The User Interface Design Process

Step 3 – Understand the Principles of Good Screen Design

Human Considerations in Screen Design: How to Distract the Screen User
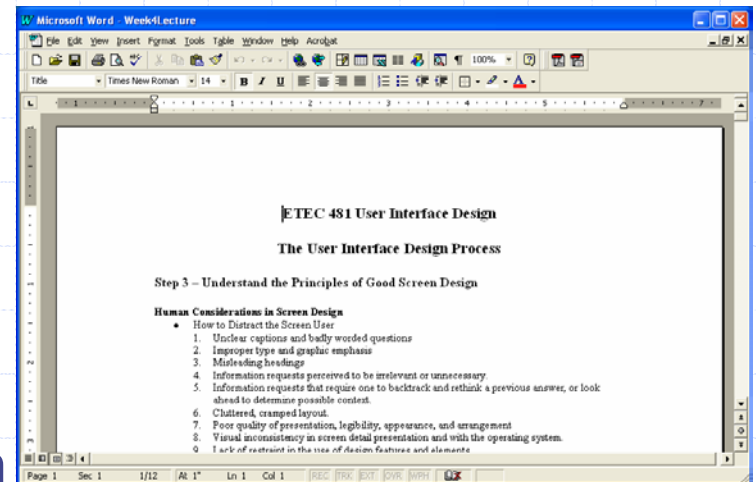
- Unclear captions
- Improper type
- Misleading headings
- Irrelevant requests
- Backtracking for Info
- Cluttered layout
- Poor quality

- Visual inconsistency
- Lack of restraint
- Overuse of 3-D
- Overuse of bright colors
- Poorly designed icons
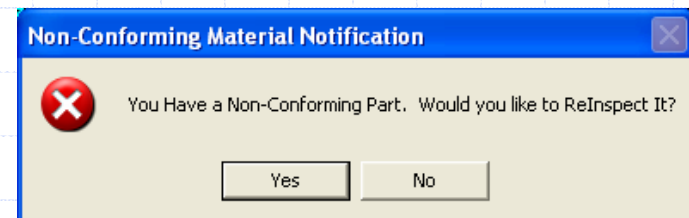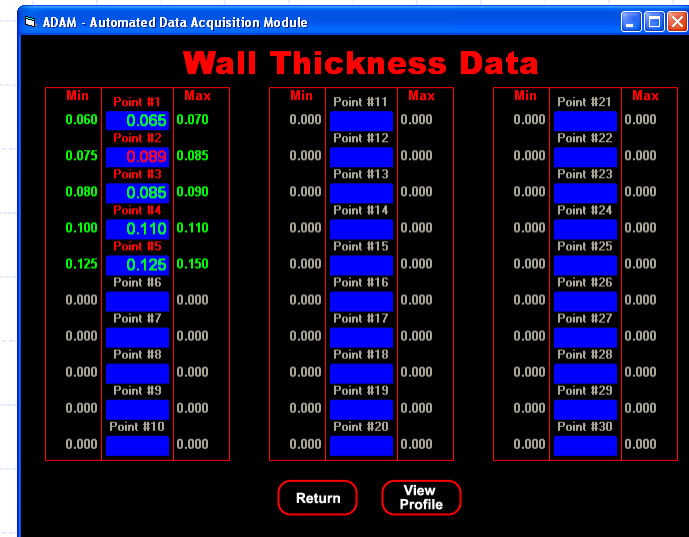- Bad typography
- Overbearing metaphors

Human Considerations in Screen Design: What Screen Users Want

- An orderly & clutter-free appearance
- Obvious indication of what to do
- Expected information is located where it should be
- Clear indication of what relates to what
- Plain, simple English
- Simple way of finding out what is in a system
- Clear indication of impending permanent changes

