

Methods of HCI

A Typical User Centered Design Process

Or: An Academic Approach to Common Sense

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Outline

- Why User Centered Design
- Lifecycle Models – Examples
- The Design Process
 - Requirement Specification
 - Prototyping
 - Implementation
 - Evaluation
 - Implementation Review

Why User Centered Design

- There are way too many bad designs in the world...
 - www.baddesigns.com



Why User Centered Design

- There are way too many cryptic error messages in the world...
 - WTF: www.worsethanfailure.com

Login - Need a New Password

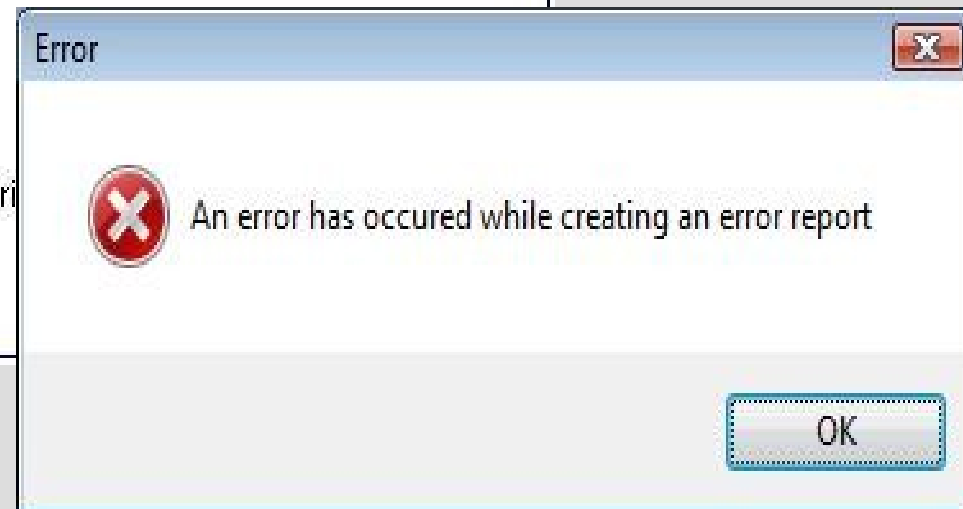
Verify Email Address

Is this still your correct email address? (address is partially hidden for your privacy):

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If correct, select Yes to receive a temporary password at this email address.

