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

Interface Model

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

Design Issues

- 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
  - Place User In Control
  - Make interface consistent
  - Provided by Macintosh – Apple
  - Reduce user’s need to remember
  - Provide multiple means for actions
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