Human Considerations in Screen Design: What Screen Users Do

- Identifies a task to be performed
- Decides how the task will be completed
- Manipulates the computer's controls
- Gathers the necessary data
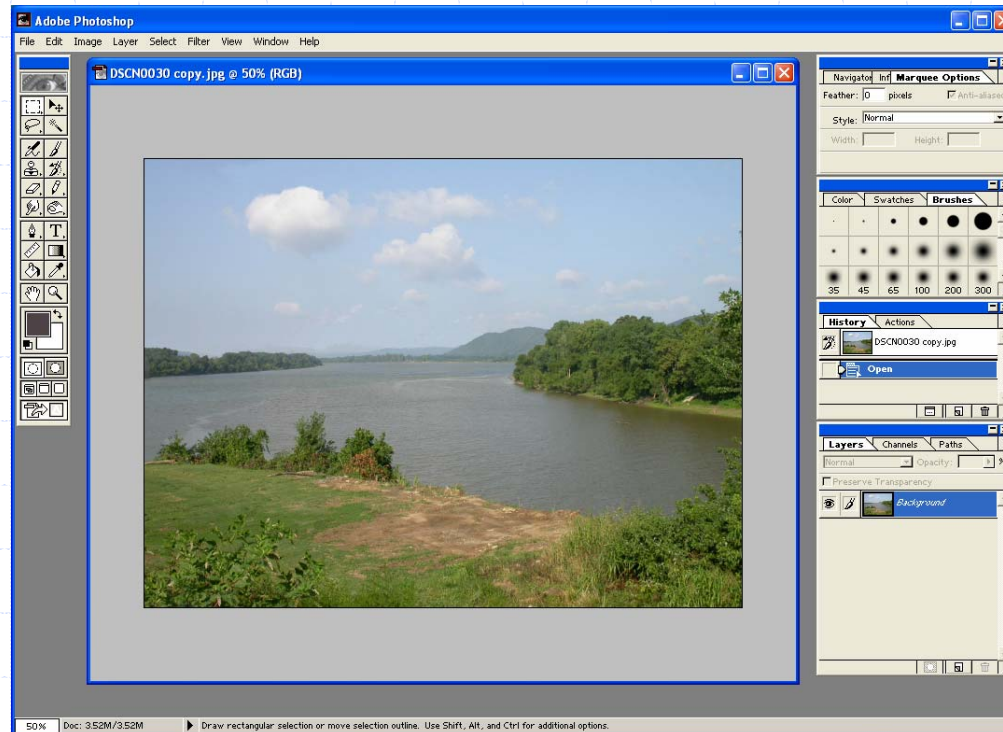- Forms judgments resulting in relevant decisions

Human Considerations in Screen Design: Interface Design Goals

◆ Reduce visual work

◆ Reduce intellectual work

◆ Reduce memory work

◆ Reduce motor work

◆ Minimize or eliminate any burdens imposed by technology

Human Considerations in Screen Design: The Test for a Good Design

◆ Can all screen elements be identified by cues other than by reading the words that make them up?
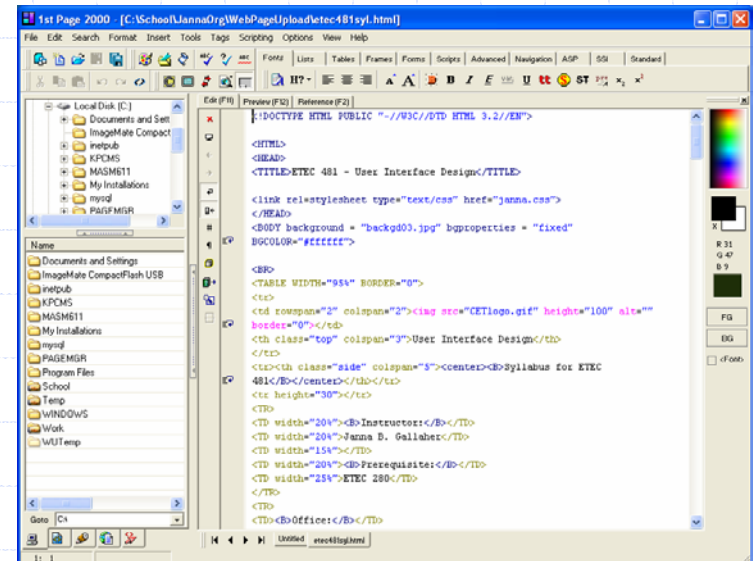
Human Considerations in Screen Design: Screen Meaning and Purpose

◆ Each screen element ...
- Every control
- All text
- Screen organization
- All emphasis
- Each color
- Every graphic
- All screen animation
- Each message
- All forms of feedback

▪ Must ...
- Have meaning to screen users.
- Serve a purpose in performing tasks

Human Considerations in Screen Design: Organizing Screen Elements Clearly and Meaningfully

- Organize display elements in meaningful and understandable ways
- Clarity is influenced by:
    - consistency in design
    - visually pleasing composition
    - logical and sequential ordering
    - presentation of the proper amount of information
    - groupings
    - alignment of screen items

