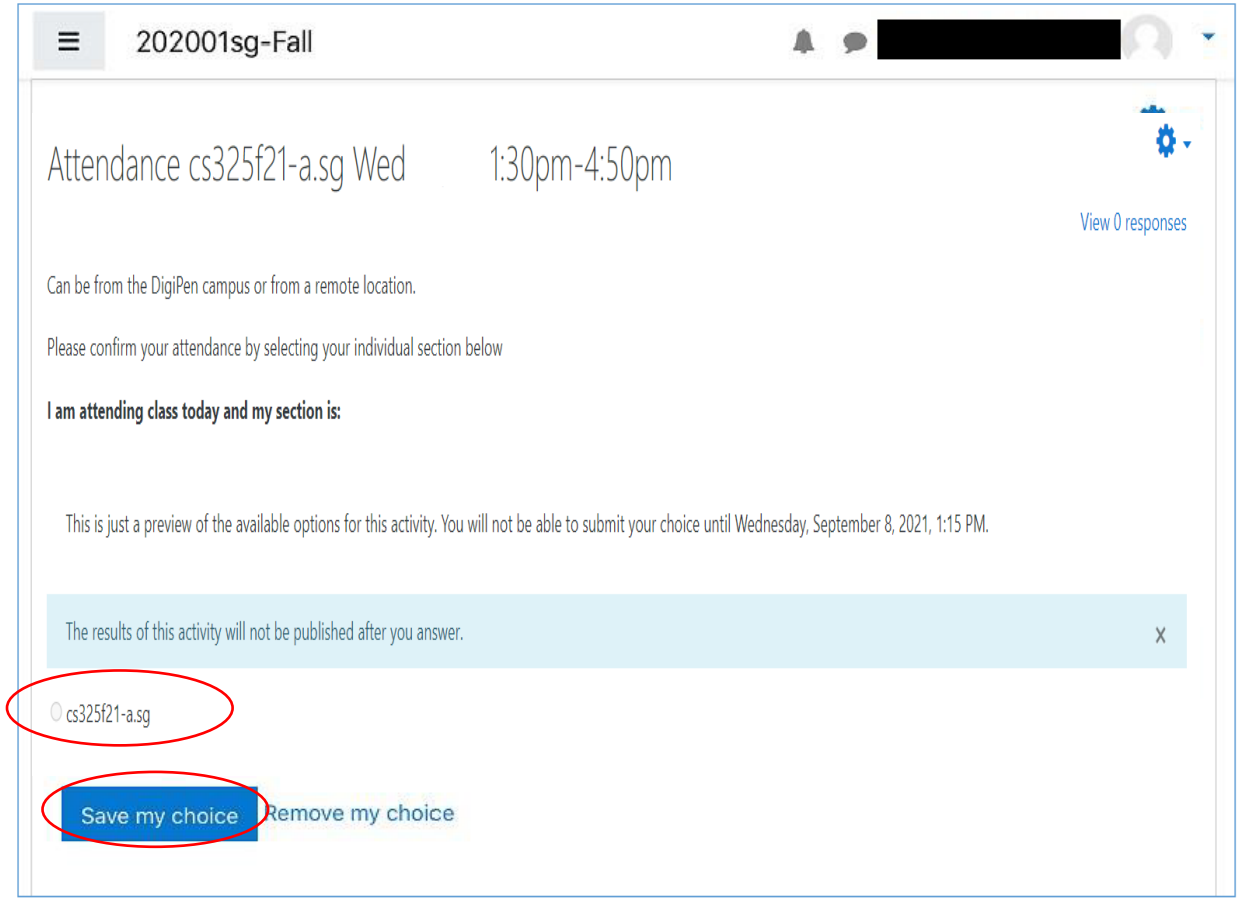
CS325 – attendance taking on moodle



Time window:
1:15pm – 1:45pm

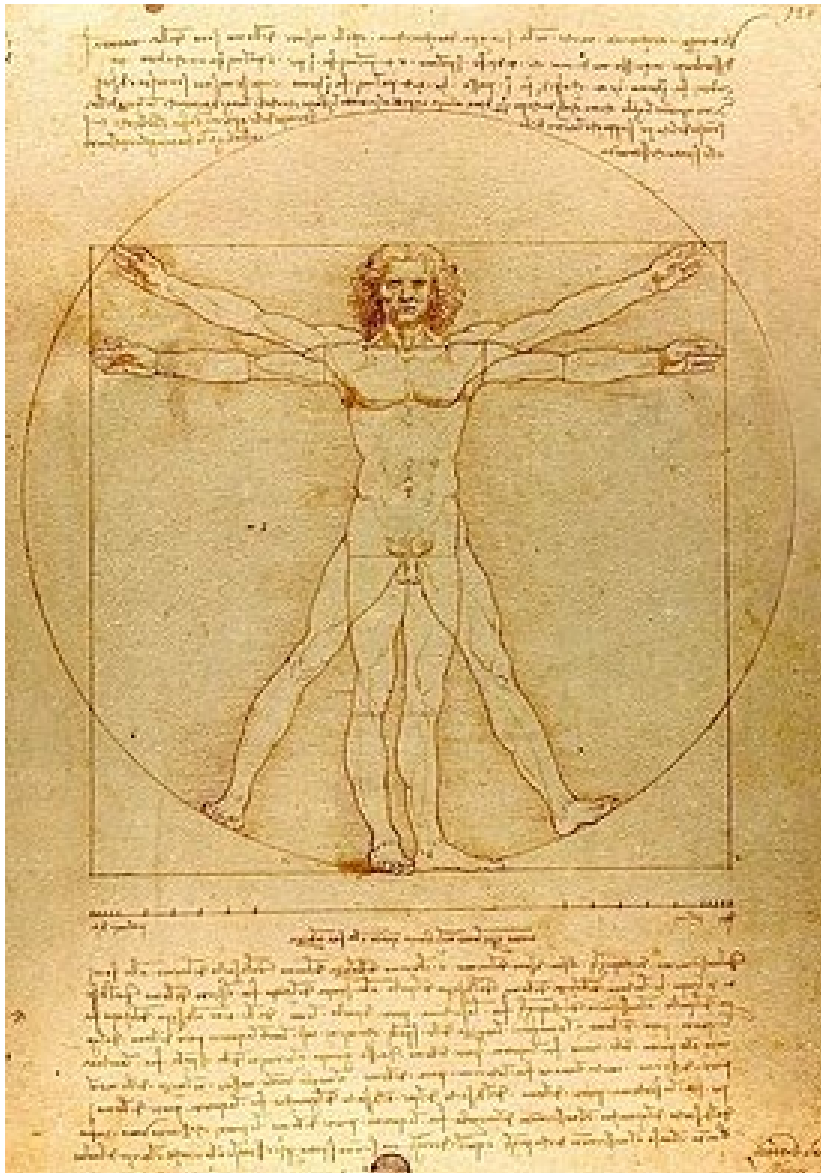
Administrative items

- Use your DigiPen Student ID (44*******) for homework assignments

- Enter your DigiPen Student ID (44******) and SIT ID (19*****) for group project team info on google drive.

