

INF 117 Project in Software Engineering

Lecture Notes ~ Winter Quarter,
2008

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Set 1 - Requirements Elicitation

Announcements

- ↳ Contact your Client
 - Meet with your Client ASAP
 - ↳ Check out the Deliverables Schedule
 - ↳ Arrange your Meeting Schedules
 - Meet Discuss your roles
 - ↳ Get going on your Team Website
- Not to state the obvious...
- ↳ Be dependable, on time, and courteous

Set 2

2

Requirements Engineering

3 Iterations
Read links on website under
Requirements Engineering

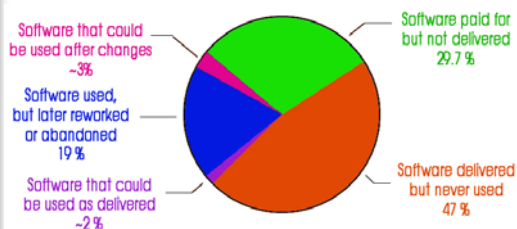
Today

- ↳ Requirements
 - Basic Process for this class
- ↳ Brainstorming
- ↳ Interviewing

Set 2

4

Why get it right?



Nine Contracts Totalling \$6.8 Million
Results of GAO Survey of software contracts

Software Engineering Education:
7th SEI CSEE Conference, San Antonio, TX 1994

Set 2

5

Some Terminology

- ↳ *requirements elicitation*
 - the process through which the clients discover, reveal, articulate, and understand their requirements.
- ↳ *requirements specification*
 - A document that describes the requirements in one or more forms,
 - including natural language and formal, symbolic, or graphical representations
- ↳ *requirements analysis*
 - Reasoning about the requirements;
 - Examine requirements for conflicts or inconsistencies, combining related requirements, and identifying missing requirements.
- ↳ *requirements validation*
 - the process of confirming with the customer or user of the software that the specified requirements are valid, correct, and complete.

Set 2

6

Requirements Engineering

3 Iterations

- 1st Iteration
 - Wish List (May need to be scaled)
 - Analysis need to be done
- 2nd Iteration
 - Complete
 - Further Analysis
- 3rd Iteration
 - Minor changes based on customer feedback

We Will use UML in this class

- Use diagrams effectively
 - Explain them
 - Diagrams should clarify!
 - Don't drive your documents by the diagram

Set 2

7

What is the objective?

- End up with something that will lead to a design – **complete** and **comprehensive**
- Describe **what** – not how
- Understand your s/w & h/w constraints
- Create a **common understanding**
- **Prioritize** (have them decide) & **Scale**
- Understand their needs (the **problem**)
 - Some will know solution better than others
 - Help them understand their needs
 - Propose a **solution**

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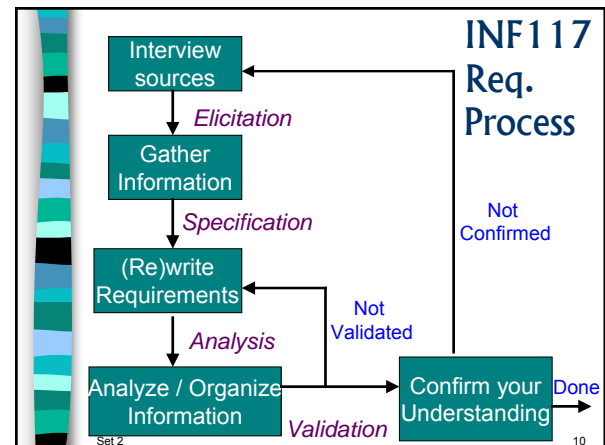
8

5 Basic Steps

- Identify relevant sources of requirements (the users).
- Ask them appropriate questions to gain an understanding of their needs.
- Analyze the gathered information, looking for implications, inconsistencies, or unresolved issues.
- Confirm your understanding of the requirements with the users.
- Synthesize appropriate statements of the requirements.

Set 2

9



Set 2

10

What you need to do next

- Meet with each other
- Come up with some interview questions
 - Brainstorm about the problem
- Meet with the Client
 - Interview / Brainstorm

Set 2

11

Meet with each other

- Exchange information
- Schedule Meeting times
- Work as a team
 - Know your strengths.
 - Decide who will lead for this portion.
- Come to the team meeting with potential interview questions
 - Think about the problem
- Be as thorough as you can.
- Brainstorm as a team
- Come up with a complete/concise list of questions

Set 2

12

Brainstorming

- ↳ Think about the problem beforehand
- ↳ One person should be the leader
- ↳ Two phases
 - Generation Phase
 - ▣ Offers many ideas as possible
 - ▣ **Don't criticize** – just open thoughts
 - Consolidation Phase
 - ▣ Discuss → Revise → Organize Ideas

Lack of criticism and judgment helps overcome communication barriers

4 Rules of Brainstorming

- ↳ Criticism is forbidden
- ↳ Wild, offbeat, unconventional ideas are encouraged
 - These stimulate thinking
- ↳ Generate lots of ideas
- ↳ Combine or embellish upon ideas of others

Have a scribe or use a whiteboard

Things to consider...

- ↳ Why build this system?
 - What purpose will it serve?
- ↳ What benefits will be derived from the use of this system?
- ↳ What are the constraints?
 - Resources.. h/w... s/w.. Etc..
- ↳ What assumptions are you/the client making?
- ↳ Can you test it?

Interviewing

- ↳ Set a time – and a duration with the client
 - Be on time
 - Confirm meeting time
- ↳ Be Professional
- ↳ Be Tactful --- and to the point
- ↳ Be Prepared
- ↳ Don't be afraid to ask questions
 - Ask open-ended questions
 - Probe → Explore

Interviewing (2)

- ↳ Think about the scope of the problem
- ↳ Listen... Listen... Listen...
 - Take notes
 - ▣ Ask them to pause or repeat if necessary
 - Draw pictures
 - Record
 - ▣ Ask first
 - Rephrase/summarize
 - Don't interrupt
- ↳ Read their body language
- ↳ Don't make assumptions

The point is... make sure you all are on the same page

Interviewing (3)

- ↳ Keep the process visible
 - Are we doing alright?
 - Have we ignored anything?
 - Anything else you wish to elaborate on?

The point is... COMMUNICATION

Brainstorm with the Client

- ↳ Builds a more complete picture of the user's needs
- ↳ See what the long term goals are for the project

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19

Know your Client and their needs

- ↳ What do they do?
- ↳ Get appropriate contact information
- ↳ Understand their availability

↳ Remember – we all want success



Set 2

20

Post-Interview

- ↳ Take Notes
- ↳ Discuss with your colleagues ASAP
 - Make sure you all have the same understanding
 - If you don't – likely the client won't either
- ↳ Summarize the interview – share with the interviewee
- ↳ Document the requirements (UML)
 - *Requirements specification*
- ↳ Analyze
 - *Requirements Analysis*

Set 2

21

Objective of your first meeting

- ↳ To elicit the requirements
- ↳ Understand the problem
 - The functional needs
 - Possible s/w & h/w constraints
- ↳ Start brainstorming solutions
- ↳ Get a wish list

Set 2

22