Human Considerations in Screen Design: Consistency

- ◈ Provide real-world consistency
- ◈ Provide internal consistency
  - ▪ Operational and navigational procedures
  - ▪ Visual identity of theme
  - ▪ Component: Organization, presentation, usage, locations
- ◈ Follow conventions throughout all related interfaces
- ◈ Deviate only when there is clear benefit to the user

Human Considerations in Screen Design: Ordering of Screen Data and Content

- Divide information into units that are logical, meaningful, and sensible
- Organize by the degree interrelationship between data
- Provide an ordering of screen units of information that is prioritized according to user's expectations and needs
- Form Groups that cover all possibilities
- Ensure that needed information is visible
- Ensure that only relevant information is presented

Human Considerations in Screen Design: Upper-Left Starting Point

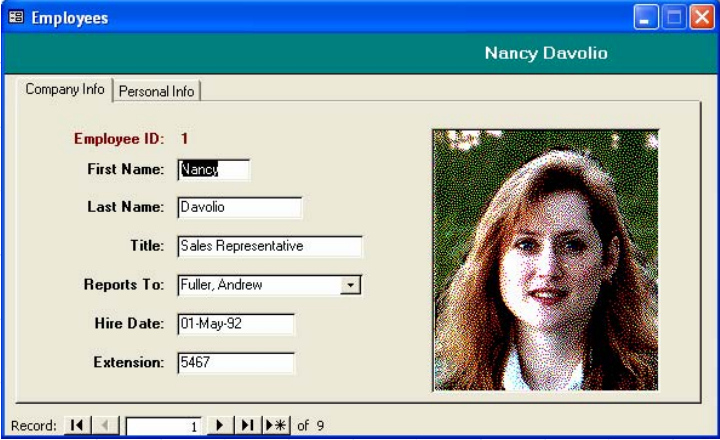◆ Provide an obvious starting point in the screen's upper-left corner

Human Considerations in Screen Design: Screen Navigation and Flow

- Provide an ordering of elements that: is rhythmic, encourages natural movement, and minimizes pointer and eye movement

- Locate most important and most frequently used elements at the top left of the screen.

- Maintain a top-to-bottom, left-to-right flow.

- Assist navigation by: aligning elements, grouping elements, and using line borders.

Human Considerations in Screen Design: Screen Navigation and Flow (Continued)

◈ Through focus and emphasis, direct attention to items that are: critical, important, secondary, peripheral in that order Tab through window in logical order.

◈ Locate command buttons at end of the tabbing sequence.

◈ Provide screen breaks at logical or natural points in the information flow.

