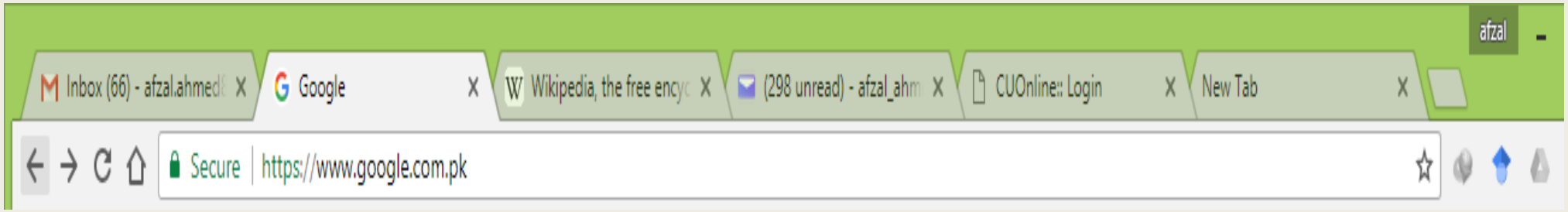
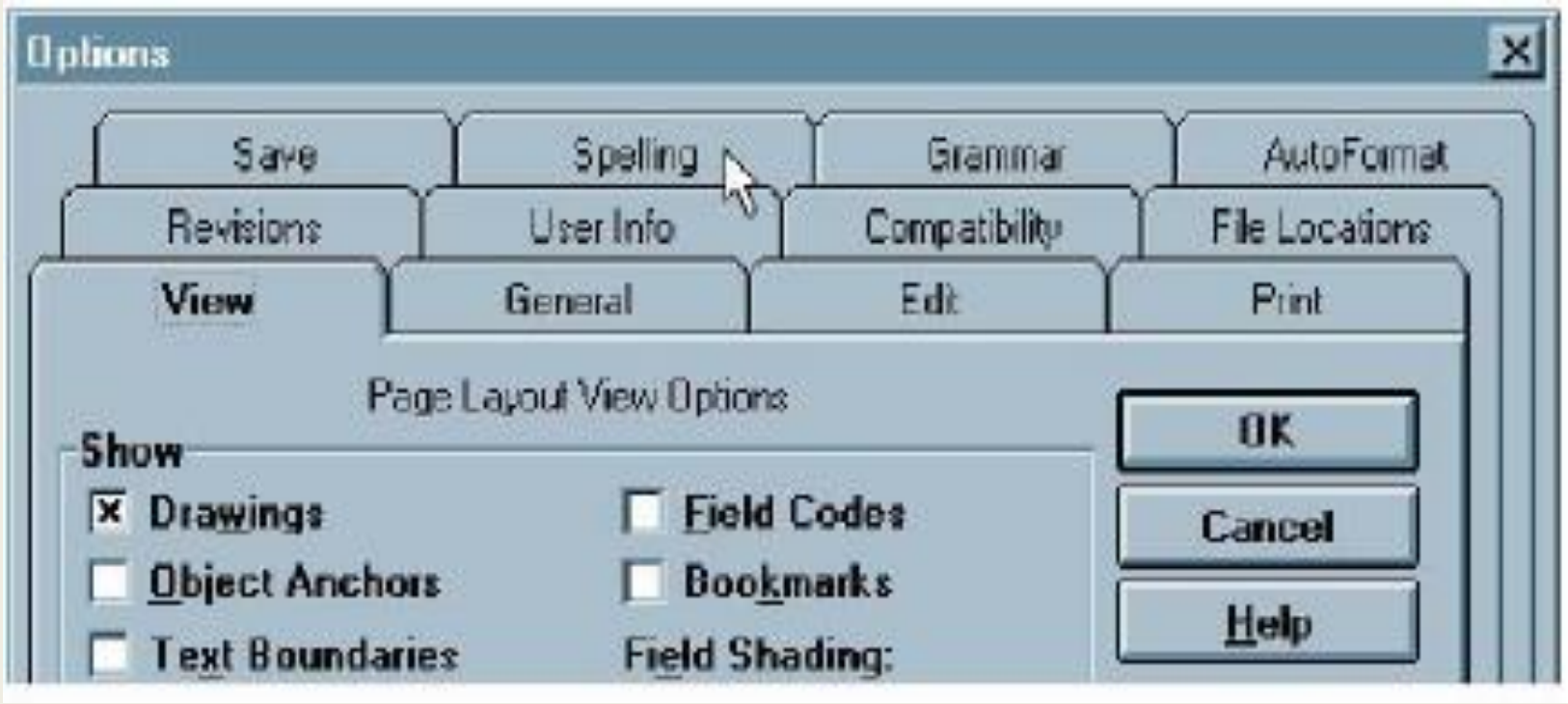
HUMAN COMPUTER INTERACTION

Lecture 5: User Centered Design

Hall of Fame or Shame?