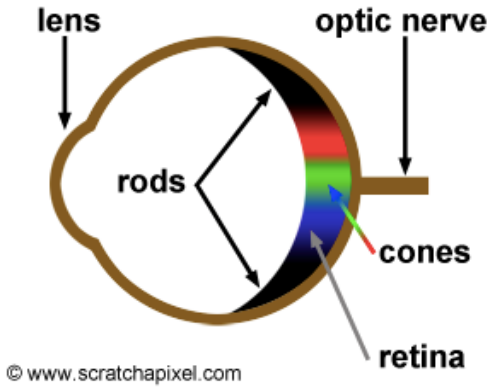
- MS Teams
  - Email for urgent matters

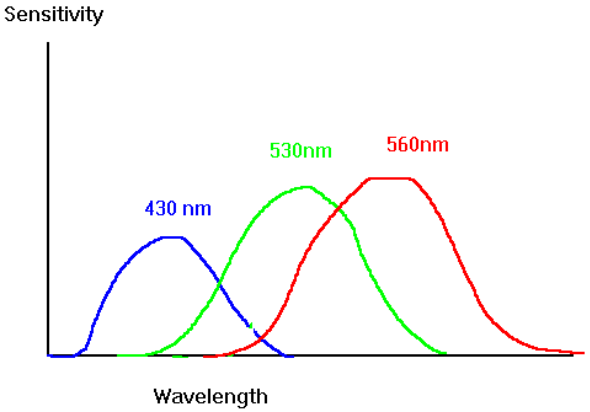
Recap of the last lecture



Sensing

- Vision
  - Visible spectrum
  - Color perception through cone cells
  - Focus for different colors
  - Interpreting size, distance
  - Color deficiency

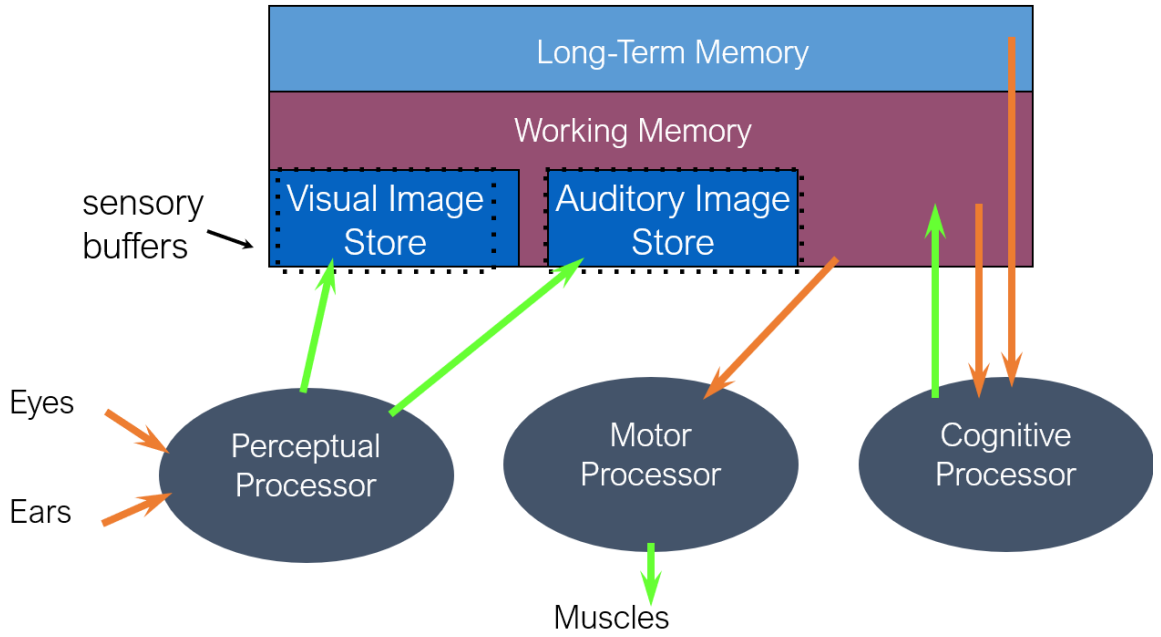




- Hearing
  - Hearable frequency range
  - DeciBel (dB) used world-wide for the measurement of sound levels.
  - Frequency of a sound is the number of cycles of a sound wave in one second.
- Touching
  - Two types: stimulus received via receptors in the skin and Kinethesis

Processing

- Modeling Human Processor
  - Perceptual Process: “grabs data” from the sensory system
  - Sensor Store: Stores most recent input *unrecognized*
  - Short-term Memory (Working Memory): Conscious thought, calculations
  - Long-term Memory: Permanent, remember everything ever happened
- Cognitive Chunking
- Cognitive Load Theory



Card, Moran & Newell (1983)

Thinking

- Reasoning
  - Deduction: derive logically necessary conclusion from given premises
  - Induction: generalize from cases seen to cases unseen
  - Abduction: reasoning from event to cause
- Problem solving

- Errors
  - Two types: mistakes and slips
  - You make errors when under stress

Diversity

- Individual diversity
  - Long term
    - Sex
  - Short term
    - Effect of stress or fatigue
  - Changing
    - Age
    - Physical and intellectual abilities
- Cultural and international diversity