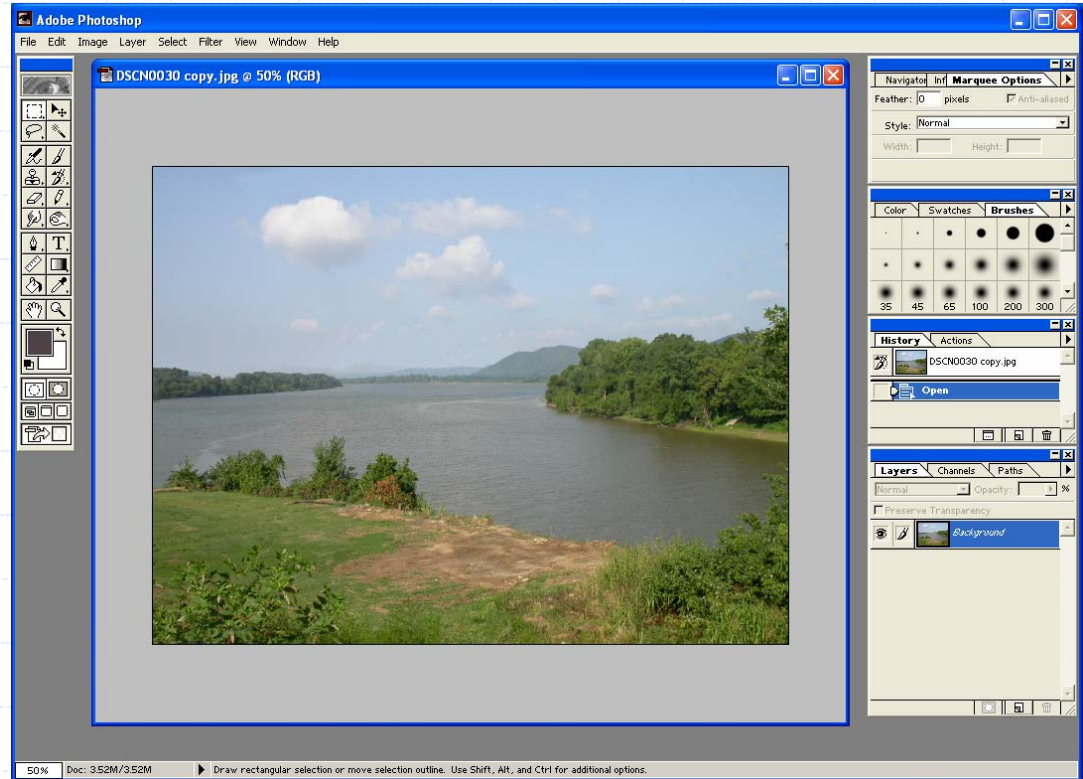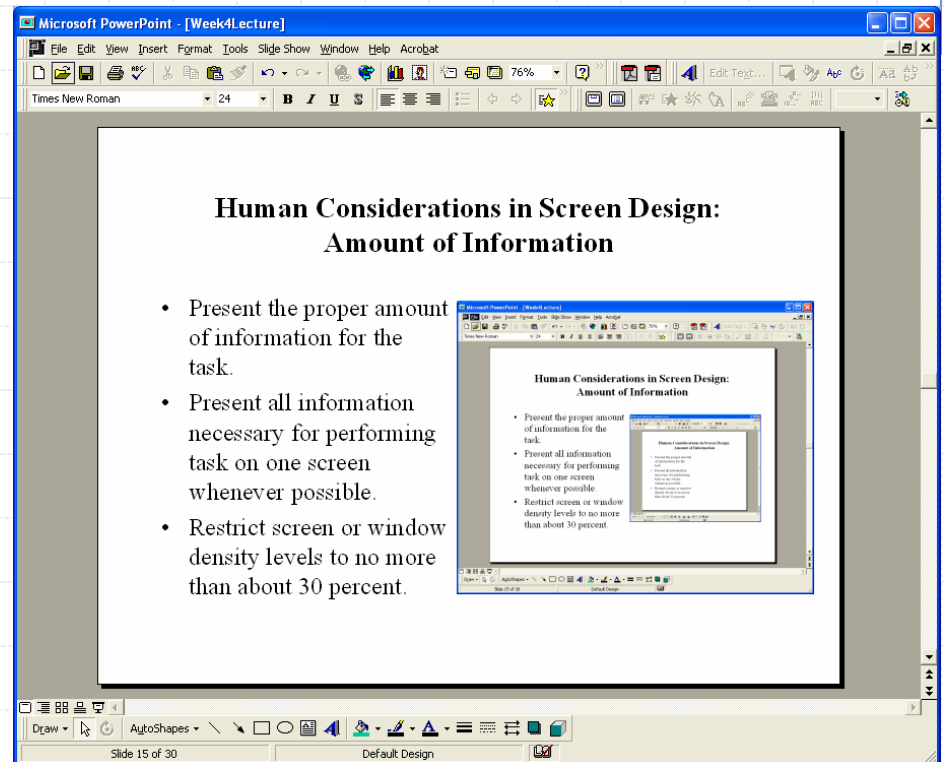# Human Considerations in Screen Design: Visually Pleasing Composition

- Balance
- Symmetry
- Regularity
- Predictability
- Sequentiality
- Economy
- Unity
- Proportion
- Simplicity
- Groupings

Human Considerations in Screen Design: Amount of Information

♦ Present the proper amount of information for the task.

♦ Present all information necessary for performing task on one screen whenever possible.

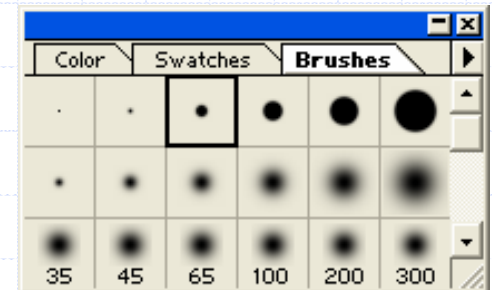♦ Restrict screen or window density levels to no more than about 30 percent.