Hall of Shame



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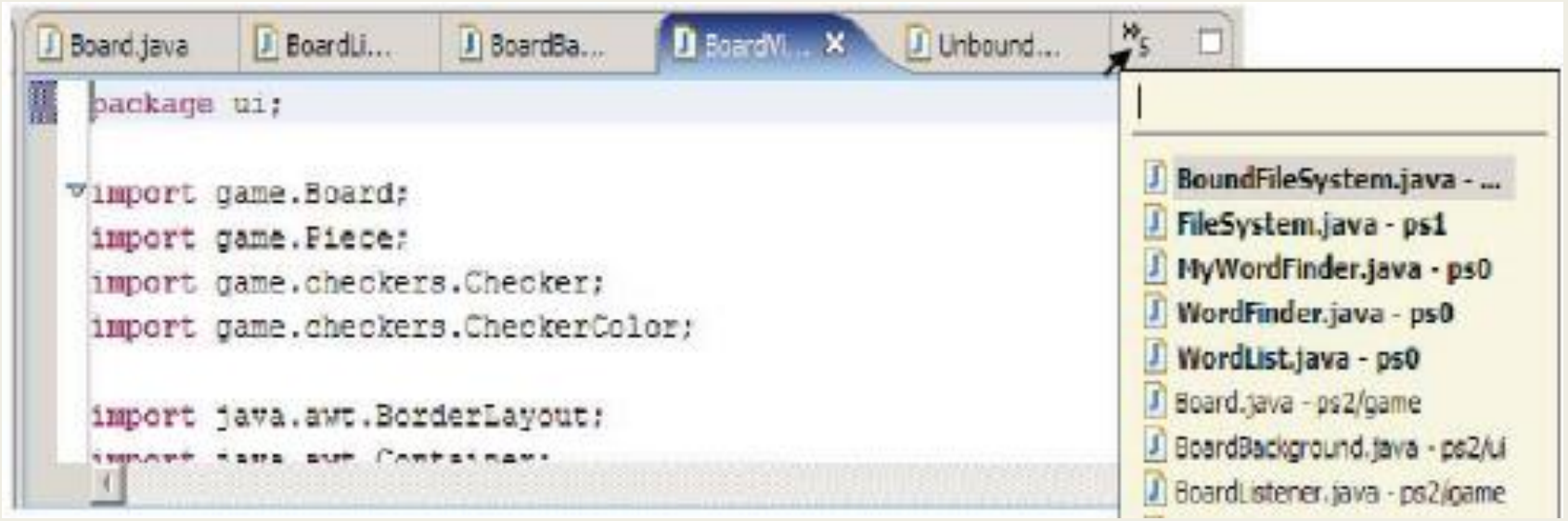
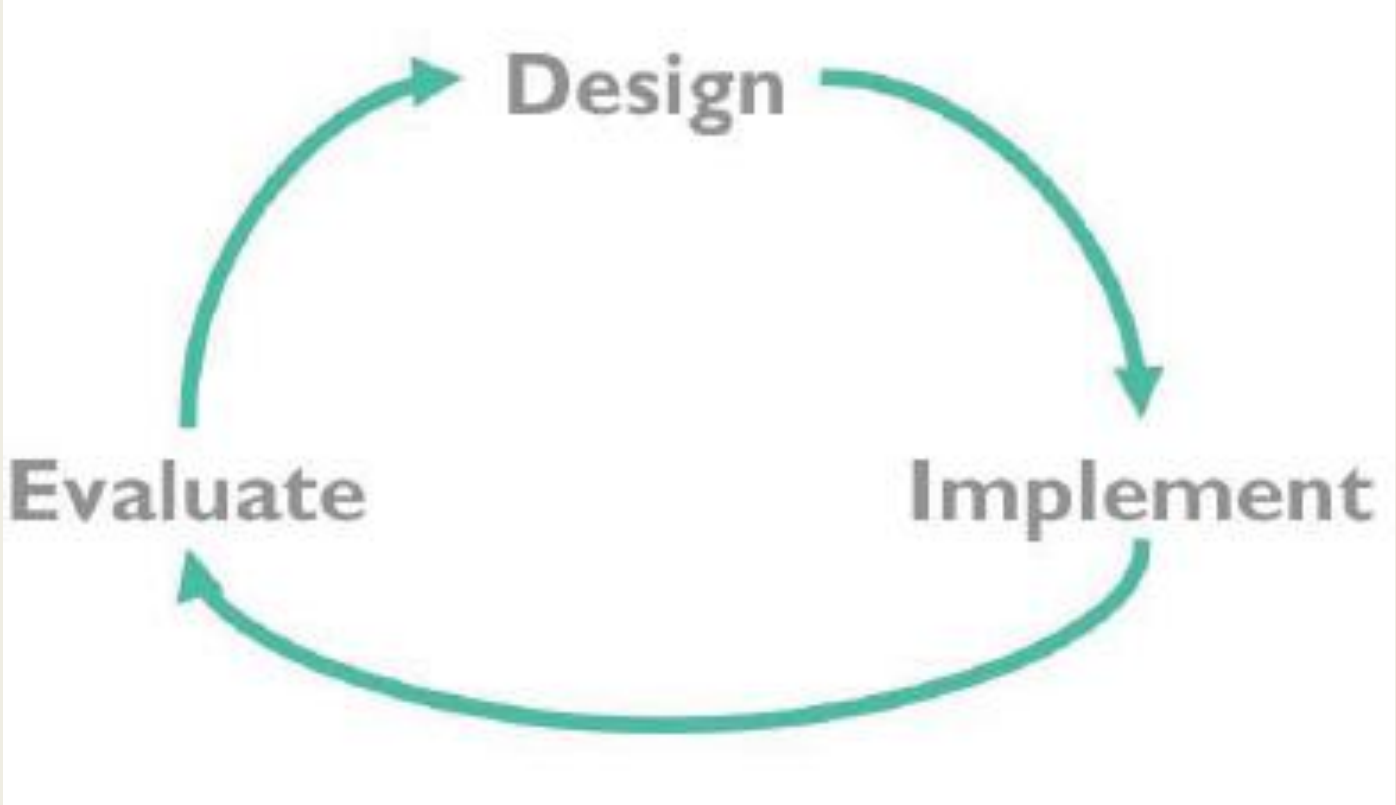