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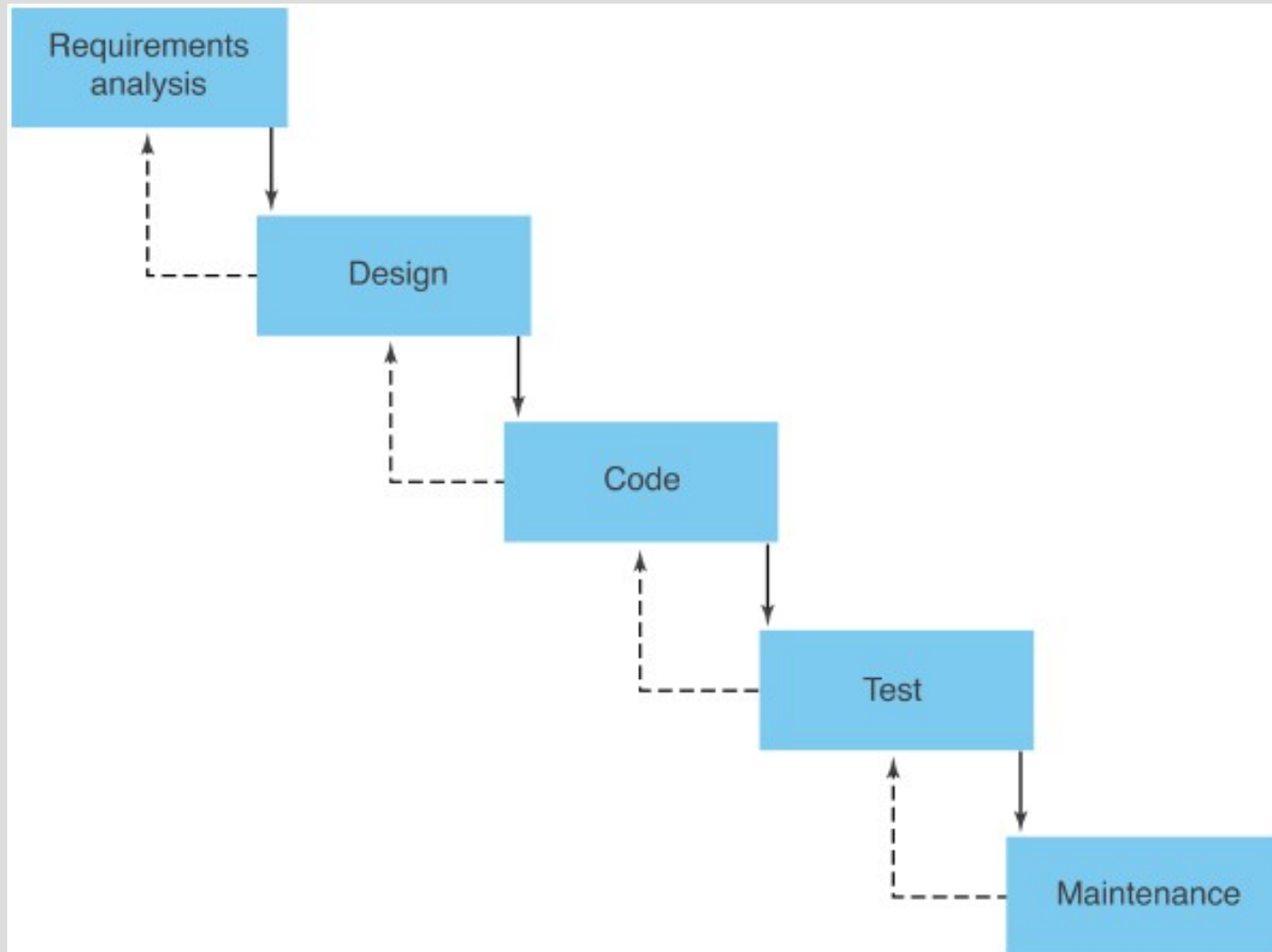
Why User Centered Design

User Centered Design is concerned with

- methodologies and processes for designing interfaces (i.e., given a task and a class of users, design the best possible interface within given constraints, optimizing for a desired property such as learnability or efficiency of use)
- methods for implementing interfaces (e.g. software toolkits and libraries; efficient algorithms)
- techniques for evaluating and comparing interfaces
- developing new interfaces and interaction techniques
- developing descriptive and predictive models and theories of interaction

