Designing Effective Input

12

Systems Analysis and Design, 7e

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Learning Objectives

- Design input forms for users of business systems
- Design engaging input displays for users of information systems
- Design useful input forms for people interacting on the Web
- Design useful input pages for users of intranets and the Internet

Input Design Objectives

- The quality of system input determines the quality of system output
- Input design objectives:
  - Effectiveness
  - Accuracy
  - Ease of use
  - Consistency
  - Simplicity
  - Attractiveness

Major Topics

- Input design
- Form design
- Display design
- GUI screen design
- GUI controls
- Web design guidelines

Good Form Design

- Make forms easy to fill in
- Ensure that forms meet the purpose for which they are designed
- Design forms to assure accurate completion
- Keep forms attractive

Make Forms Easy to Fill in

- Form flow
- Seven sections of a form
- Captioning

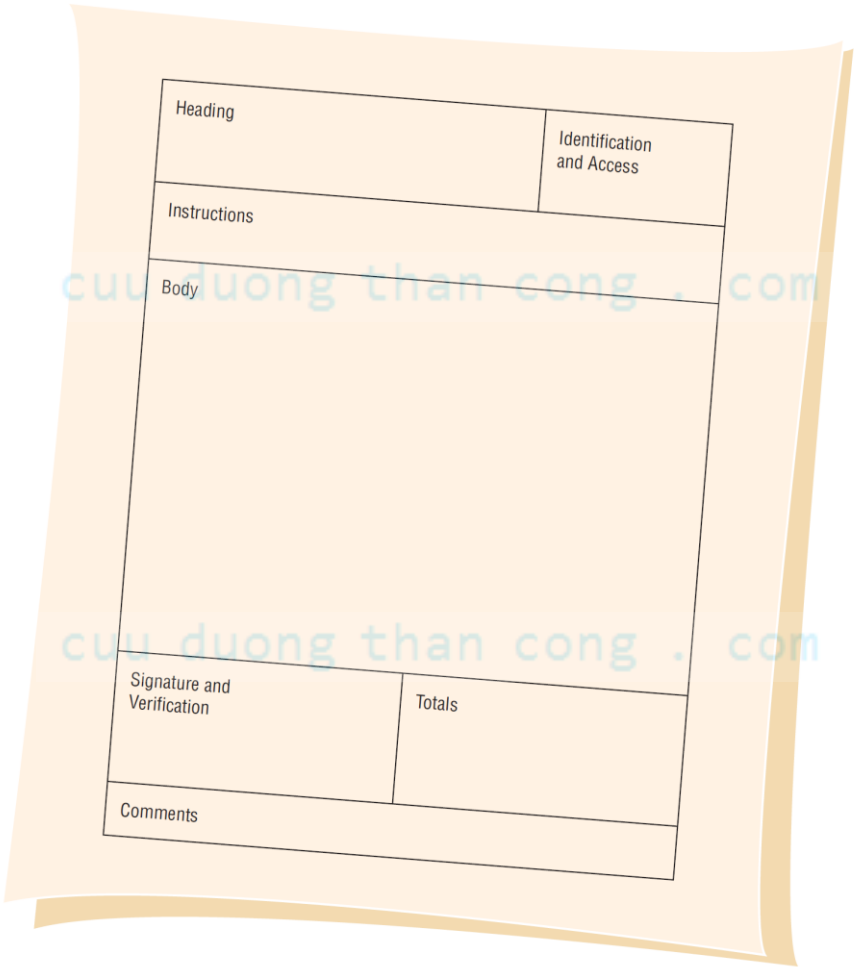
Form Flow

- Can minimize the time and effort expended by employees in form completion
- Should flow from left to right and top to bottom

Seven Sections of a Form

- Heading
- Identification and access
- Instructions
- Body
- Signature and verification
- Totals
- Comments

