Overview of User Interface Design, Prototyping, and Evaluation

COMPUTER SCIENCE DEPARTMENT

Usable Security and Privacy

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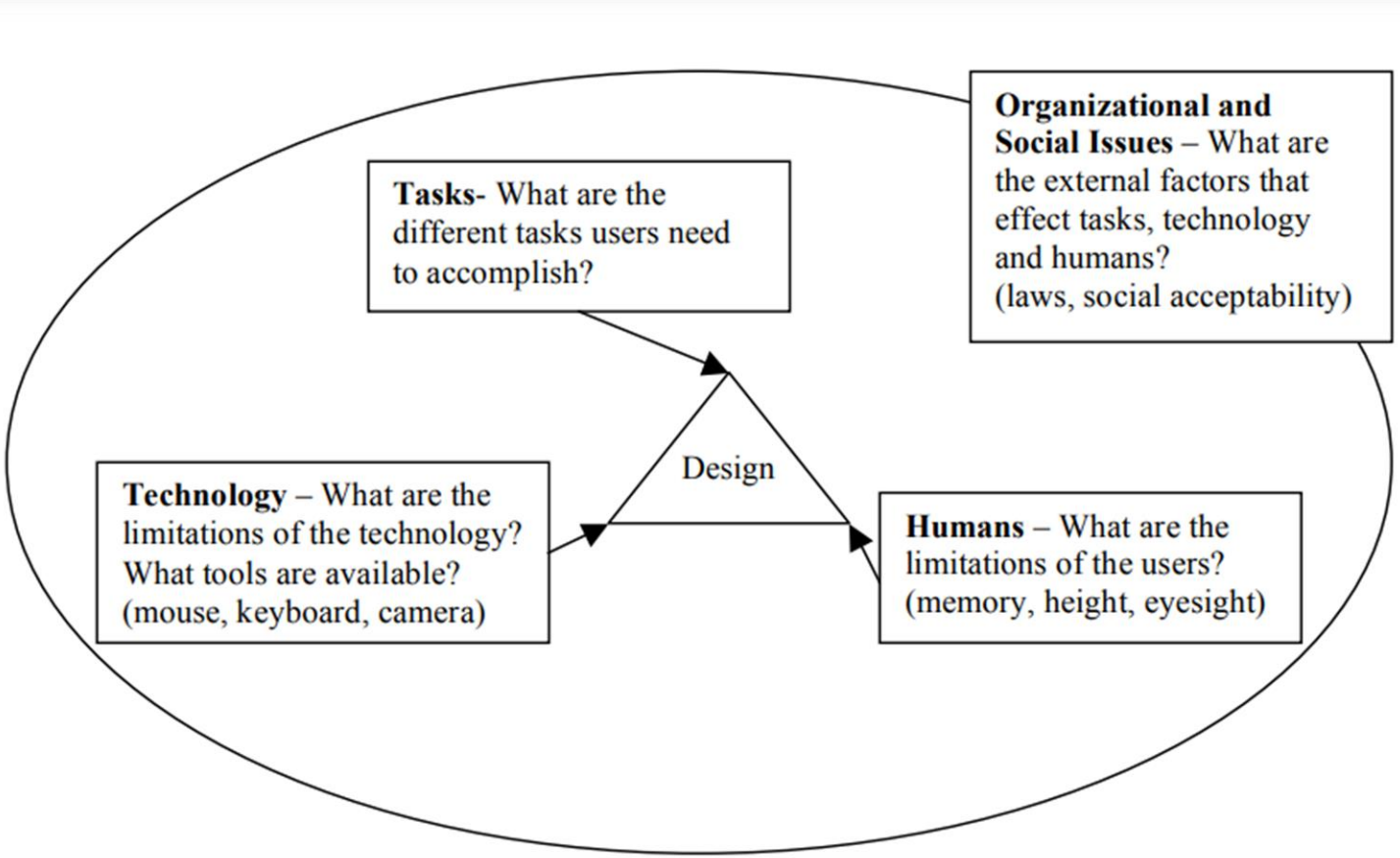
Recall