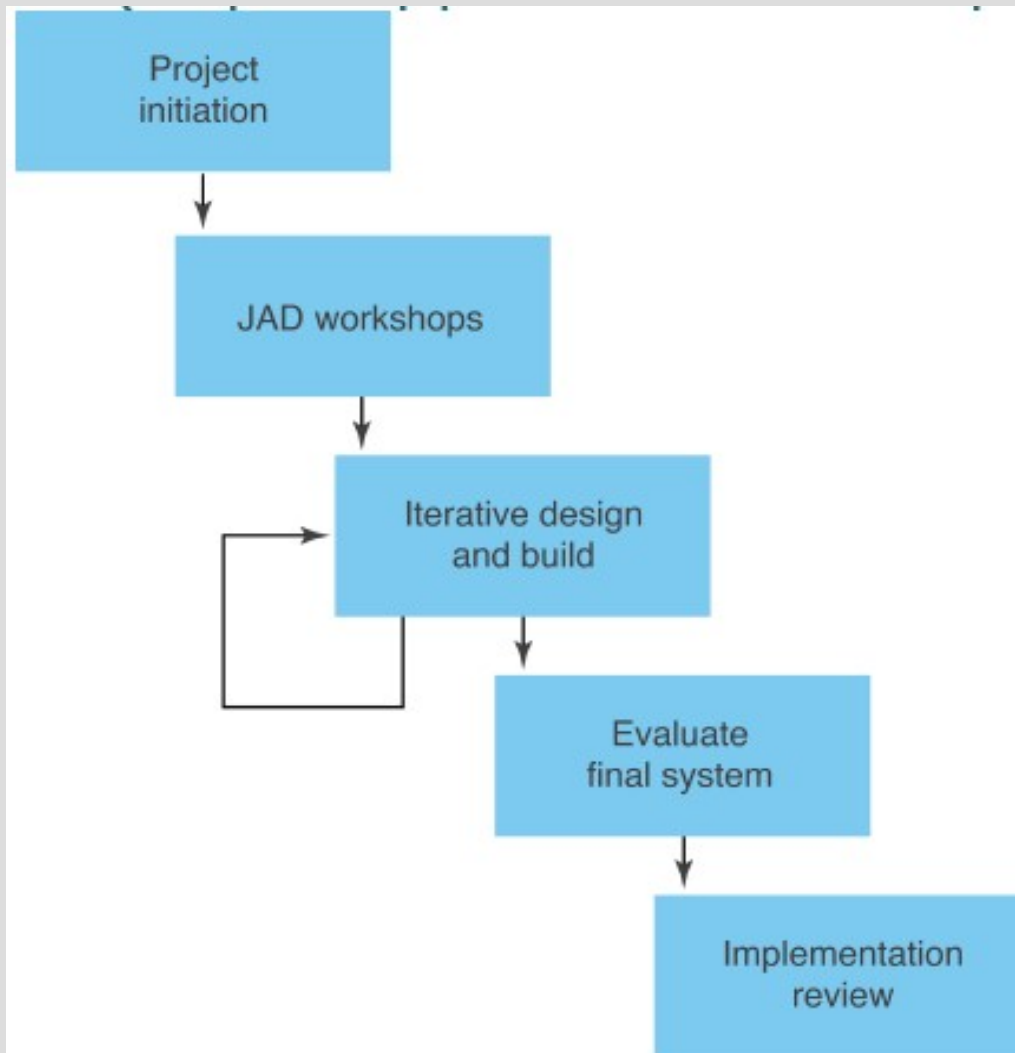
Lifecycle Models – Examples

- Waterfall Model



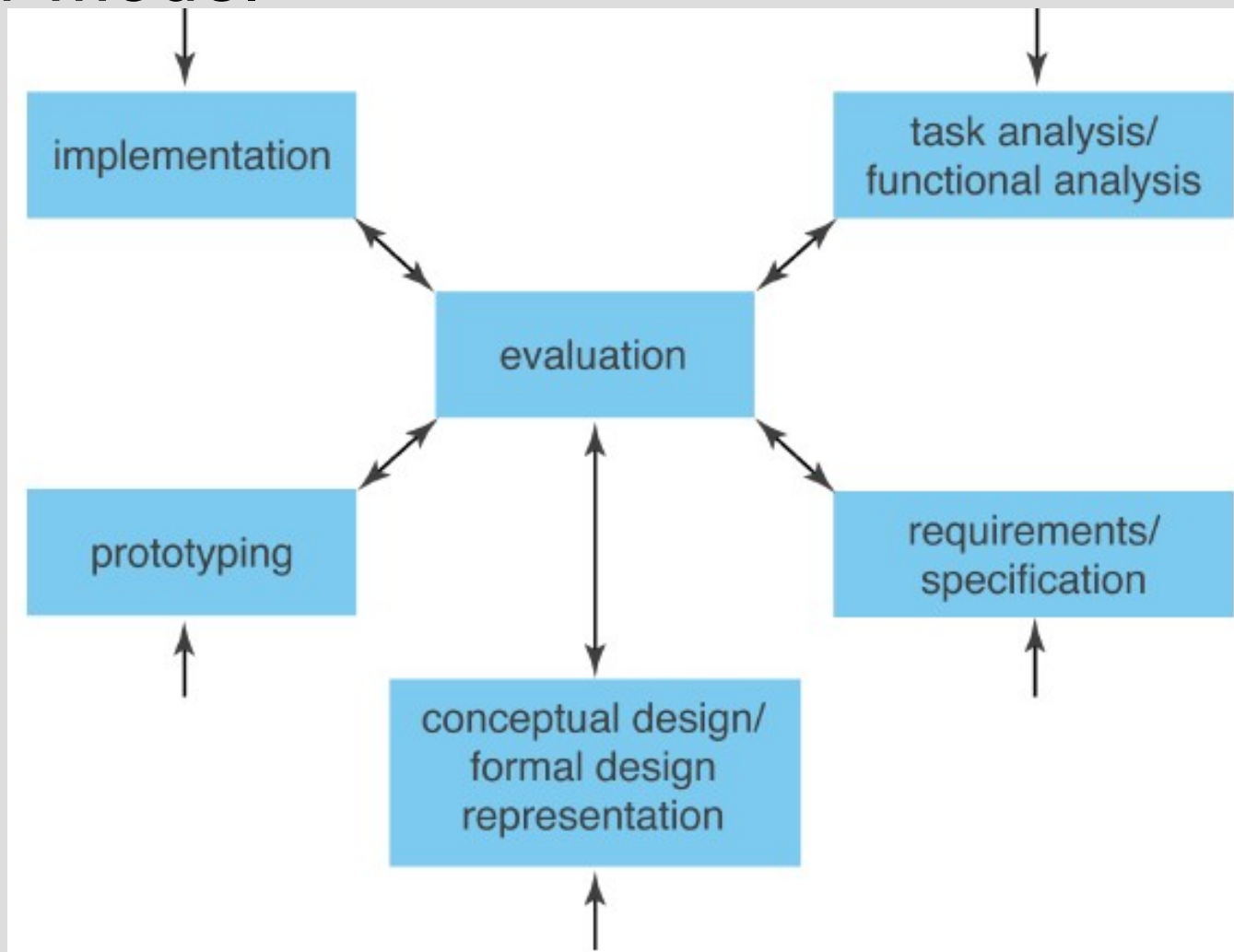
Lifecycle Models – Examples

- JAD/RAD Model



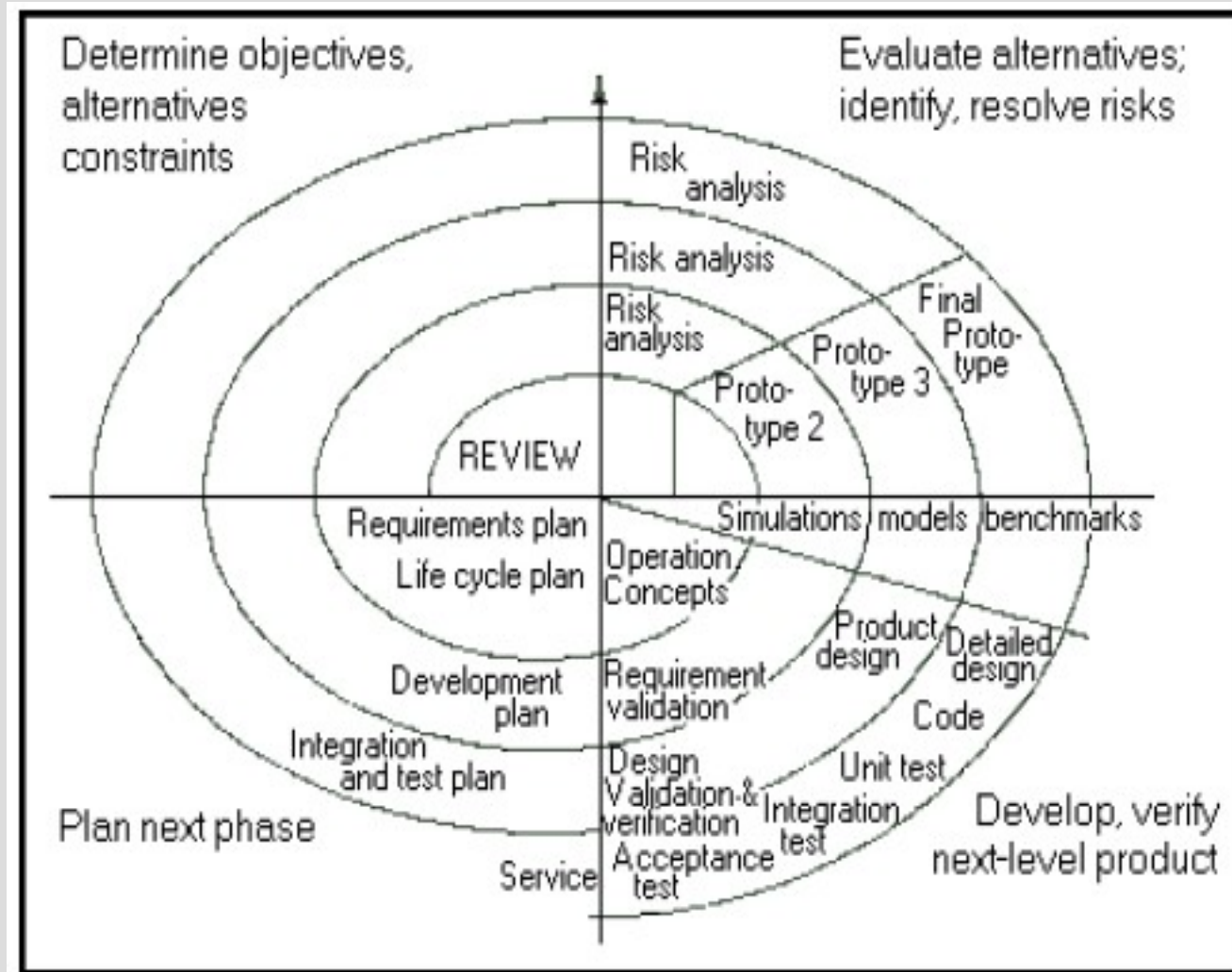
Lifecycle Models – Examples

- Star Model



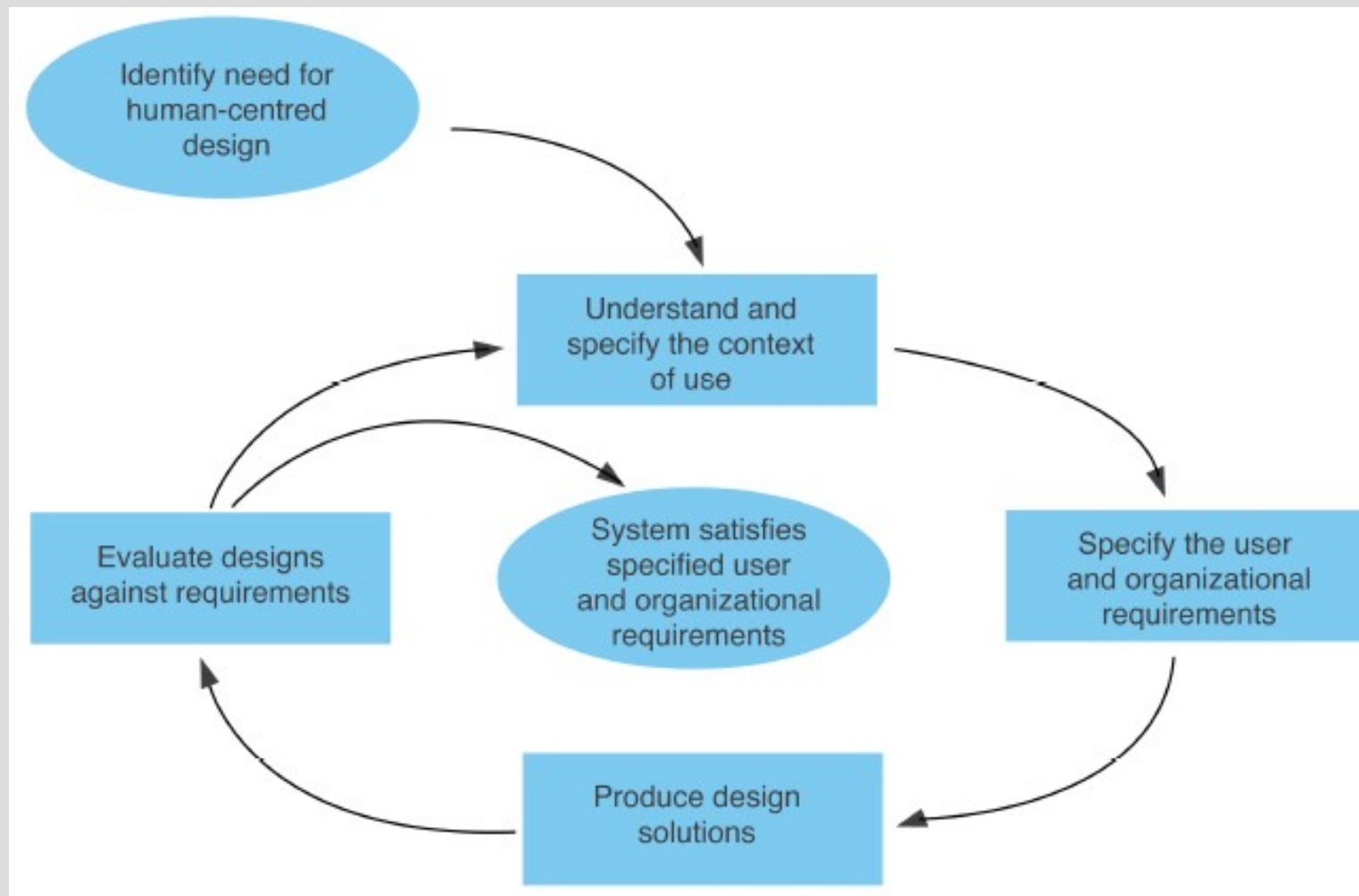
Lifecycle Models – Examples

- Spiral Model



Lifecycle Models – Examples

- ISO 13407 Model



Lifecycle Models – Examples

As you can see, all of these models have something in common...

- Requirement Specification
- Prototyping
- Implementation
- Evaluation
- Testing, Testing, Testing, Testing, Testing...

- Testing.

The Design Process

Specifying Requirements and Needs