- Users with disabilities
- Elderly users
- Child users

CS325
USER INTERFACE AND USER EXPERIENCE DESIGN
Week 3

Dr Frank Guan

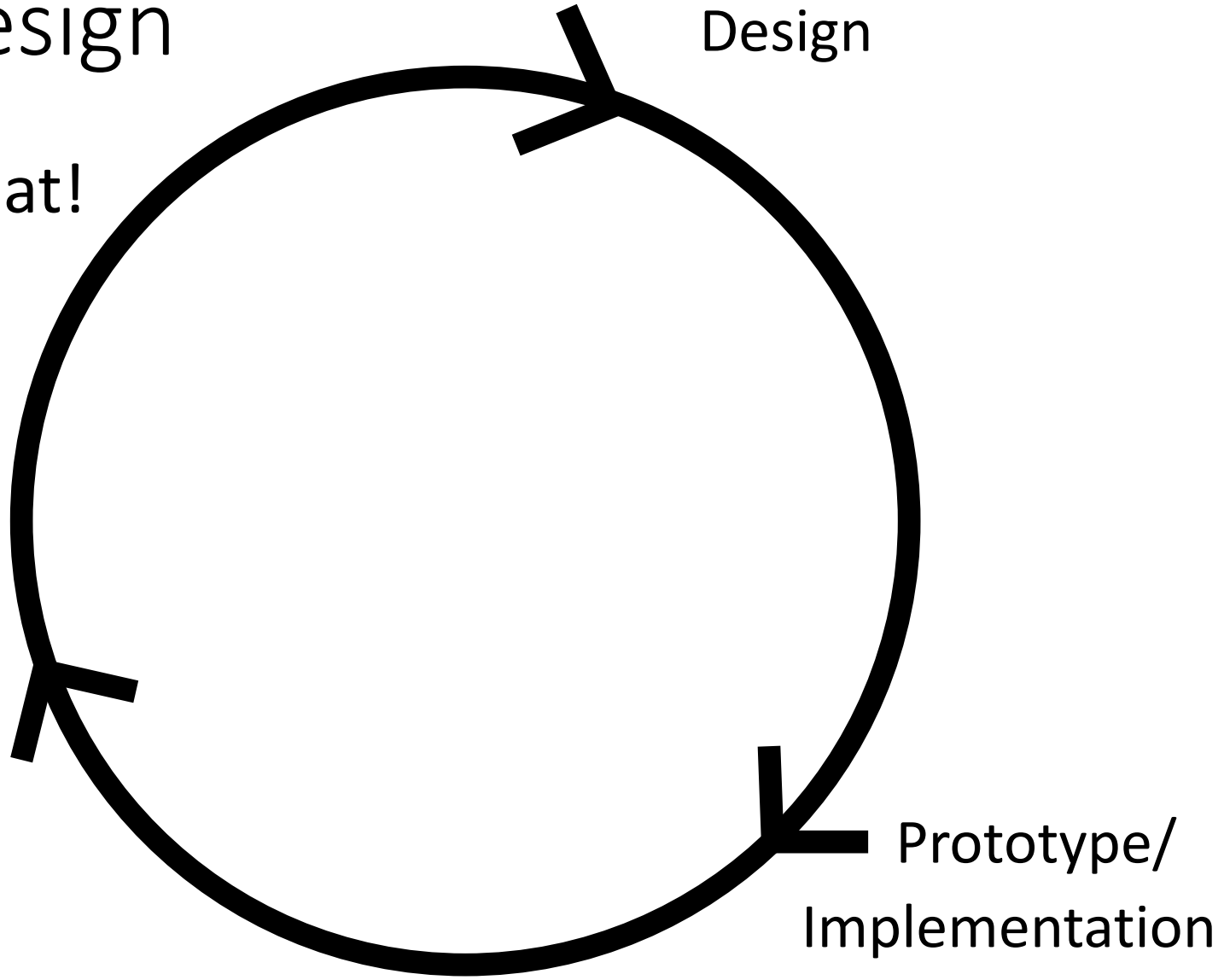
Topics

- Iterative design
- User centered design

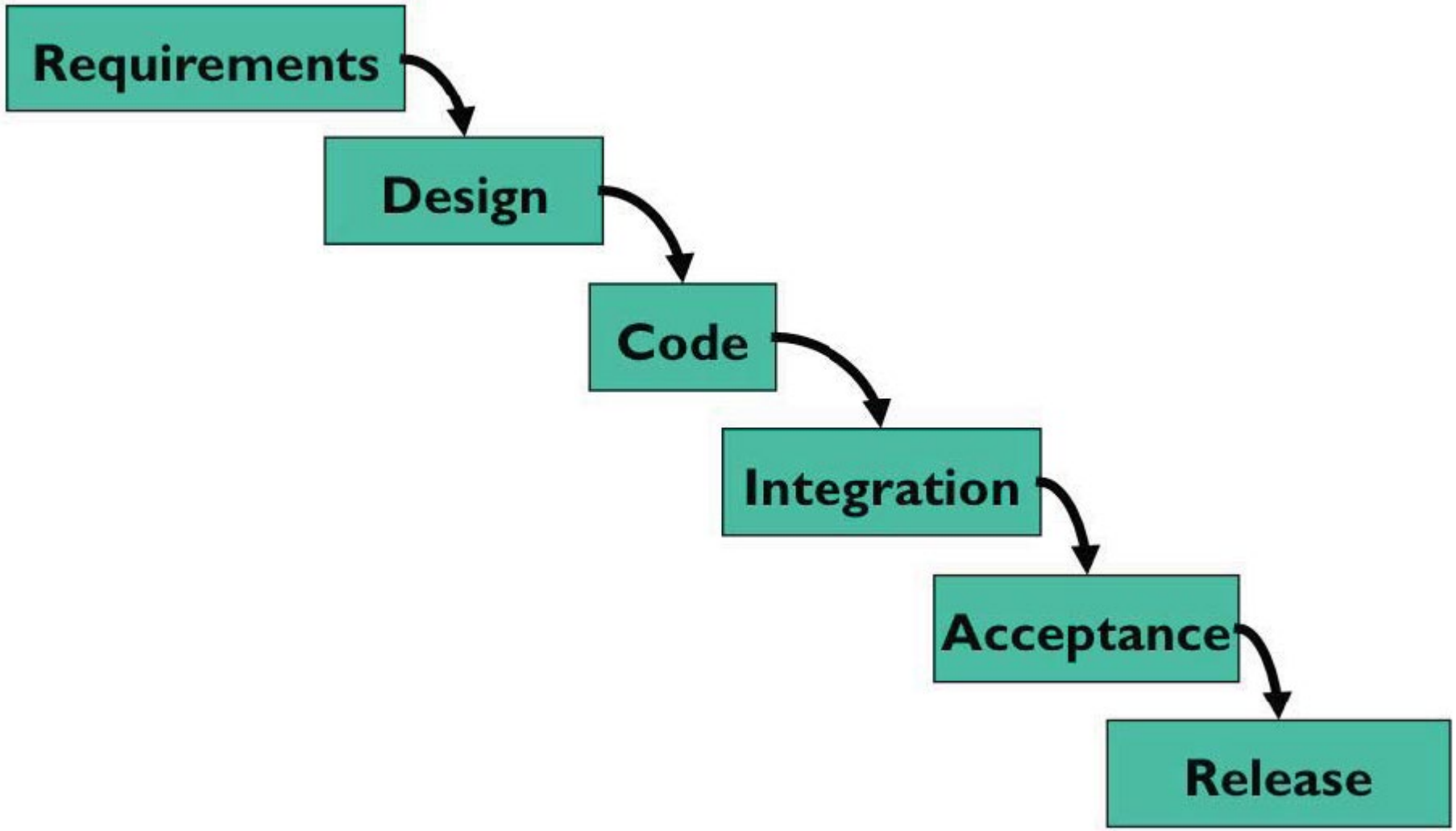
Iterative Design

Iterative design

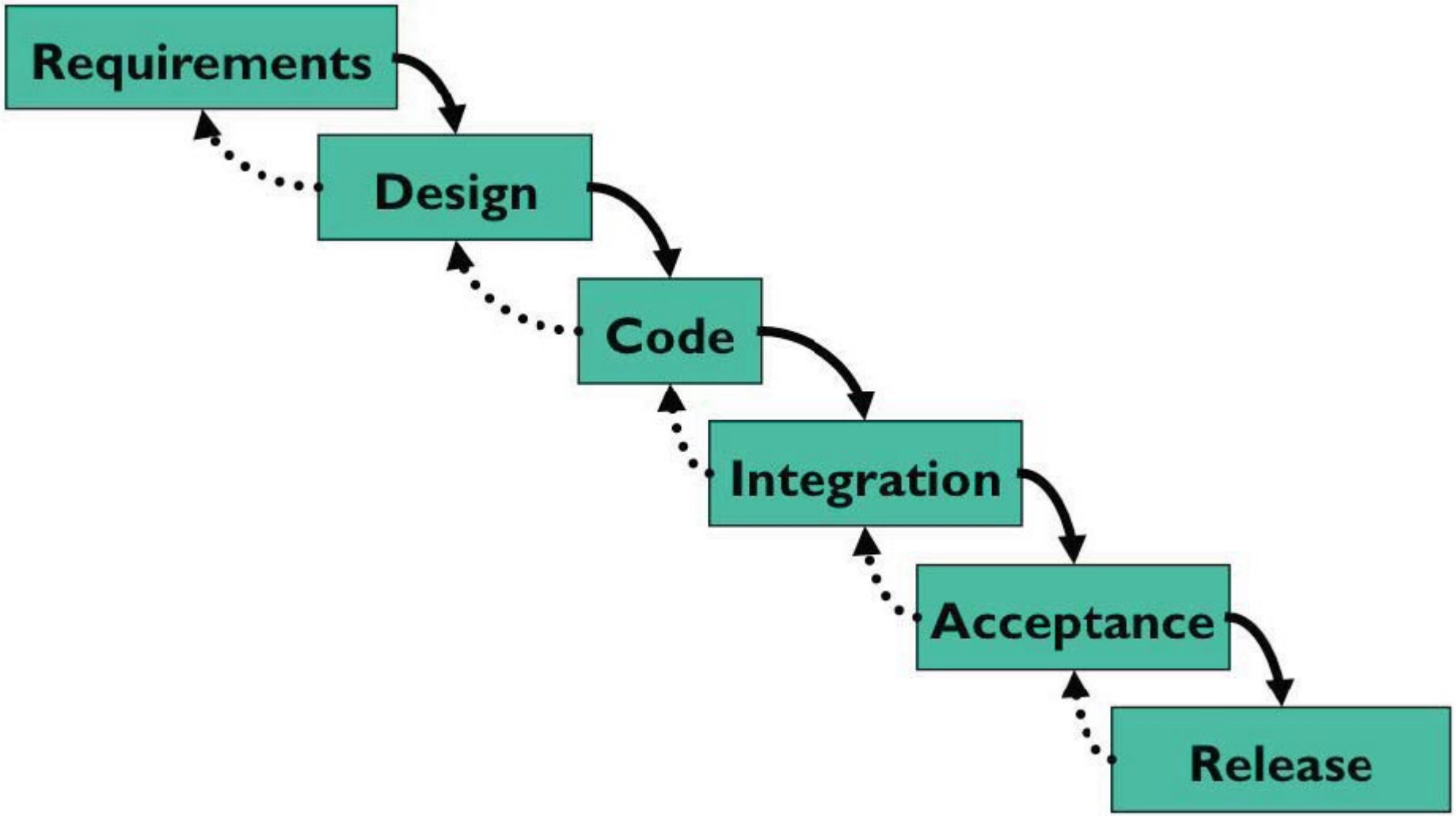
Rinse, lather, repeat!



Traditional SE Process Flow: Waterfall model



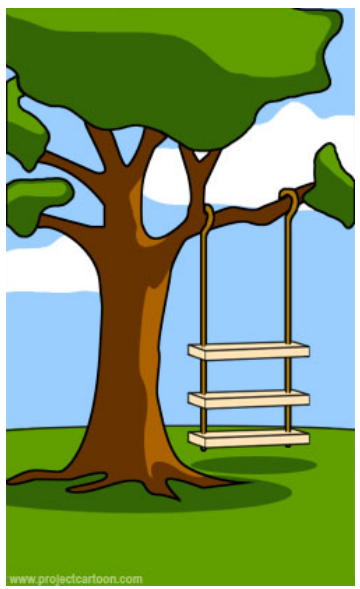
Feedback in the waterfall model