Human Considerations in Screen Design: Distinctiveness

- Individual screen controls and groups of controls, must be perceptually distinct
  - Screen controls: Should not touch a window border or each other
  - Field and group borders: Should not touch a window border or each other
  - Buttons: Should not touch a window border or each other
- A button label should not touch the button border.
- Adjacent screens must be displayed in colors or shades of sufficient contrast with each other

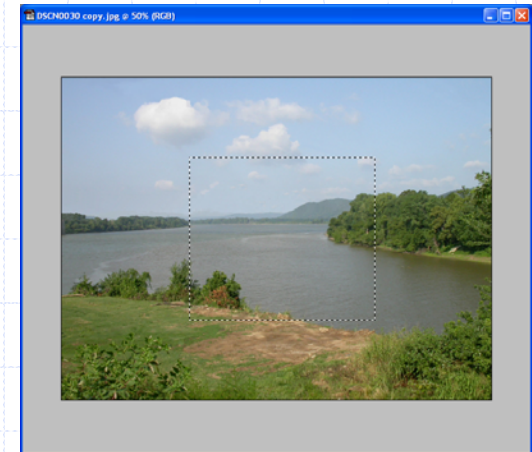# Human Considerations in Screen Design: Focus and Emphasis

◆ Visually emphasize the most important or prominent element or the central idea or focus point.

◆ Use emphasis techniques: higher brightness, reverse video, larger font, underlining, blinking, line rulings, contrasting color, larger size, positioning, isolation, unusual shape, white space.
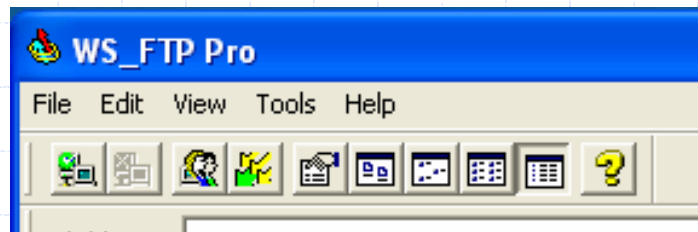
◆ De-emphasize less important elements.

Human Considerations in Screen Design: Focus and Emphasis (Continued)

- Ensure emphasized elements stand out by: avoiding emphasizing too many elements, too many techniques, or screen clutter.

- In Web page design: Call attention to new or changed content, and ensure that page text is not overwhelmed by page background

Human Considerations in Screen Design: Conveying Depth of Levels or a Three-Dimensional Appearance

- Use perspective, highlighting, shading or other 3-D technique.
- Always assume that a light source is in the upper-left corner of the screen
- Display command buttons above the screen plane.
- Display screen-based controls on, or etched or lowered below, the screen plane
- Do not overdo things and avoid: using perspective for non-interactive elements, and providing too much detail

Human Considerations in Screen Design: Presenting Information Simply and Meaningfully

◈ Provide legibility: information is noticeable and distinguishable

◈ Provide readability: information is identifiable, interpretable, and attractive.

◈ Present information in usable form with no translations, transpositions, or documentation references required.

◈ Utilize contrasting display features to attract attention.

◈ Create visual lines to guide the eye.

◈ Be consistent in appearance and procedural usage.

Human Considerations in Screen Design: Organization and Structure Guidelines

- ◆ Information Entry and Modification (Conversational)
  - guide a person through a task or process
  - Viewer is driven by what is presented on the screen
  - Info is from: interview, telephone survey, collection of notes, unstructured form, or the mind of the user.
- ◆ Entry from a Dedicated Source Document
  - Key information directly from a source document into the screen
  - Key element is that the document is dedicated to the screen for "head down" data entry
- ◆ Display/Read-Only screens
  - Display results of a query, request or contents of computer files.

Human Considerations in Screen Design: Reading, Browsing, and Searching on the Web

- ◆ Initial focus of attention: screen is scanned in clockwise direction and will be influenced by balance, font, graphics

- ◆ Page Perusal: Pages are scanned so design of page involves organization, writing, and presentation

- ◆ Browsing: Facilitate scanning, provide multiple layers of structure, make navigation easy, respect the user's desire to leave, upon returning, help users reorient themselves.

Human Considerations in Screen Design: Reading, Browsing, and Searching on the Web (Continued)

◆ Searching: Provide a search facility:

- Problems: Not understanding the user, difficulties in formulating the search, or difficulties in presenting meaningful results.