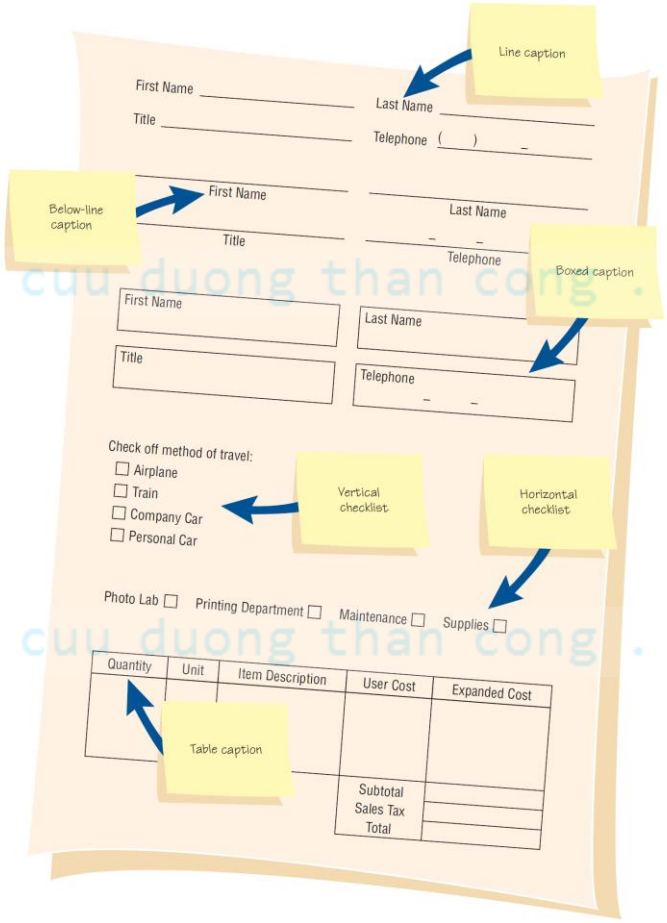
Figure 12.1 Seven sections found in well-designed forms



Caption Types

- Line caption
  - Putting the caption on the same line or below the line
- Boxed caption
  - Providing a box for data instead of a line
- Check off caption
  - Lining up choices or alternatives vertically
- Horizontal check off caption
  - Lining up choices or alternatives horizontally
- Table caption
  - Work well in the body of a form
- Combination

Figure 12.2 Major captioning alternatives



Meeting the Intended Purpose

- Systems analysts may use different types of specialty forms for different purposes
- Specialty forms
  - Multiple-part
  - Continuous-feed
  - Perforated

Ensuring Accurate Completion

- To reduce error rates associated with data collection, forms should be designed to assure accurate completion
- Design forms to make people do the right thing with the form

Keeping Forms Attractive

- Aesthetic forms draw people into them and encourage completion
- Forms should look uncluttered, and elicit information in the expected order
- Using different fonts and line weights within the same form can help make it more attractive for users

Computer-Assisted Form Design

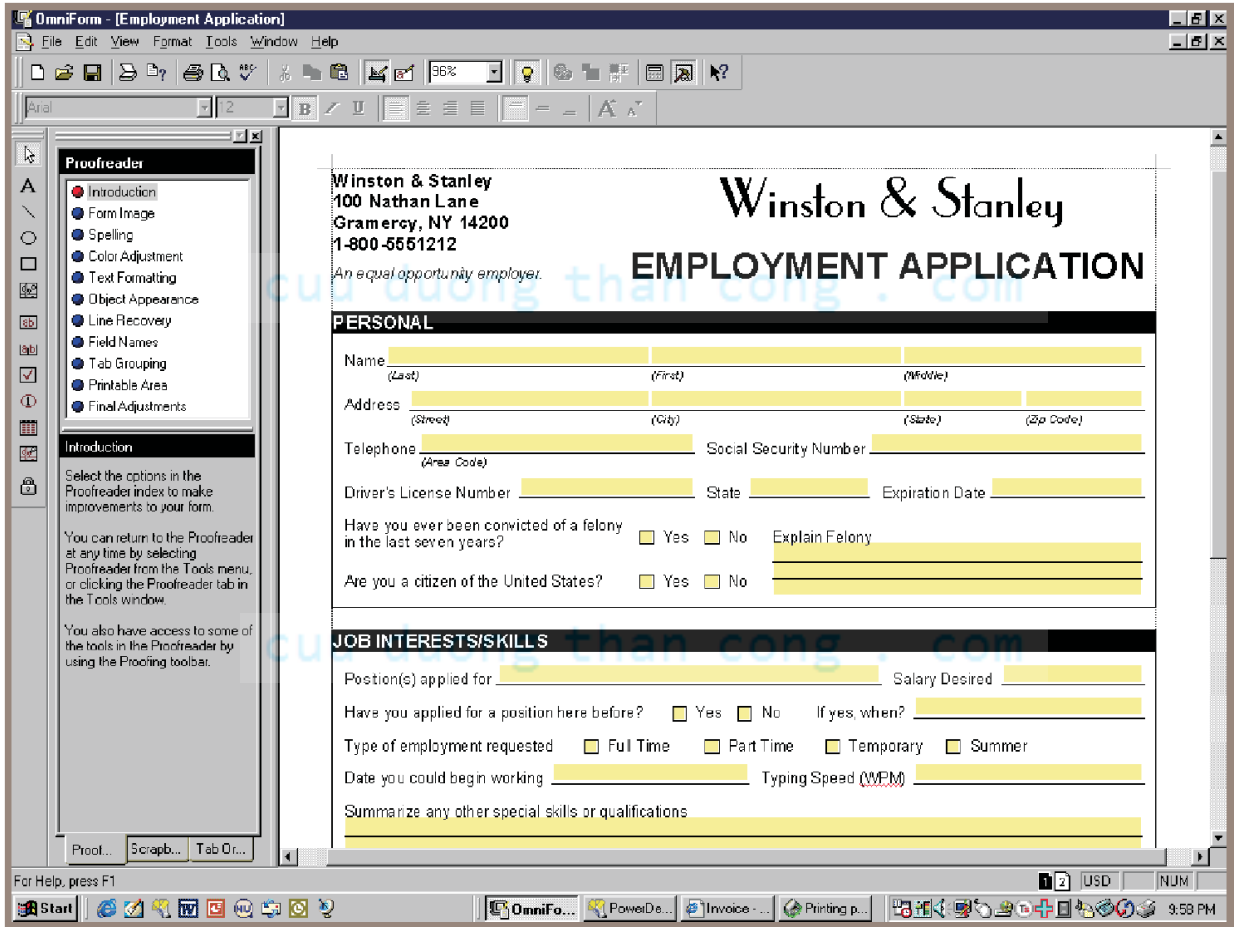
- Numerous form design packages are available for PCs
- Electronic forms can have intelligence that supports users in their tasks