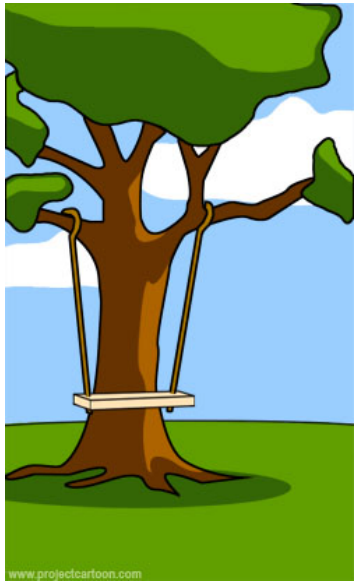
Waterfall model is Bad for UI design

- User interface design is risky
  - So we're very likely to get it wrong
- Users are not involved in validation until acceptance testing
  - So we won't find it until the end
- UI flaws often change in requirements and design
  - So we have to throw away carefully-written and tested code

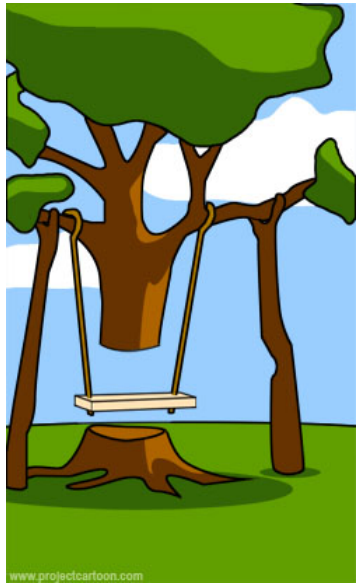
How software projects really work with waterfall model