- Understand the users and user groups
- Each user has different needs and reqs
 - Don't necessarily know what they want
- It's an Interaction Designer's task to find out!

The Design Process

Specifying Requirements and Needs

- Different techniques:
 - JAD workshops
 - Interviews
 - (Hierarchical) Task analysis
 - Focus Group Sessions
 - Domain Experts
 - Contextual Inquiries
 - Observation
 - Mindmaps / Brainstorms

The Design Process

Specifying Requirements and Needs

- Some helpers:
 - Your competition
 - Personas
 - Task Diagrams / Flow Charts
 - Action-Sequence Diagrams
 - Very interesting: Norman's Theory of Action
 - 7 Stages of Action:
 - Make a goal
 - Form an intention
 - Make an action sequence
 - Perform the action sequence
 - Perceive altered state of the universe
 - Interpret new state of the universe
 - Evaluate state against the initial goal

The Design Process

Prototyping

- Most important tool in usability design
- Covers all
 - Considerations,
 - Requirements,
 - Needs,
 - Specifications

that have been established in the previous step

The Design Process

Prototyping

- Not done once, or twice
- Dozens, sometimes THOUSANDS of prototypes before product is released
- Also covers gained knowledge from testing
- The first step (sometimes: zero-th step) in iterative design

The Design Process

Iterate: Implementation and Evaluation

- The “Guts” of every design process
- Implementation:
 - Implement everything you know
 - Potentially get rid of some reqs / specs
 - Feasible? At all possible?
 - Create a next evolution of the initial prototype

The Design Process

Iterate: Implementation and Evaluation

- Evaluation
 - General term for “User Testing”
 - Evaluate your current prototype generation against initial specs, reqs, needs and considerations
 - Conduct user testing and usability testing
 - (What's the difference?)
 - Use gained knowledge from testing and incorporate into next prototype generation
 - Careful: Don't get lost in the details!

