CHAPTER 4:
Design

Designing the User Interface:
Strategies for Effective Human-Computer Interaction

Sixth Edition

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Design Methods

- Practical building blocks that form the actual day-to-day activities in the design process
  - Ideation and creativity
  - Surveys, interviews and focus groups
  - Ethnographic observation
  - Scenario development and storyboarding
  - Prototyping

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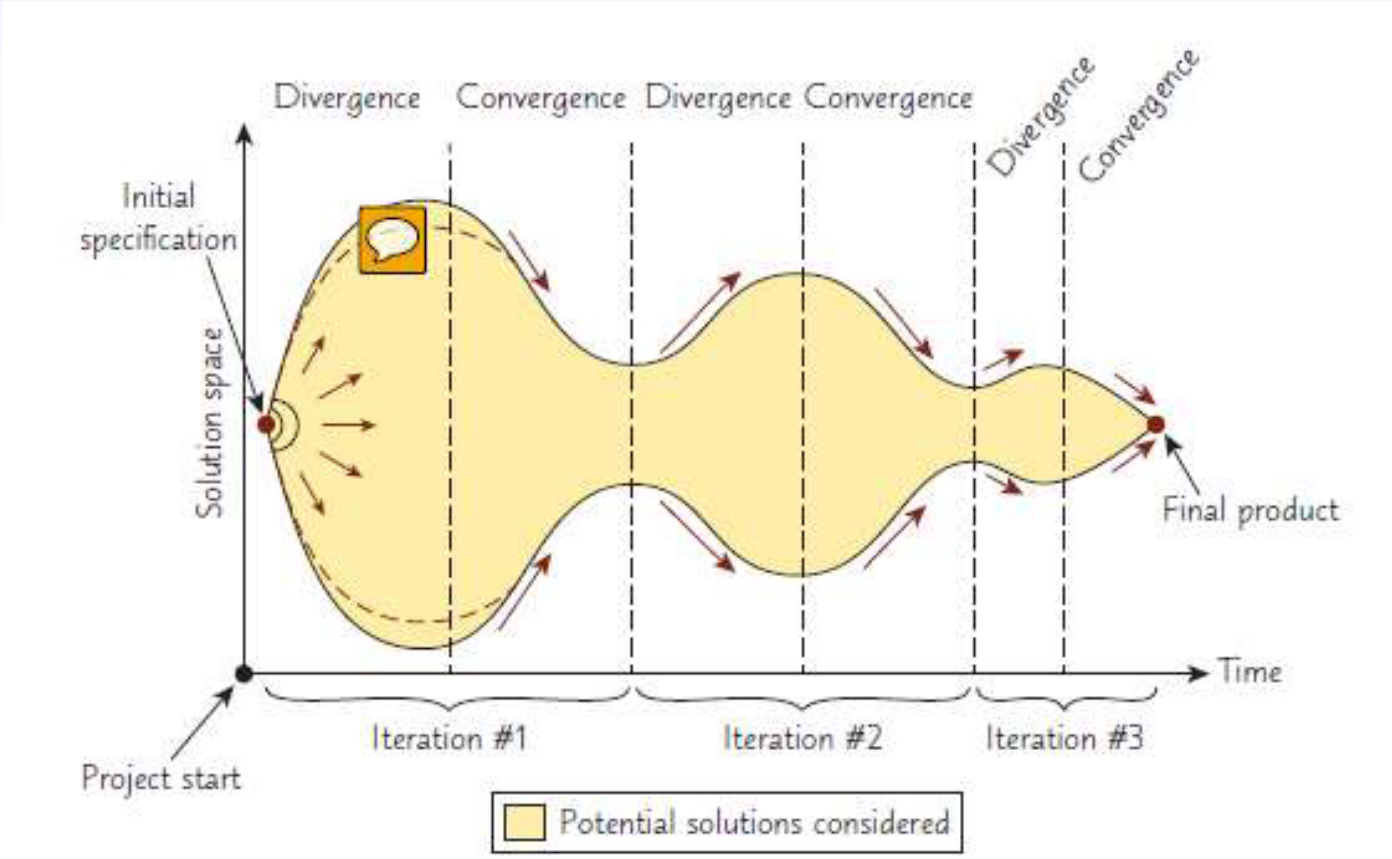
Design Methods (concluded)



- Illustration of how the solutions considered during a design process will grow (diverge) and shrink (converge) iteratively until it eventually fixates on a single point, the finished product
- This particular design process involves three iterations, but real processes may have more or fewer iterations.