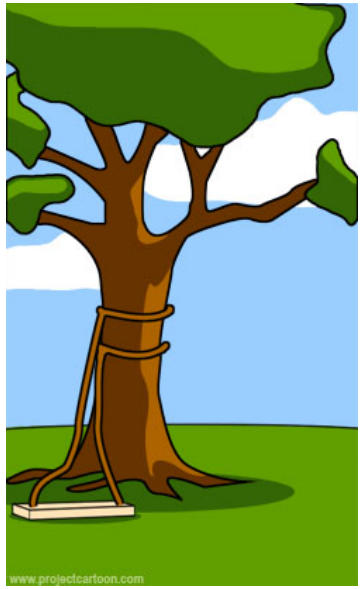
What the user described



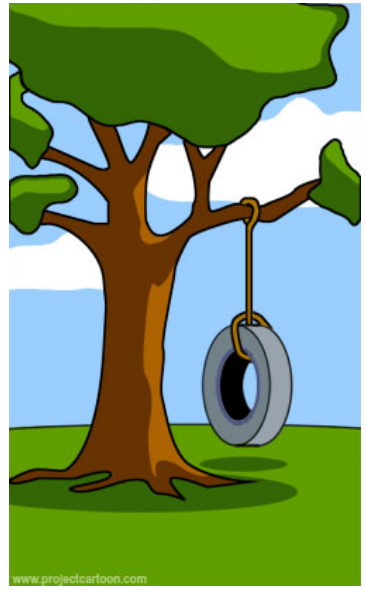
What the project manager heard



What got designed



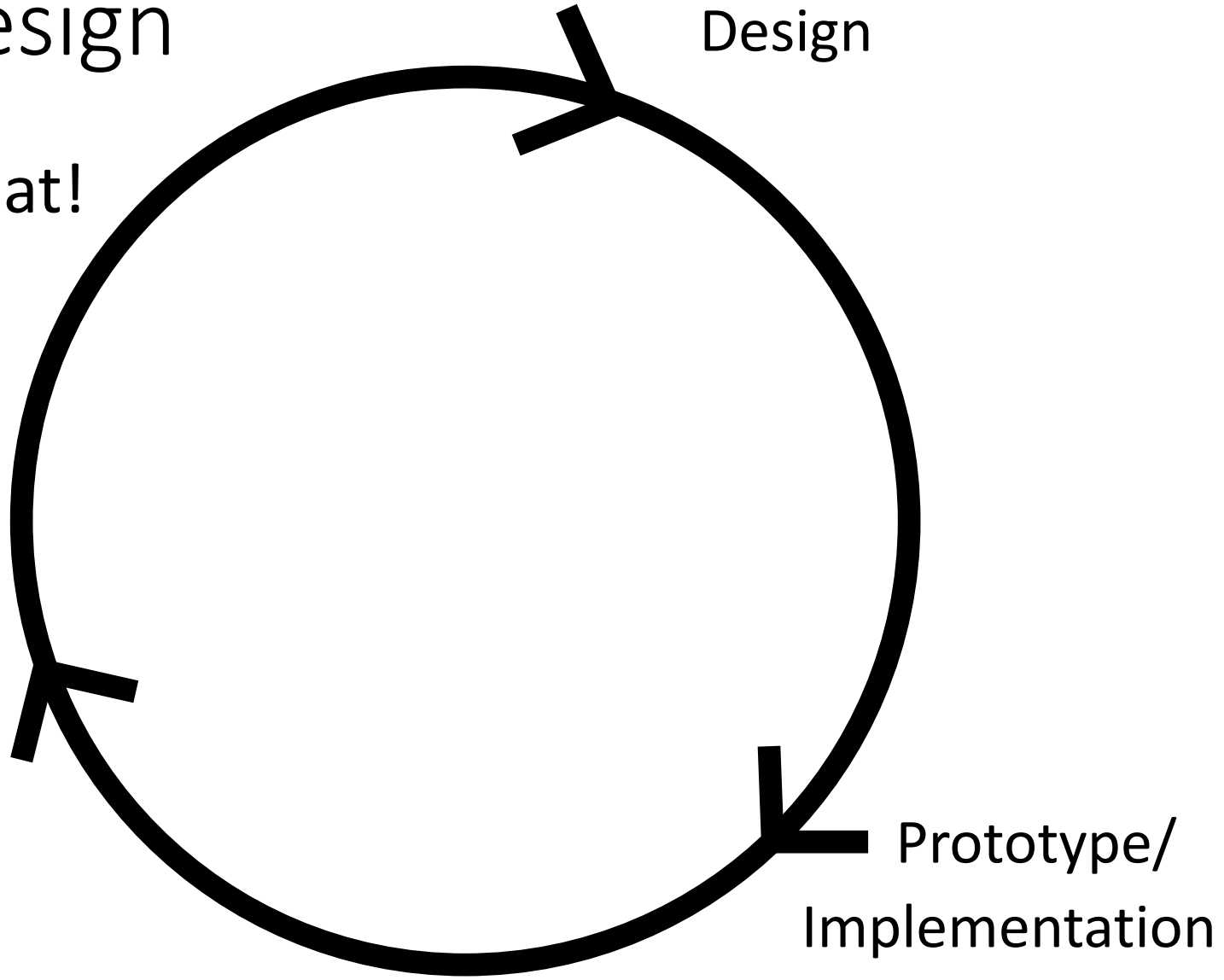
What got implemented



What the user really wanted

Iterative design

Rinse, lather, repeat!

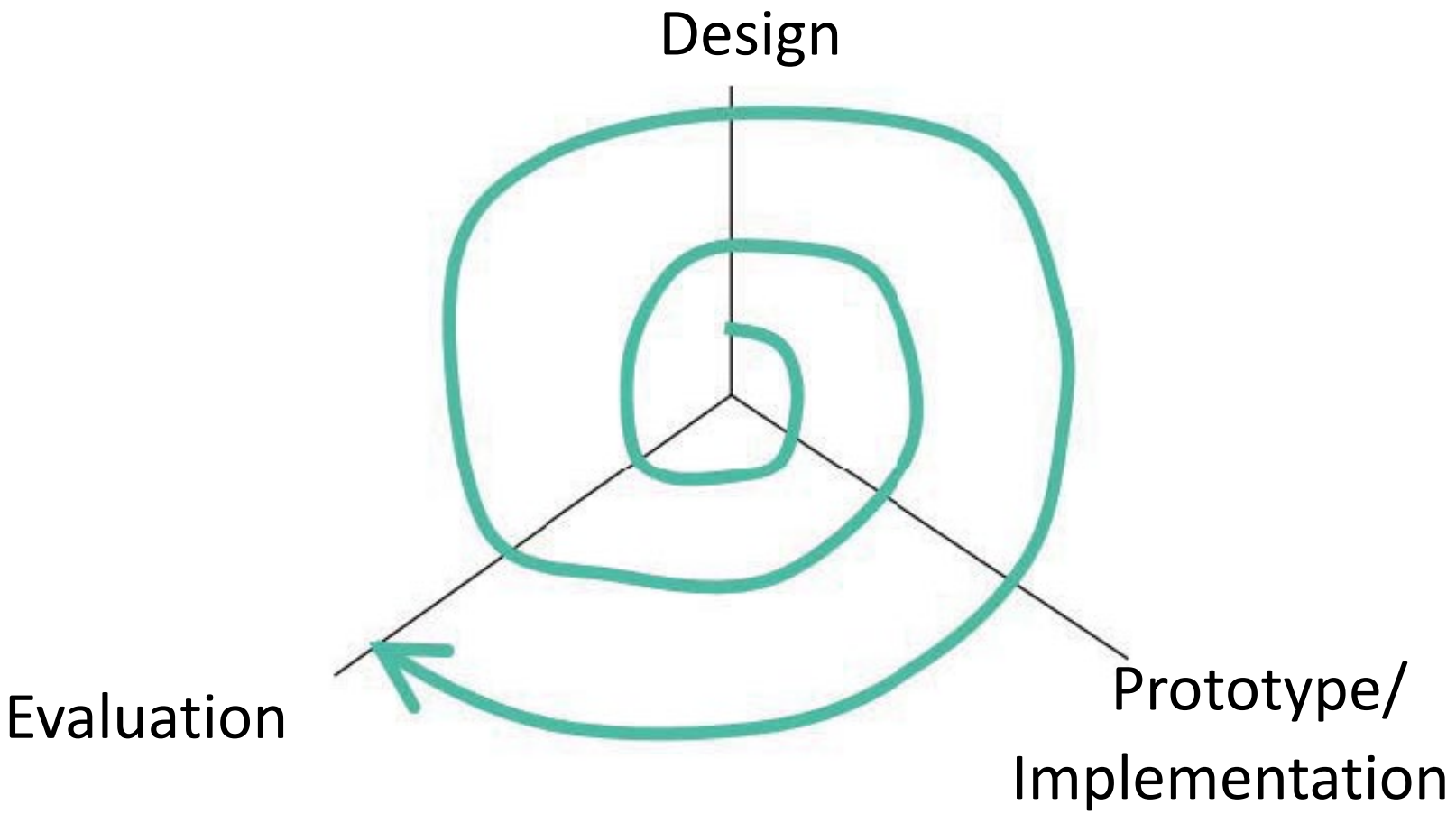


Iterative design in a wrong way

- Every iteration corresponds to a release
  - Evaluation (complains) feeds back into next version's design