◆ Guidelines:

- Know your user: level of expertise; anticipate nature, kind, and type of info; plan for user's switching purpose; add flexibility.

- Express the search: What, where, how

- progressive search refinement

- launch the search

- present meaningful results

- destination pages

- locatability.

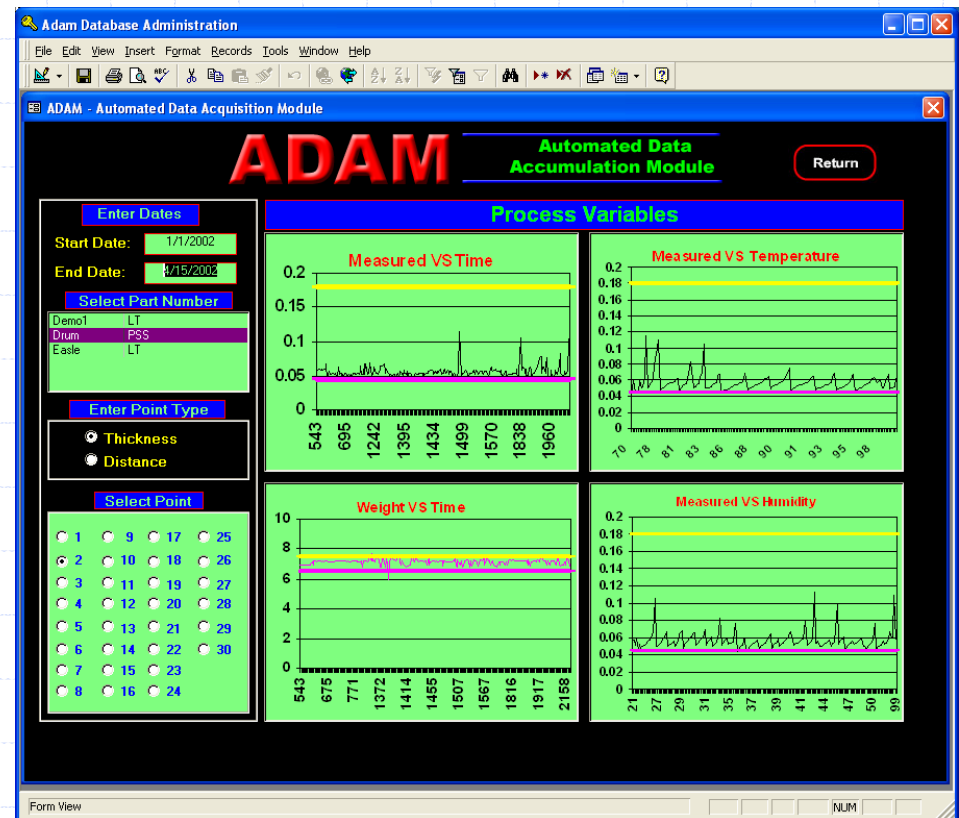# Human Considerations in Screen Design: Intranet Design Guidelines

- ◆ Provide a single home page containing: directory, search facility, current news.
- ◆ Present a visual style that is: different, distinguishing, unified.
- ◆ Orient the intranet Web site toward tasks.
- ◆ Include many options and features.
- ◆ Develop a strong navigational system