Figure 12.4 Software for electronic form design has many dynamic features

Features of Electronic Form Design Software

- Gives the ability to design paper forms, electronic forms, or Web-based forms using one integrated package
- Allows form design using form templates
- Enables form design by cutting and pasting familiar shapes and objects
- Facilitates electronic form completion through use of a companion data entry software package
- Permits customization of electronic form completion with the capability to customize menus, toolbars, keyboards, and macros
- Supports integration with popular databases
- Enables the sending and broadcasting of electronic forms
- Permits sequential routing of forms
- Assists tracking of routed forms
- Encourages automatic delivery and processing (push technology for forms)
- Allows the development of roles databases (that show relationships between people and types of information)
- Establishes security protection for electronic forms
- Takes scanned paper forms and permits publishing them to the Web
- Creates electronic fields automatically from scanned paper forms
- Permits form fill-in on the Web
- Allows calculations to be accomplished automatically

Figure 12.5 Omniform from ScanSoft allows the user to take an existing form, scan it into the computer, and define fields so the form can be easily filled out on a PC



Controlling Business Forms

- Making sure that each form in use fulfills its specific purpose
- Making sure that the specified purpose is integral to organizational functioning
- Preventing duplication of information collected and of the forms that collect it
- Designing effective forms
- Deciding on how to reproduce forms in the most economical way
- Establishing procedures that make forms available, at the lowest possible cost

Good Display and Web Forms Design

- Keep the display simple
- Keep the display presentation consistent
- Facilitate user movement among display screens and pages
- Create an attractive and pleasing display

Keeping the Display Simple

- Heading
- Body
- Comments and instructions

Keeping the Display Consistent

- Locate information in the same area each time a new display is accessed
- Information that logically belongs together should be consistently grouped together
- Information should not overlap from one group to another