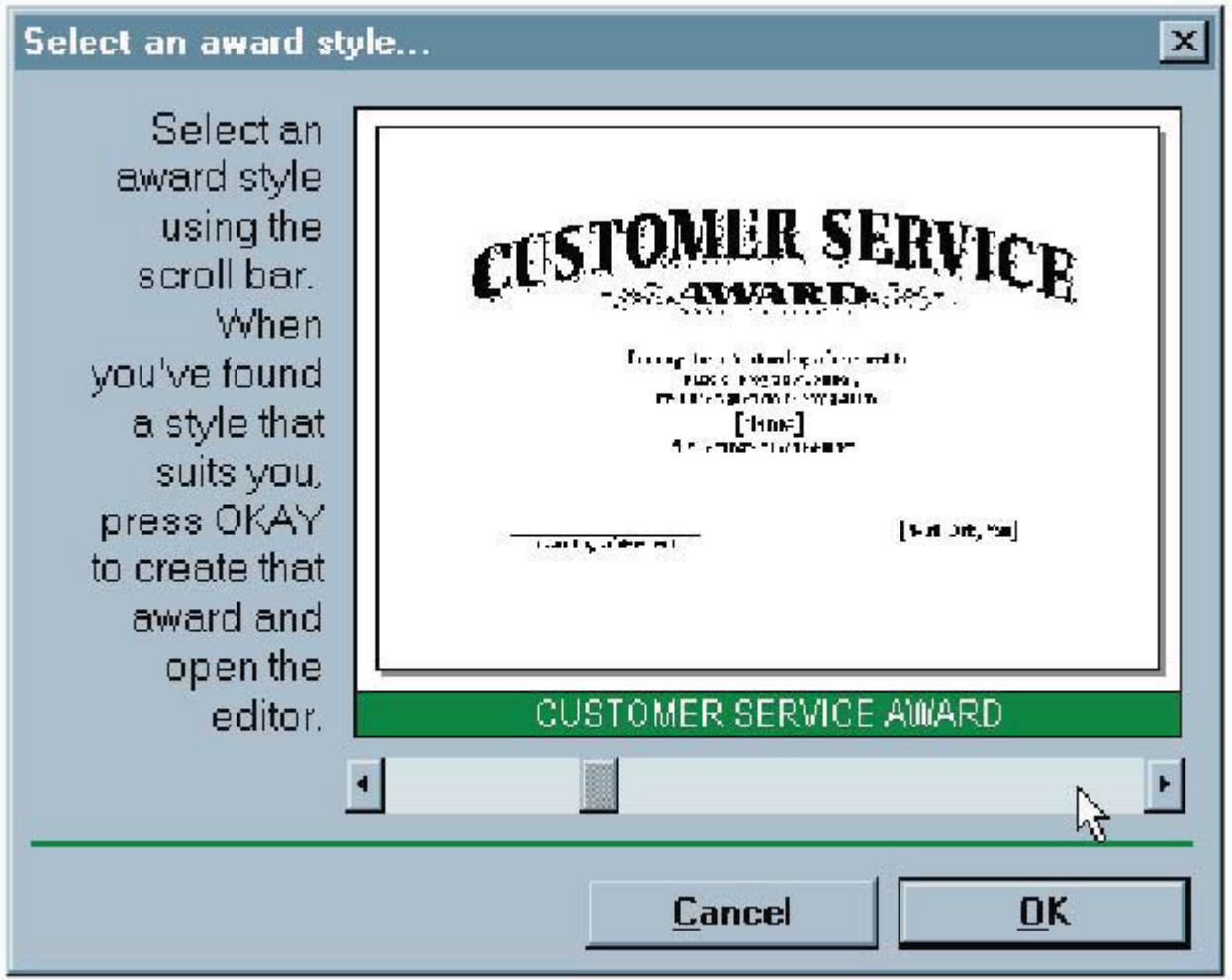
- Using your paying customers to evaluate your usability
  - They won't like it
  - They won't buy version 2

Spiral model



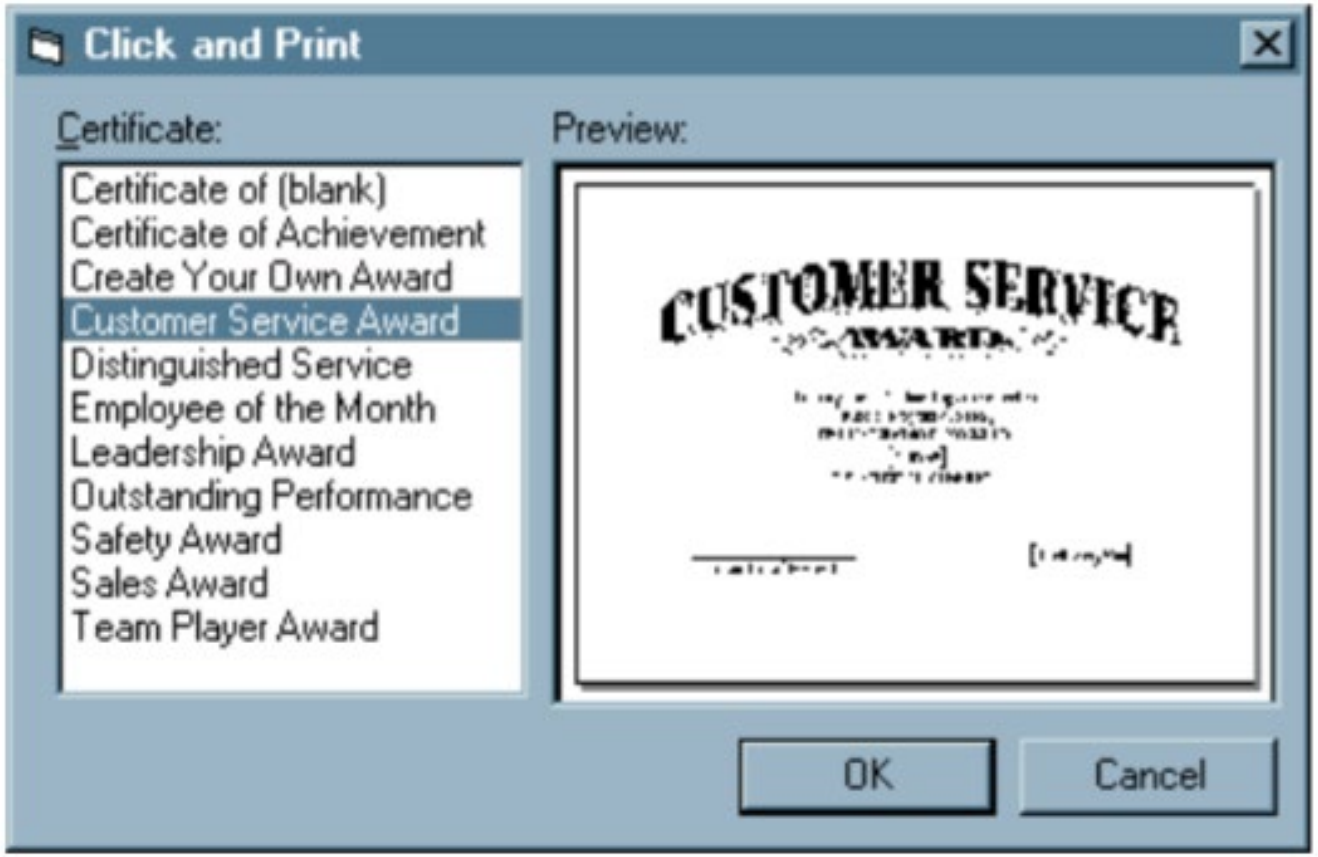
Hall of Shame UI

- Inconsistent with common usage of scrollbars – usually used for continuous scrolling, not discrete selection
- How does a frequent user find a template they've used before?