Today’s Topic

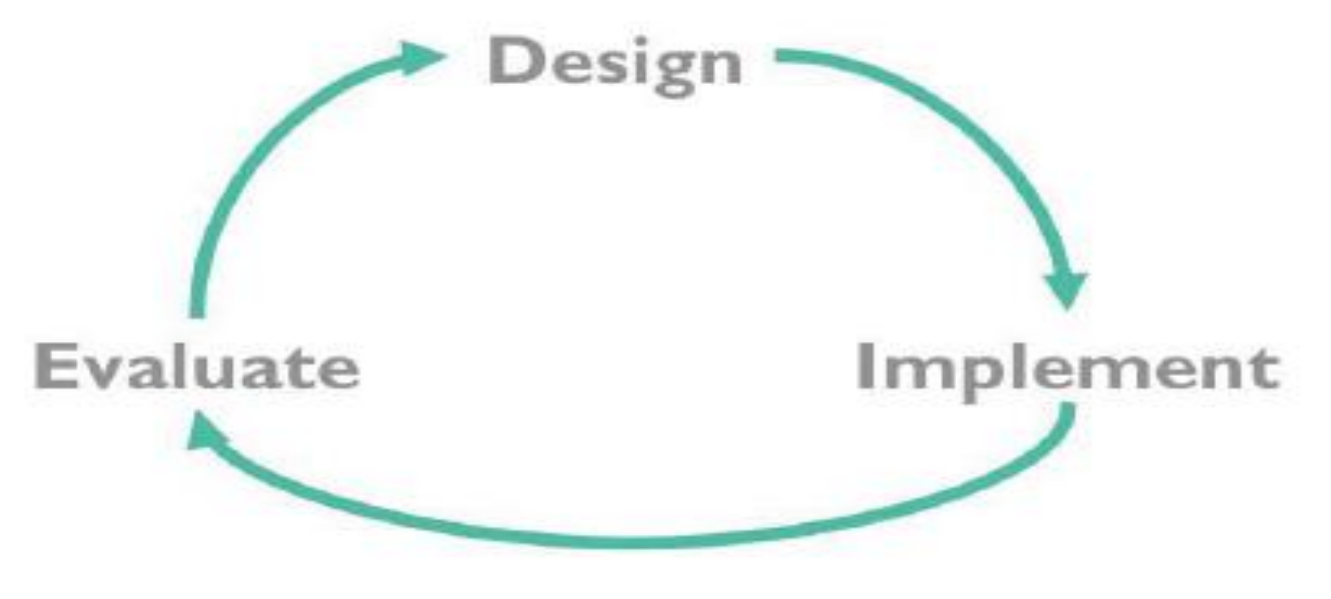
- Iterative Design
- User Centered Design