Human Considerations in Screen Design: Extranet Design Guidelines

◆ Distinguish the extranet from the Internet by subtle differences in: visual style and navigation.
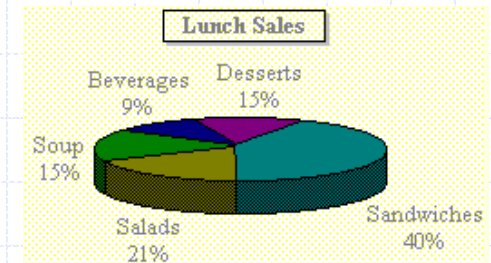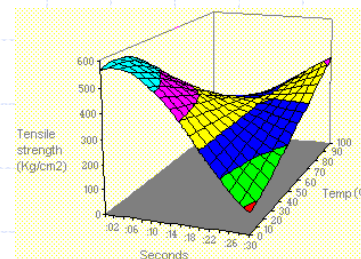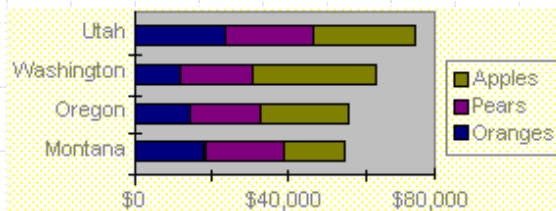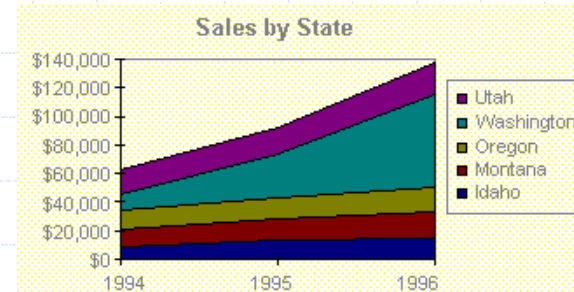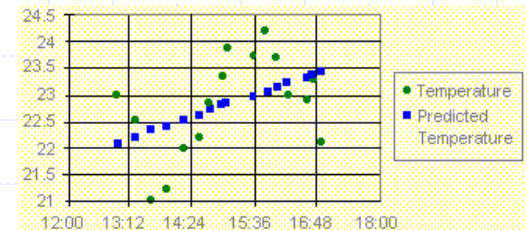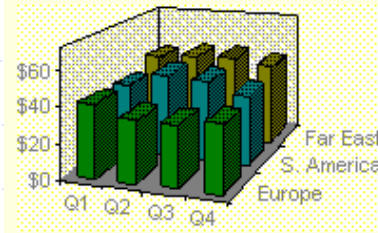
◆ Provide links to the public Internet site.

Human Considerations in Screen Design: Statistical Graphics

◆ Data Presentation

◆ Axes

◆ Scales and Scaling

◆ Proportion

◆ Lines

◆ Labeling

◆ Title

◆ Aiding Interpretation of numbers

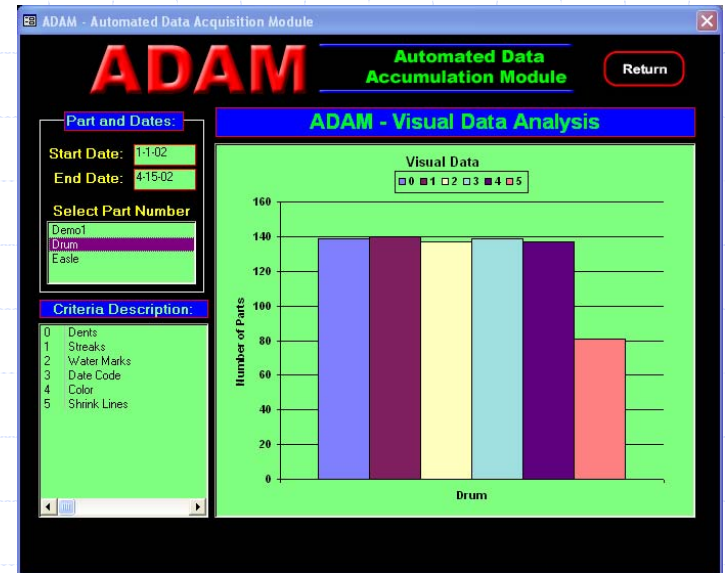# Human Considerations in Screen Design: Types of Statistical Graphics

- ◆ Curve and line graphs
- ◆ Surface Charts
- ◆ Scatterplots
- ◆ Bar Graphs
- ◆ Segmented or Stacked Bars
- ◆ Pie Charts
- ◆ Choosing a Graph Type
- ◆ Flow Charts

Technological Considerations in Interface Design

◈ Graphical Systems

- Screen design must be compatible with the capabilities of the system including: system power, screen size, screen resolution, display colors, and other other display features

- Screen design must be compatible with the capabilities of the: system platform being used, the development and implementation tools being used, and the platform style guide being used.

Technological Considerations in Interface Design (Continued)

◆ Web Systems

- Understand the current level of Web technology.
- Design for system configuration used by most users.
- Refrain from haphazard use of leading-edge technology.
- Browsers
  - ◆ Compatibility
  - ◆ Monitor size and resolution
  - ◆ Fonts
  - ◆ Bandwidth
  - ◆ Versions

Technological Considerations in Interface Design (Continued)

- ◆ Other Web Considerations
  - Downloading:
  - Currency
  - Page printing
  - Maintainability