Source: Interface Hall of Shame

This could be improved through early iteration



Source: Interface Hall of Shame

Iterative Design of User Interfaces

- Early iterations use cheap prototypes
  - **Parallel design** is feasible: build & test multiple prototypes to explore design alternatives
- Later iterations use richer implementations, after UI risk has been mitigated
- More iterations generally means better UI
- Only mature iterations are seen by the world

User-centered Design

What is UCD?

- User-centered Design (UCD) is the process of developing a tool, for instance, the user interface of a website or application, from the perspective of how it will be understood and used by a human user.

ISO 13407

- "**Human-centered design** is characterized by:
  - the active involvement of users and a clear understanding of user and task requirements;
  - an appropriate allocation of function between users and technology;
  - the iteration of design solutions; multi-disciplinary design.”

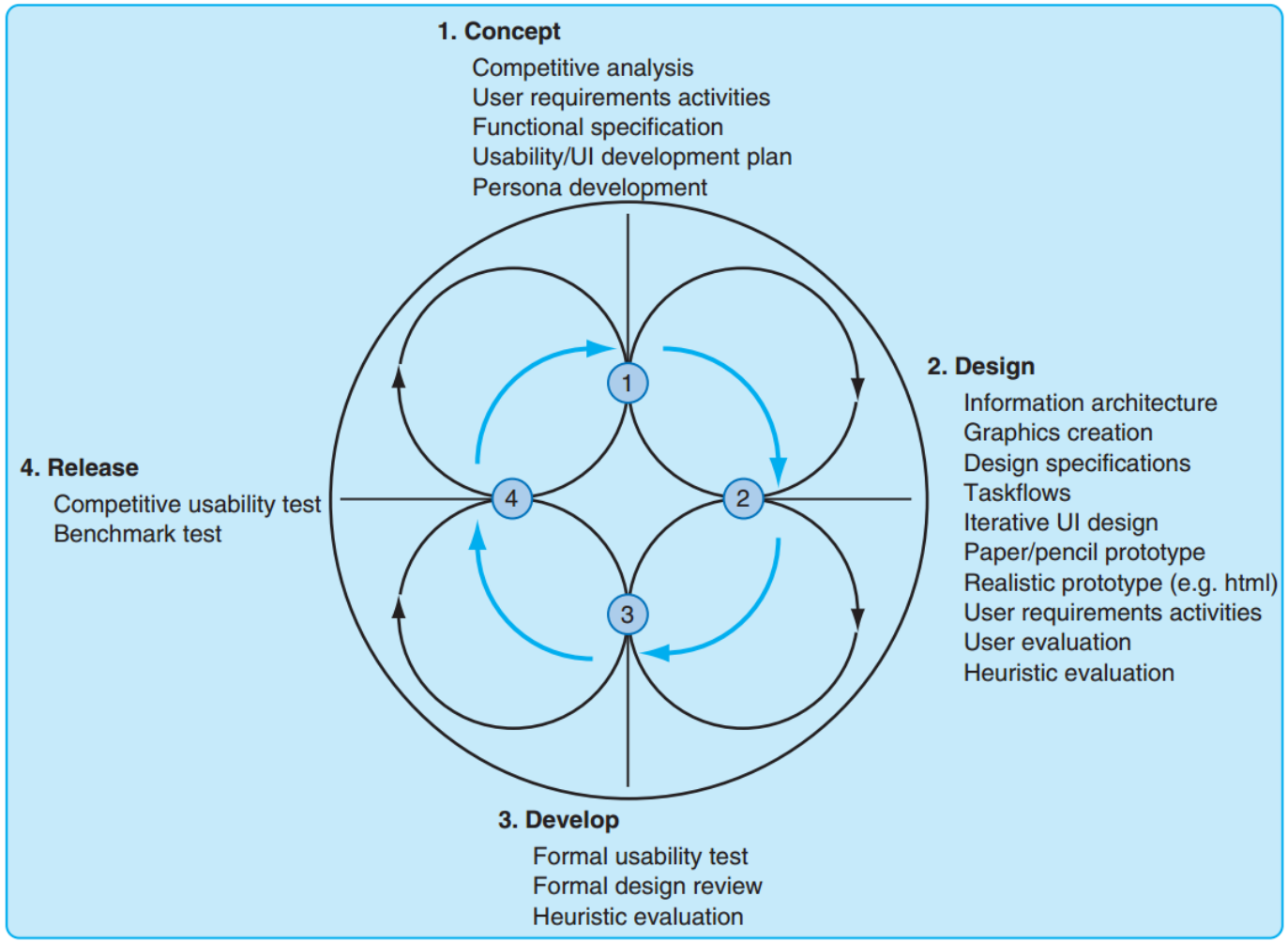
User centered design

- Early focus on users and tasks
  - Structured and systematic information gathering
    - User analysis: who the users are
    - Task analysis: what they need to do
  - Approach users early and often
    - Involving users as evaluators, consultants, and sometime designers

- Constant evaluation
  - Users are involved in every iteration
  - Every prototype is evaluated somehow

- Iterative design
  - Product designed, modified and tested repeatedly
  - Early testing of conceptual models and design ideas
  - Allow for complete overhaul and rethinking of design by early testing