Process of making UI Usable

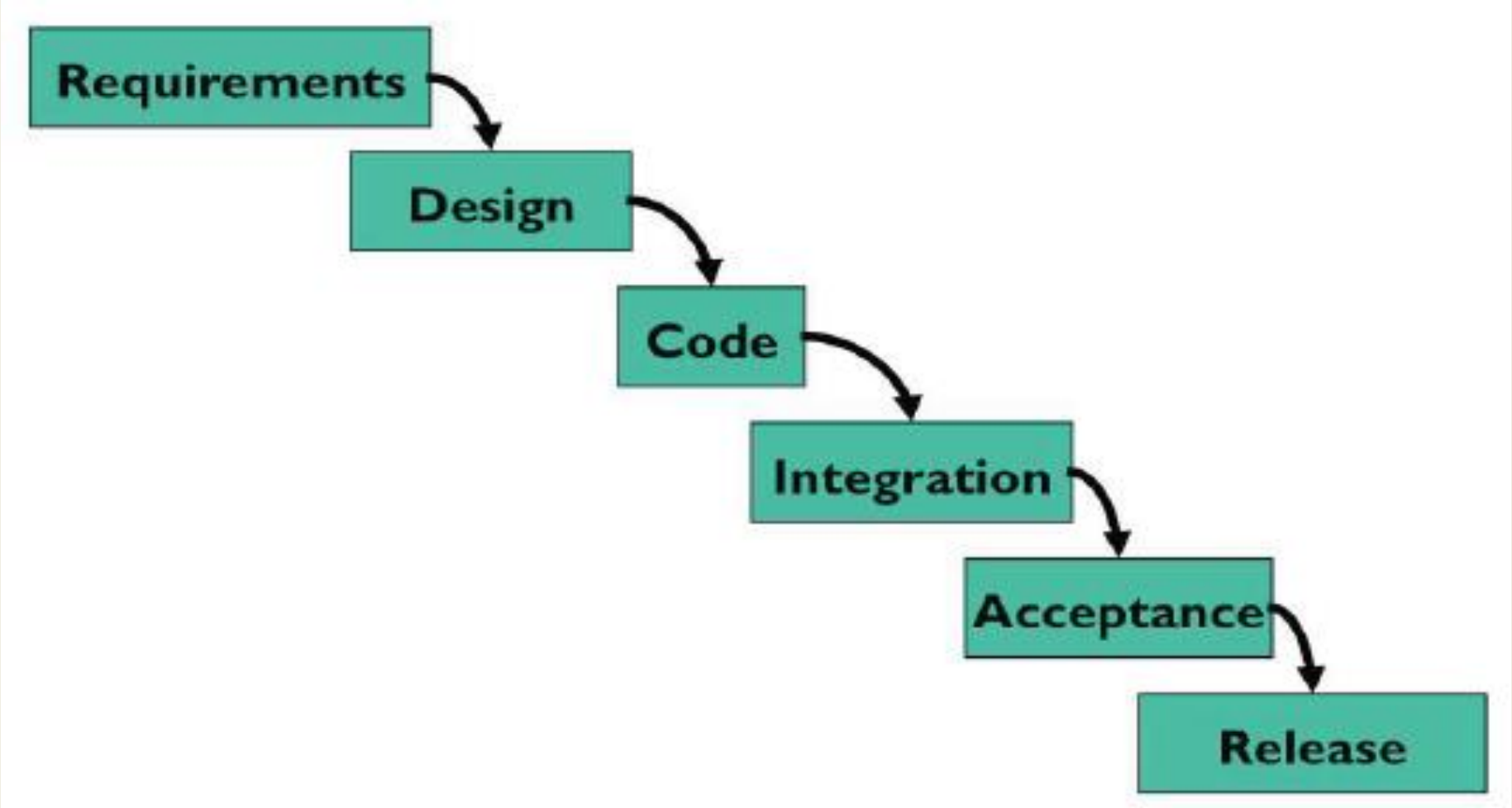


Iterative Design

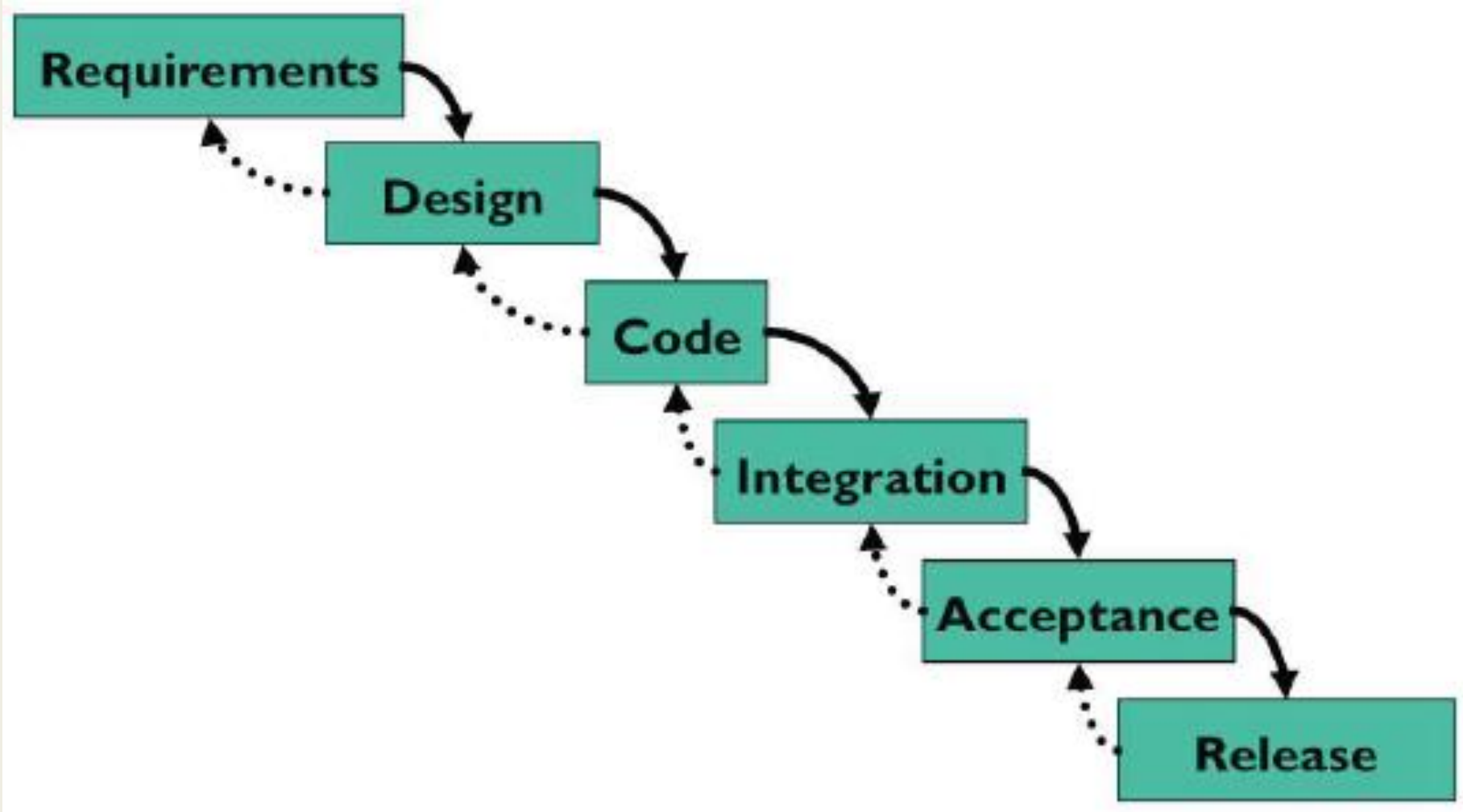
- Rins, Lather, Repeat



Traditional SE process: Waterfall Model



Feedback in Waterfall Model



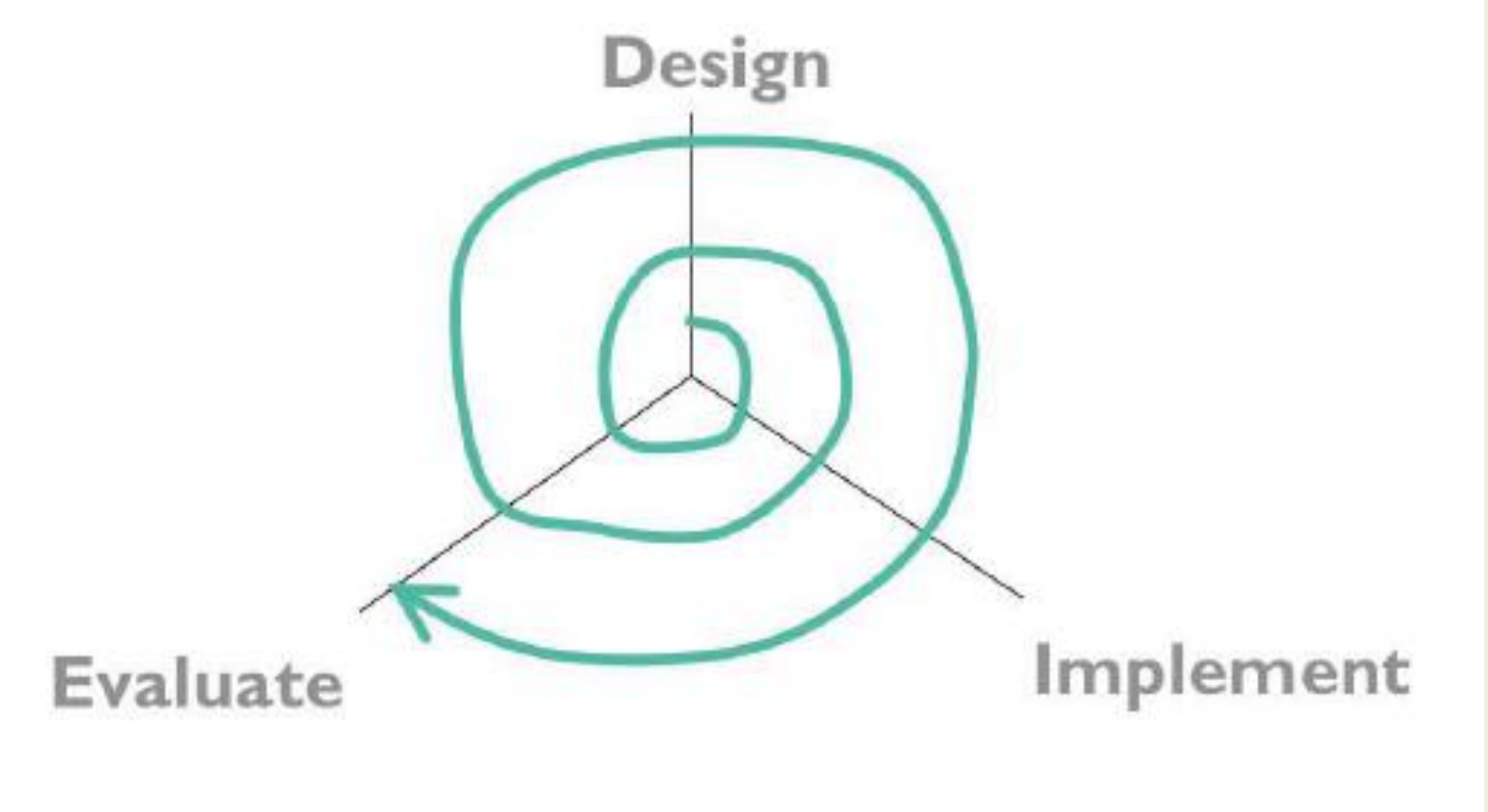
Waterfall Model is bad for UI design

- UI design is risky
  - *So we are likely to get it wrong*
- Users are not allowed in testing until acceptance testing
  - *So we won't find out till the end*
- UI flaws often cause changes in requirements and design
  - *So we have to throw away carefully written and tested code*

Iterative Design the Wrong Way

- Every iteration corresponds to a release
  - *Evaluation feedback into the next version's design*
- Using your paying customer to evaluate your usability
  - *They won't like it*
  - *They won't buy version 2*

