Fundamentals

⇒ Place User In Control

⇒ Make interface consistent
  ⇒ Provided by Macintosh – Apple

⇒ Reduce user’s need to remember

⇒ Provide multiple means for actions
User Control

⇒ Action modes flow easily
  ⇒ Mode vs modeless
    ⇒ Mode – action must be complete before other actions.
    ⇒ Modeless – action may be suspended and restarted without complications

⇒ Actions are flexible
  ⇒ Choices should be provided
  ⇒ Unavailable actions should be dimmed

⇒ Actions should be undoable
  ⇒ Any action even if incomplete user should be able to back out.
User Control (cont’d)

⇒ Actions should hide technical details

⇒ Actions tailored to user’s skill level
   ⇒ Multiple methods for controlling actions

⇒ Actions and objects should appear on screen
   ⇒ Use ideas like highlighting, etc. to aid users control and understanding of actions

⇒ As above – unavailable actions dimmed
Methods for Simplifying Interface Use

- Establish meaningful defaults
- Establish shortcuts
- Establish interface consistent with real world
  - Pictorial – figure, icon worth 1000 words
  - Reasonable placement of features like menu, status, action icons, etc.
- Establish progressive display of information
  - Consider abstraction level and sequence
    - Start at highest level with more detail later
    - Consider underlining, highlighting, color etc. to enable attention
Establish Users Types

Novices
- Little syntactic or semantic knowledge of the application or system
- Probably copious on help with content, index and find.
- Cross reference the Help file
- Include examples and/or step-by-step instructions

Knowledgeable User
- Intermittent users - provide method for easy recall such as help box at any action point of action
- Frequent users – power users
- Provide multiple methods for selecting action.
Interface Development Process

Identical to any other process sequence

⇒ Requirements and specifications

⇒ Design and Development

⇒ Test and Debug
  May be much more difficult than non-graphical code because people do not compile and run easily or consistently

⇒ Maintenance and Upgrade
  You may have to get lots of input much of which may be inconsistent
Environment Questions - Human engineering considerations

⇒ Location of interface?

⇒ External conditions – noise, interference, disturbances, etc.

⇒ User’s considerations

⇒ Position and other related issues directly affecting the user

⇒ Other special human factors

⇒ Designs for disabilities, range of user abilities, range of user physical features
Interface Design Activities

- Establish the requirements
- Map to specifications – specific set of actions
  - Like service and viewpoint
- Create a set of action sequences - scenarios
  - Tasks and subtasks
- State of system at the beginning and end of each scenario
  - Pre- and Post- conditions
- Define the control – user event(s) that cause actions
- Study how user interprets the information presented in the interface before, during and after the action
The truth in the matter that there are so many design issues that it is almost impossible to discuss them.

Prototype – try to get early evaluation

Repeat slide 1

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Implementation Tools

⇒ A number of frameworks – windows interface development tools

⇒ Demonstrate using Symantec Builders

Demonstration will be delayed until I can reinstall the application
Design Evaluation

⇒ Get as many opinions as possible

⇒ Try to formalize the evaluation
  ⇒ Are icons (pictorials) self-explanatory?

⇒ How many actions did a user employ in a session
  ⇒ the learning time if possible

⇒ Compare with other interfaces, especially in the same project for consistency.

⇒ Try to get novice and knowledgeable users trials