UCD in the Product Lifecycle

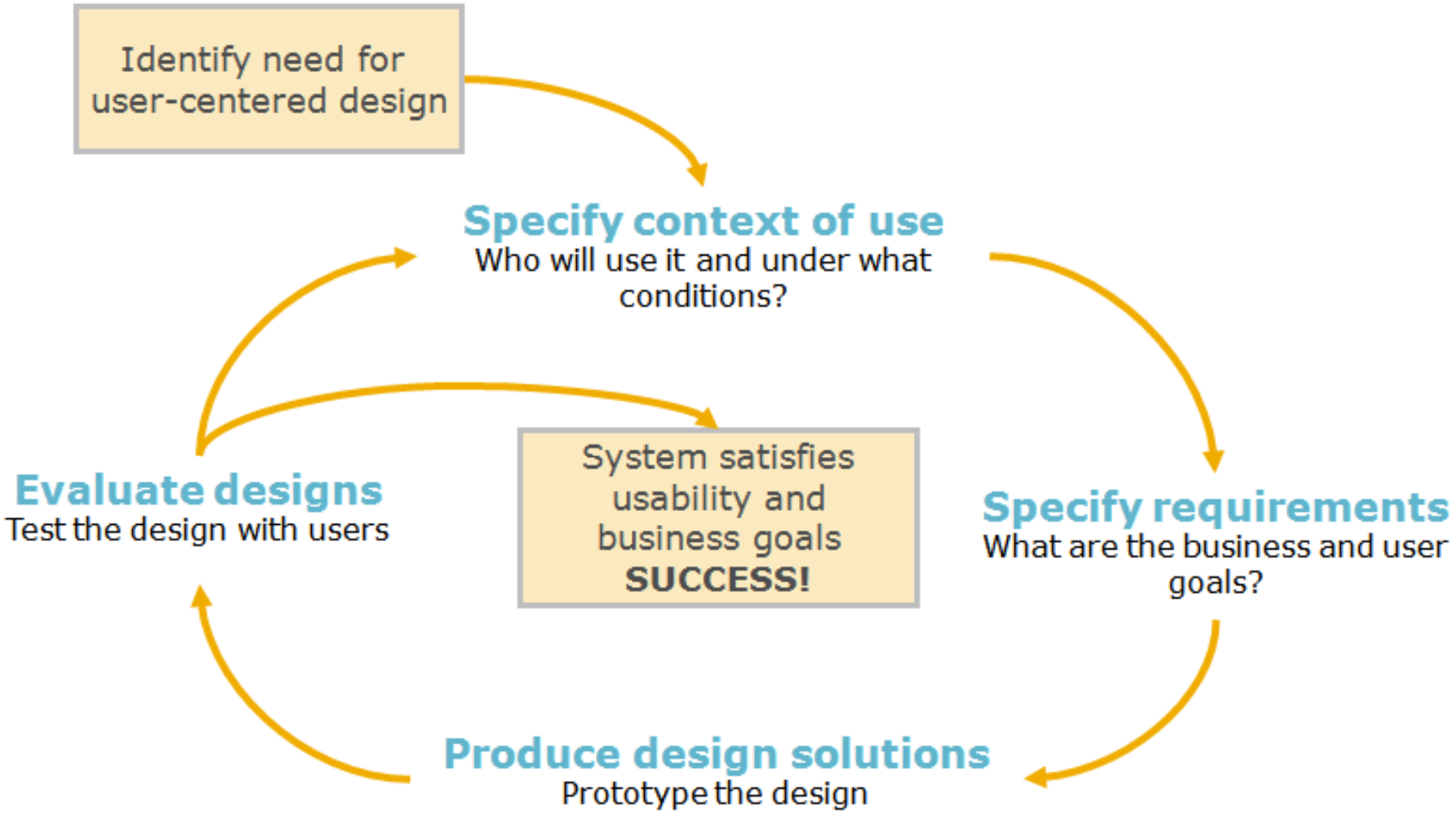


Sara Ebrahimi, Ali Asghar Fahmifar, 2019. Design; Beauty and User Satisfaction. International Journal of Arts, 9(2): 27-40, doi:10.5923/j.arts.20190902.01

Usability Activities per Stage

Concept	Design	Develop	Release
• Usability goals & objectives • User profiles & personas • interviews, field studies, task analysis, etc.	• Lo-fi paper prototypes • Heuristic evaluations • Focus groups, interviews, etc.	• Prep, planning and execution of: pre product release heuristic evaluations • Usability testing	• Formal usability testing • Surveys, interviews for feedback on system • Site visits

User Centered Design Process (Alternate)



Personas

CALEB

Age 36

Story

- Former Olympic silver medalist in cycling; now a professional triathlete.
- Lives in Hawaii with his wife and toddler.

Favorite hobbies Surfs and plays guitar.

Valentina

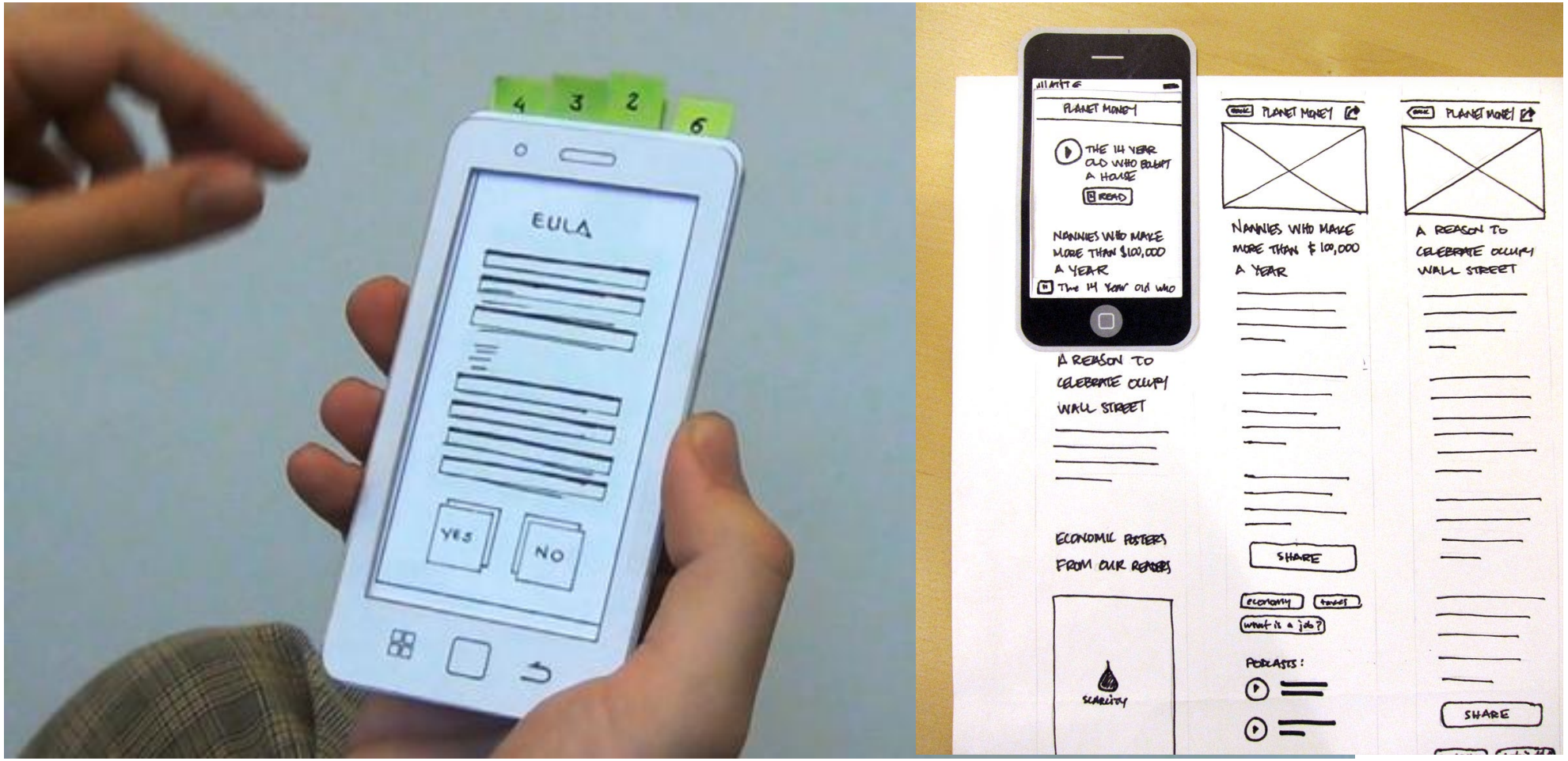
Age 54

Story

- Chef and restaurateur living in Los Angeles.
- Won the James Beard award for Best Chef: California.
- Just launched a television show on Food Network.

Favorite meal Eating a simple roast chicken at home with her partner and 9 year old son.

Paper Prototypes



Usability Testing

Other suggestions

- **Attention to detail**
  - Good UI **work** is really picky
- **Keep an open mind**
- **Don’t get wedded to an idea**
- **Don’t let design review become about whose idea wins**
- **Honor the truth**