Chapter 17 - User Interface Design

• Distinguish between different types of computer users and design considerations for each.
• Identify several important human engineering factors and guidelines and incorporate them into a design of a user interface.
• Integrate output and input design into an overall user interface that establishes the dialogue between users and computer.
• Understand the role of operating systems, web browsers, and other technologies for user interface design.
• Apply appropriate user interface strategies to an information system. Use a state transition diagram to plan and coordinate a user interface for an information system.
• Describe how prototyping can be used to design a user interface.

System User Classifications

Expert User
– an experienced computer user
– Spends considerable time using specific application programs.
– Use of a computer is usually considered non-discretionary.
– In the mainframe computing era, this was called a dedicated user.

Novice User
– a less experienced computer user
– Uses computer on a less frequent, or even occasional, basis.
– Use of a computer may be viewed as discretionary (although this is becoming less and less true).
– Sometimes called a casual user.

According to Galitz, the following problems result in confusion, panic, frustration, boredom, misuse, abandonment, and other undesirable consequences.

– Excessive use of computer jargon and acronyms
– Nonobvious or less-than-intuitive design
– Inability to distinguish between alternative actions ("what do I do next?")
– Inconsistent problem-solving approaches
– Design inconsistency

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Understanding your users and their tasks.
• Involve the user in interface design.
• Test the system on actual users.
• Practice iterative design.
Human Engineering Guidelines

• The user should always be aware of what to do next
  – Tell user what the system expects right now.
  – Tell user that data has been entered correctly.
  – Tell user that data has not been entered correctly.
  – Explain reason for a delay in processing.
  – Tell user a task was completed or not completed.

• Format screen so instructions and messages always appear in the same general display area.
• Display messages and instructions long enough so user can read them.

Guidelines for dialogue Tone and Terminology

Dialogue – the overall flow of screens and messages for an application

• Tone:
  – Use simple, grammatically correct sentences.
  – Don’t be funny or cute!
  – Don’t be condescending.

• Terminology
  – Don’t use computer jargon.
  – Avoid most abbreviations.
  – Use simple terms.
  – Be consistent in your use of terminology.
  – Carefully phrase instructions—use appropriate action verbs.

User Interface Technology

• Operating Systems and Web Browsers
  – GUI
  – Windows, Macintosh, UNIX, Linux, Palm OS, Windows CE
  – Growing importance of platform independence

• Display Monitor
  – Regular PC monitors
  – Non-GUI terminals
  – Growing importance of devices such as handhelds

  Paging – Displaying a complete screen of characters at a time.

  Scrolling – Displaying information up or down a screen one line at a time.

• Keyboards and Pointers
  – Mouse
  – Pens

• Windows and frames
• Menu-driven interfaces
  – Pull-down and cascading menus
  – Tear-off and pop-up menus
  – Toolbar and iconic menus
  – Hypertext and hyperlink menus

• Instruction-driven interfaces
  – Language-based syntax
  – Mnemonic syntax
  – Natural language syntax

• Question-answer dialogue
Chapter 17 – User Interface Design

Sample Dialogue Chart

Pull-Down and Cascading Menus

Ellipses indicates dialogue box

Dialogue Box

Pop-Up Menus

Tool Bars

Iconic Menus
Instruction-Driven Interfaces

• Language-based syntax is built around a widely accepted command language that can be used to invoke actions
  – SQL
• Mnemonic syntax is built around commands defined for custom information systems.
  – Commands unique to that system and meaningful to user
• Natural language syntax allows users to enter questions and command in their native language

Special Considerations for User Interface Design

• Internal Controls – Authentication and Authorization
  – User ID and Password
  – Privileges assigned to roles
  – Web certificates
• Online Help
  – Growing use of HTML for help systems
  – Help authoring packages
  – Tool tips
  – Help wizards
  – Agents – reusable software object that can operate across different applications and networks.
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SYSTEMS ANALYSIS AND DESIGN METHODS

6th Edition

Server Security Certificate

Help Tool Tip, Help Agent, and Natural Language Processing

Help Wizard

Automated Tools for User Interface Design & Prototyping
• Microsoft Access
• CASE Tools
• Visual Basic
• Excel
• Visio

Additional User Interface Controls in Visual Basic

The User Interface Design Process

1. Chart the user interface dialogue.
   State Transition Diagram - a tool used to depict the sequence and variation of screens that can occur during a user session.

2. Prototype the dialogue and user interface.

3. Obtain user feedback.
   • Exercising (or testing) the user interface

4. If necessary return to step 1 or 2