Usability Goals

- Learnable
- Memorable
- Flexible
  - ➢multiple ways to accomplish tasks
- Efficient
  - ➢perform tasks quickly
- Robust
  - ➢minimal error rates
  - ➢good feedback so user can recover
- Pleasing
  - ➢high user satisfaction
- Fun

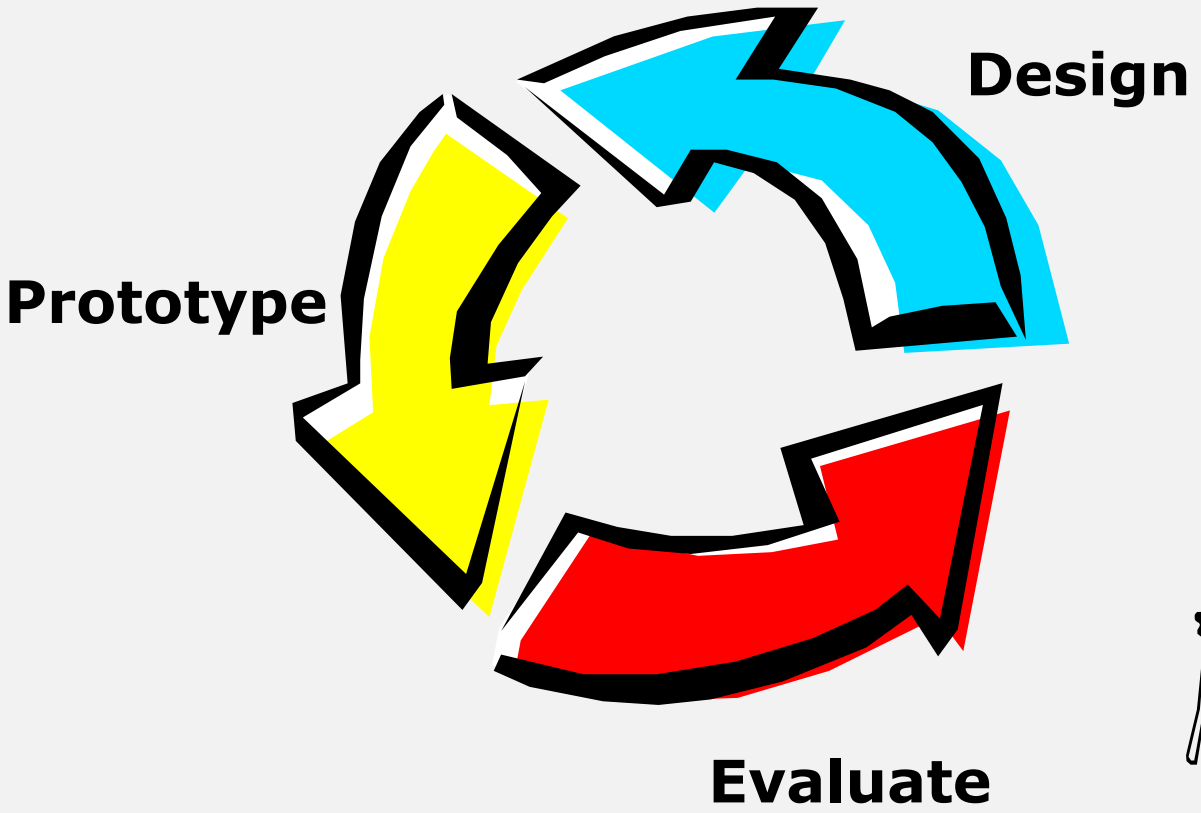
H.W

- ➢ **What about a user interface for encrypting email?**
- ➢ **For intrusion detection system. Which of the above goals would be most important?**