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Ethnographic Observation

- **Preparation**
  - Understand organization policies and work culture
  - Familiarize yourself with the system and its history
  - Set initial goals and prepare questions
  - Gain access and permission to observe/interview

- **Field Study**
  - Establish rapport with managers and users
  - Observe/interview users in their workplace and collect subjective/objective quantitative/qualitative data
  - Follow any leads that emerge from the visits

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Ethnographic Observation (concluded)

- **Analysis**
  - Compile the collected data in numerical, textual, and multimedia databases
  - Quantify data and compile statistics
  - Reduce and interpret the data
  - Refine the goals and the process used

- **Reporting**
  - Consider multiple audiences and goals
  - Prepare a report and present the findings

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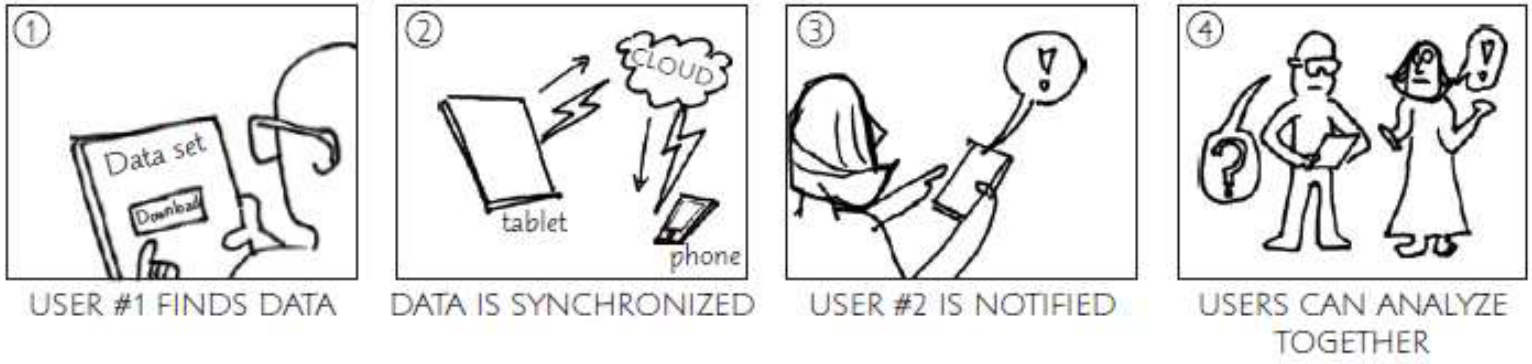
Storyboarding

- Hand-drawn storyboard for a collaborative software that allows multiple people to view a common dataset using their personal smartphones and tablets



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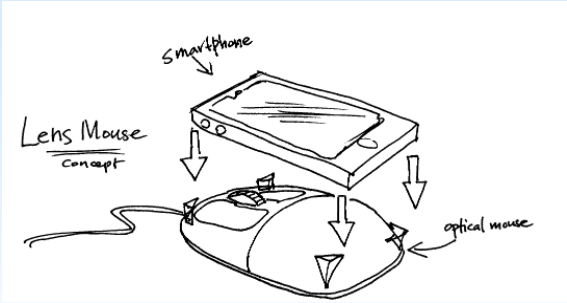
Prototyping



- **Low-fidelity prototypes** are generally created by sketching, using post-it notes, or cutting and gluing pieces of paper together (paper mockups)
- **Medium-fidelity prototypes** are often called *wireframes*, and provide some standardized elements (such as buttons, menus, and text fields), even if potentially drawn in a sketchy fashion, and has some basic navigation functionality
- **High-fidelity prototypes** look almost like the final product and may have some rudimentary computational capabilities; however, the prototype is typically not complete and may not be fully functional

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Design Tools, Practices, and Patterns

- Design Tools
  - Dedicated prototyping design tools are specifically designed for the purpose of creating interface mockups rapidly and effortlessly
- Design Guidelines and Standards
  - Guideline documents are a powerful tool for interaction design
  - Four E's: *Education, Enforcement, Exemption, Enhancement*
- Interaction Design Patterns
  - Best-practice solutions to commonly occurring problems specified in such a way that they can be reused and applied to slightly different variations of a problem over and over again
  - *Model-View-Controller (MVC),* document interface, Web app page architecture

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Social Impact Analysis

Describe the new system and its benefits

- Convey the high level goals of the new system
- Identify the stakeholders
- Identify specific benefits

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Social Impact Analysis (continued)

Address concerns and potential barriers

- Anticipate changes in job functions and potential layoffs
- Address security and privacy issues
- Discuss accountability and responsibility for system misuse and failure
- Avoid potential biases
- Weigh individual rights vs. societal benefits
- Assess trade-offs between centralization and decentralization
- Preserve democratic principles
- Ensure diverse access
- Promote simplicity and preserve what works

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Social Impact Analysis (concluded)

Outline the development process

- Present and estimated project schedule
- Propose process for making decisions
- Discuss expectations of how stakeholders will be involved
- Recognize needs for more staff, training, and hardware
- Propose plan for backups of data and equipment
- Outline plan for migrating to the new system

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Legal Issues

Potential Controversies

- What material is eligible for copyright?
- Are copyrights or patents more appropriate for user interfaces?
- What constitutes copyright infringement?
- Should user interfaces be copyrighted?
- Evolving public policies related to:
  - Privacy
  - Liability related to system safety/reliability
  - Freedom of speech

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