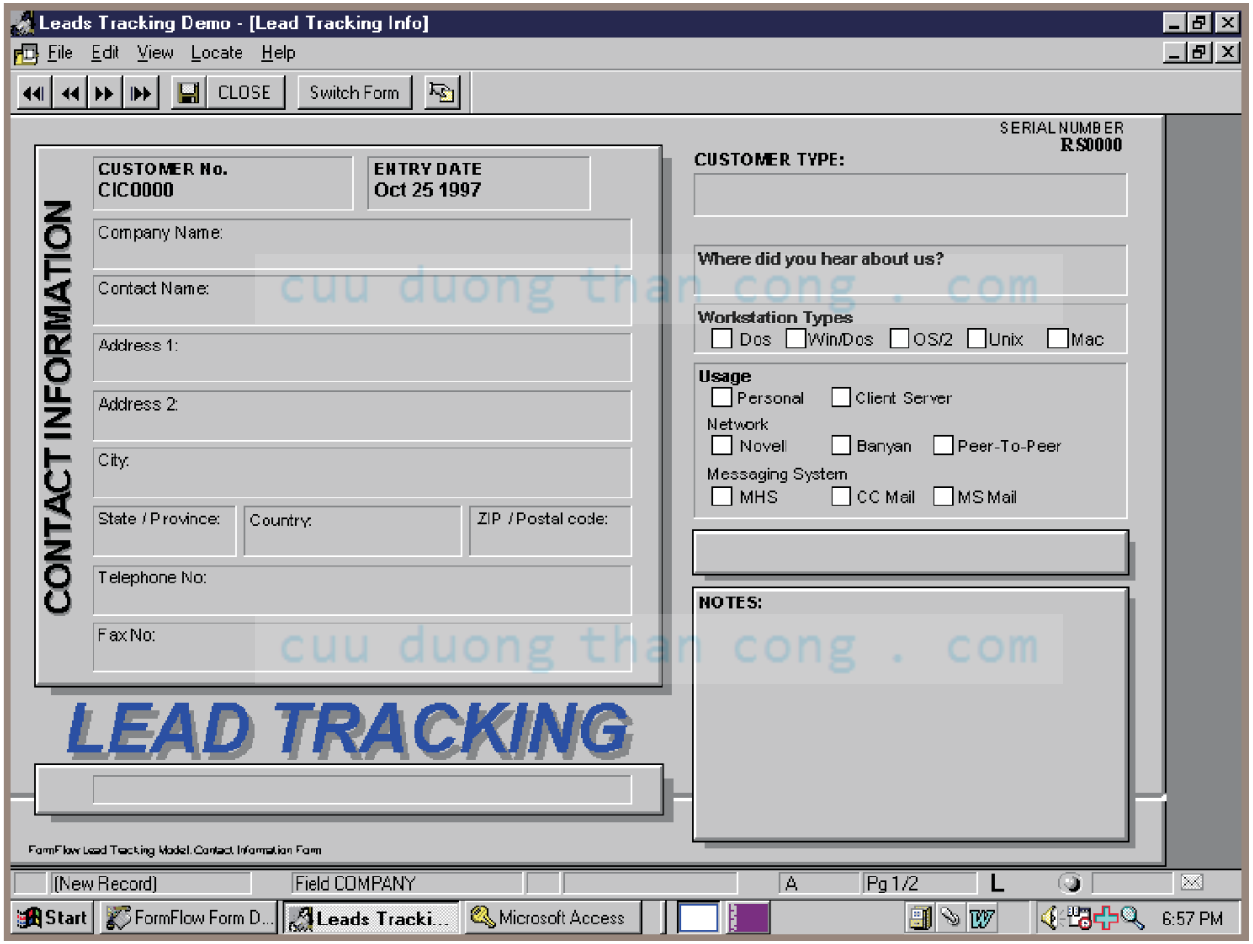
Facilitating Movement

- The three-clicks rule says that users should be able to get to the screens they need within three mouse or keyboard clicks
- Movement among screens:
  - Scrolling by using arrows or PgDn keys
  - Context-sensitive pop-up windows
  - Onscreen dialogue

Designing an Attractive and Pleasing Display

- Should draw users into them and hold their attention
- Use logical flows in the plan to your display pages
- Thickness of separation lines between subcategories
- Color or shaded boxes and creating three-dimensional boxes and arrows

Figure 12.8 You can design an attractive data entry screen with a three-dimensional effect using JetFlow's FormFlow



Inverse Video, Blinking Cursors, and Font Types

- Inverse video
- Blinking cursor or fields
- Font types in various styles and sizes