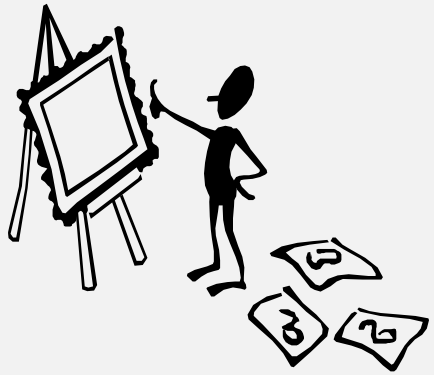
Different design processes

1. Iterative design
2. System centered design
3. User centered design
4. Participatory design

(1) Iterative design



- Designing interfaces **isn't easy and getting it right the first time** is nearly impossible. **In fact getting it right the second time is also fairly difficult**. Enter the iterative design process. The basic idea of iterative design is fairly simple; **keep doing it till you get it right**.



(1) Iterative design: Design

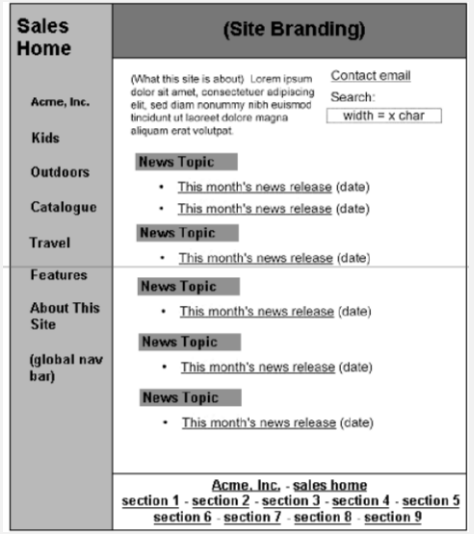
- **Design is driven by requirements**
  - focus on the core need
  - not how it is to be implemented
- **A design is a *simplified* representation**
  - text description of tasks
  - screen sketches
  - flow diagrams
  - ..

Know thy User

- Age
- Gender
- Education level
- Specific limitations (color blindness, height, etc.)

(1) Iterative design: Prototype

- Take your design and build it. **This doesn't need to be a fully functional implementation of the system** it just needs to accurately represent what the system will look and act like. In the **early stages of iterative design prototypes are often made by drawing them on paper.**
- When **prototyping systems** it is useful to design them in both **high and low fidelity**. Fidelity refers to the level of detail in the prototype. **A high fidelity prototype looks like the finished product while a low fidelity** prototype looks like a quick sketch



(1) Iterative design: Evaluate

- Evaluation is the **last step in the iterative design process**. This is when you finally get to **try your design out on real users** and see what happens

- Selecting Users: try to select **unbiased users**. Family, friends or other developers are biased towards telling you good things. You need users who will tell you what is wrong with the system

(2) System centered design

- What can be built easily on this platform?
- What can I create from the available tools?

(3) User centered design

These designs are based on:

- users abilities and their needs
- the context in which they're working
- the work that they're doing
- the tasks that they have to accomplish

user centered design wasn’t followed

(4) Participatory design

- Participatory Design is really **a type of user centered design**.
- users are actually brought into the design process.
  - ➢ It addresses the problem that,
    - ➢ sometime our **intuitions as designers are wrong**.
    - ➢ If we do **interviews or talk to people, they're not necessarily precise**.
    - ➢ **designers might not know the user well enough to answer all the issues that come up during the design**.

- Participatory Design offers, is that there is actually a pool of end users that participate in the process of creating the design.

Activity

Form a group and analyze the current system. Think about how to update the system to align with User-Centered Design (UCD) principles.

user centered design wasn’t followed

Quizzes and Submission Tasks for the Remaining Part of the Semester

Task	Date
Quiz 2 (Usability Tasks, Chunking Information, and Mental Models) + oral quiz (paper)	**10/12/2024**
Quiz 3 (Overview of User Interface Design, Prototyping, and Evaluation) + oral quiz (paper)	**17/12/2024**
Phase 1: System Requirements and Design Overview	**17/12/2024**
Phase 2: implementation	**6/1/2024**
Quiz 4 (Biometrics)+ project Discussion	**9/1/2024 + …**

References

- Jennifer Golbeck's lecture notes
- Jason I. Hong's lecture notes