The Design Process

Implementation Review

- The final state of design process
- Reached when either of the following constraints is fulfilled:
 - Out of money
 - Out of time
 - Out of ideas
 - Competition was done first
 - Goals reached (Ideal case)
 - Customer satisfied

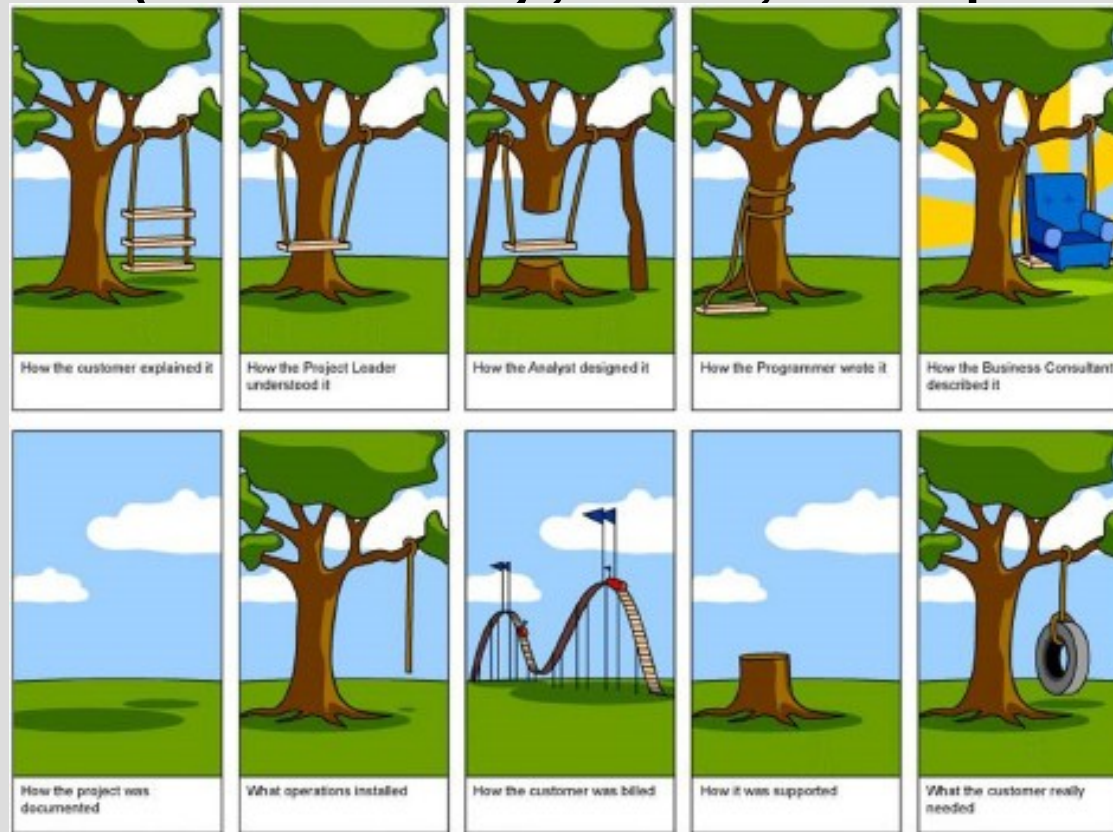
The Design Process

Implementation Review

- No failure is a failure unless you don't learn from it
- Knowledge gained from project will influence future projects
(main strength of JAD workshops)
- In case of success, more important work:
 - Documentation
 - Maintenance
 - Customer/Client Support

The Design Process

Projects only fail if there is a lack of commitment or surrounding constraints terminate (i.e. money, time, competition)



Thank you for your attention!

References

- Lifecycle Pictures taken from Sharp, Rogers, Preece, Interaction Design, 2nd, 2007. www.id-book.com
- Bad Design Pictures taken from HCI 500 slides by Prof. B. Sibuma
- Cryptic Error Messages found on worsethanfailure.com