Spiral model



Early Prototypes can Eliminate Usability Problems

Iterative design of UI

- 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 is being mitigated
- More iteration generally mean better UI
- Only mature iterations are seen by the world

User Centered Design

- Iterative Design
- Early focus on users and tasks
  - *User Analysis: Who the users are*
  - *Task analysis: what they need to do*
  - *Involving users as evaluators, Consultants and sometimes designers*
- Constant Evaluation
  - *Users are involved in every iteration*
  - *Every prototype is evaluated somehow*

Case Study of User centered design The Olympic Message System

- Cheap prototypes
  - *Scenarios*
  - *User guides*
  - *Simulation*
  - *Prototypes tools*
- Iterative design
  - *200 iterations for user guide*
- Evaluation at each step
- You are not the User
  - *Non-English speakers had trouble with alphabetic entry on telephone keypad*

User-Centered Design in 6.813/6.831: Design

- Task and user analysis
  - *Know thy User*
- Design Principle
  - *Learnability*
  - *Visibility*
  - *Efficiency*
  - *Error Prevention and Error handling*
  - *User Control and Freedom*

User-Centered Design in 6.813/6.831: Implementation

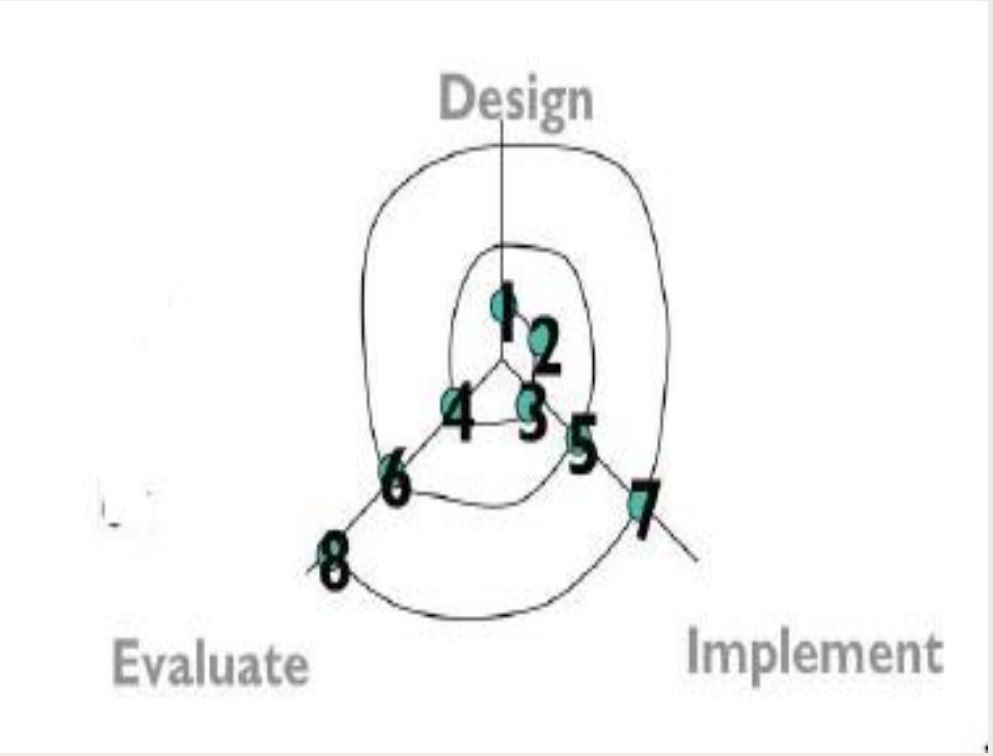
- Prototyping
  - *Cheap, throw away prototypes*
  - *Low fidelity: paper wizard of Oz*
- GUI implementation techniques
  - *Output and input models*
  - *Desktop vs. Web GUI*
  - *Constraints and Layouts*

User-Centered Design in 6.813/6.831: Evaluation

- Evaluation puts prototypes to test
- Expert Evaluation
  - *Heuristics and Walkthroughs*
- Predictive Evaluation
  - *Testing against and Engineering Model*
- Empirical evaluation
  - *Watching users do it*

User-Centered Design in 6.813/6.831: Group Project

1. Analysis
2. Design Sketch
3. Paper Prototype
4. User Testing
5. Computer Prototype
6. Heuristic Evaluation
7. Full implementation
8. User testing



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