
 - When are they final?
- Are they ever exact and clear?

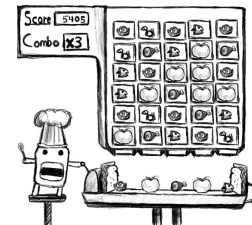
- Frequent communication with customers => no need to make dangerous assumptions about the finality and completeness of requirements

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Throwaway Prototyping

- Using a rough sketch / diagram to show your understanding and to evoke customer response
- Example:
 - © Busta' Sandwich Co.
- **Caution:** Do not overdo it! It must look and remain throwaway.



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Risks from Inadequate Requirements Processes

- Insufficient user involvement => ?
- Creeping user requirements => ?
- Ambiguous requirements => ?
- Gold-plating by developers and users => ?
- Minimal specifications => ?
- Overlooking the needs of certain user classes => ?
- Incompletely defined requirements => ?

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Risks from Inadequate Requirements Processes

- Insufficient user involvement => unacceptable products
- Creeping user requirements => overruns and degraded product quality
- Ambiguous requirements => ill-spent time and rework
- Gold-plating by developers and users => unnecessary features
- Minimal specifications => missing key requirements
- Overlooking the needs of certain user classes => dissatisfied customers
- Incompletely defined requirements => accurate project planning and tracking impossible

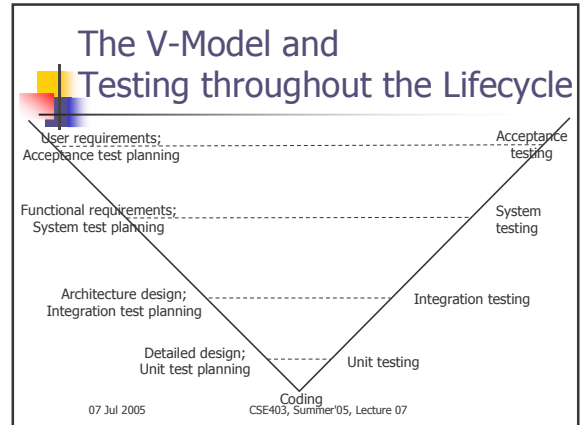
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Questions for Discussion

- n Is there a way to test requirements?
 - n If so, how?
 - n If not, how does one know that they've been fulfilled at delivery time?
- n How does one evaluate the presence and level of fulfillment of non-functional requirements?
 - n E.g.: reliability, robustness, efficiency, security, safety, maintainability, availability, ...

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Your Questions on Gathering Requirements

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