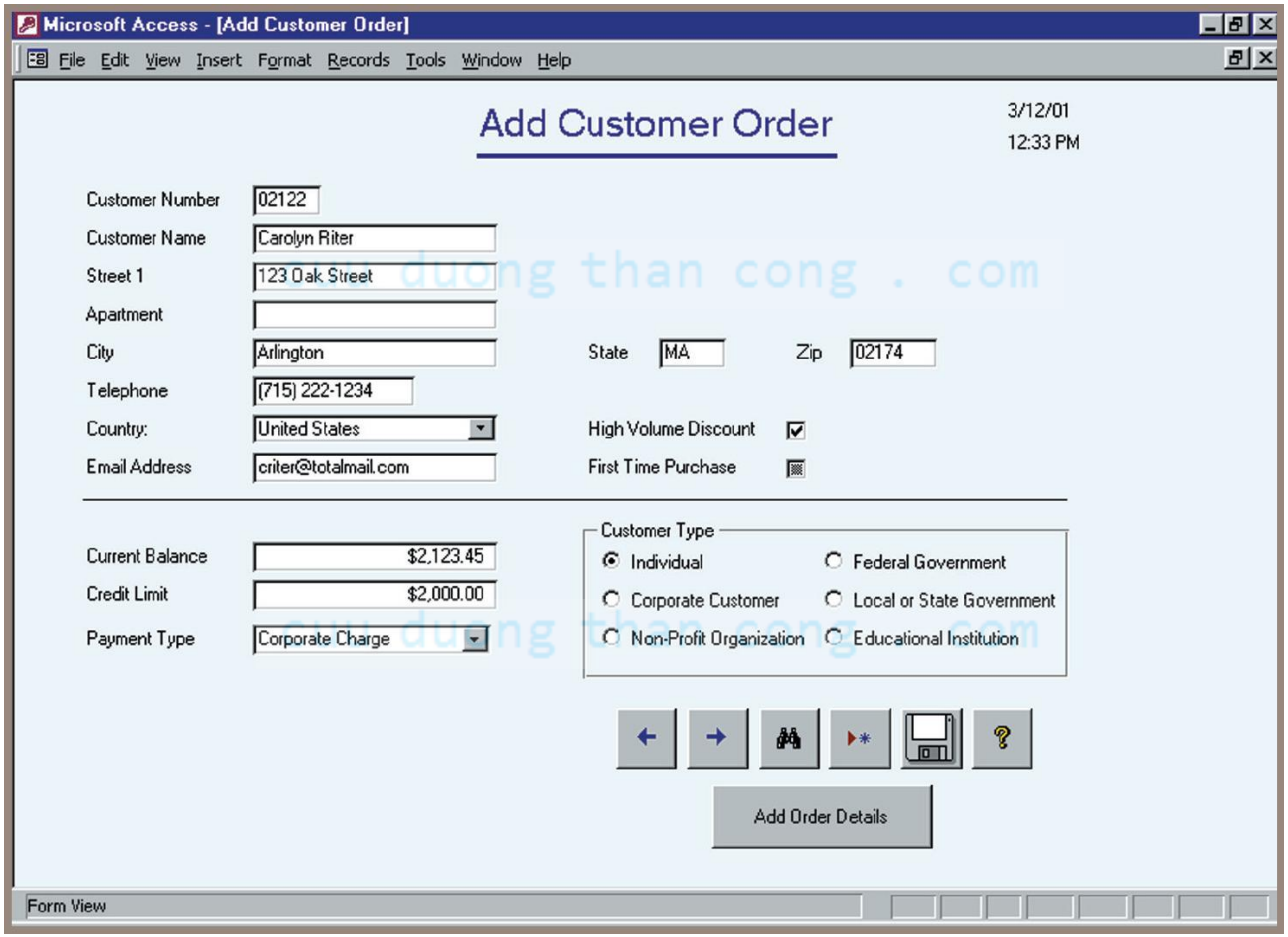
Using Icons in Screen Design

- Icons are pictorial, onscreen representations symbolizing computer actions that users may select using a mouse, keyboard, lightpen, touch screen or joystick
- Shapes should be readily recognizable
- Icons for a particular application should be limited to 20 recognizable shapes
- Use icons consistently throughout

Graphical User Interface (GUI) Controls

- Text boxes
- Check boxes
- Option or radio buttons
- List and drop-down list boxes
- Sliders and spin buttons
- Image maps
- Text area
- Message boxes

Figure 12.10 The designer has many GUI components that allow flexibility in designing input screens for the Web or other software packages. This example is from Microsoft Access



Text Boxes

- Text boxes should be large enough to accommodate all the characters
- Captions should be to the left of the text box
- Character data is left-aligned within the box
- Numeric data is right-aligned

Check Boxes

- Check boxes are used for nonexclusive choices
- Check box text or label is placed to the right of the check box
- If there are more than 10 check boxes, group together in a bordered box

Option Buttons

- Option or radio buttons are used for exclusive choices
- Choices are listed to the right of the button, in some sequence
- Often they are placed in a rectangle called an option group
- If more than six option buttons are used, a list box or drop-down list box should be implemented

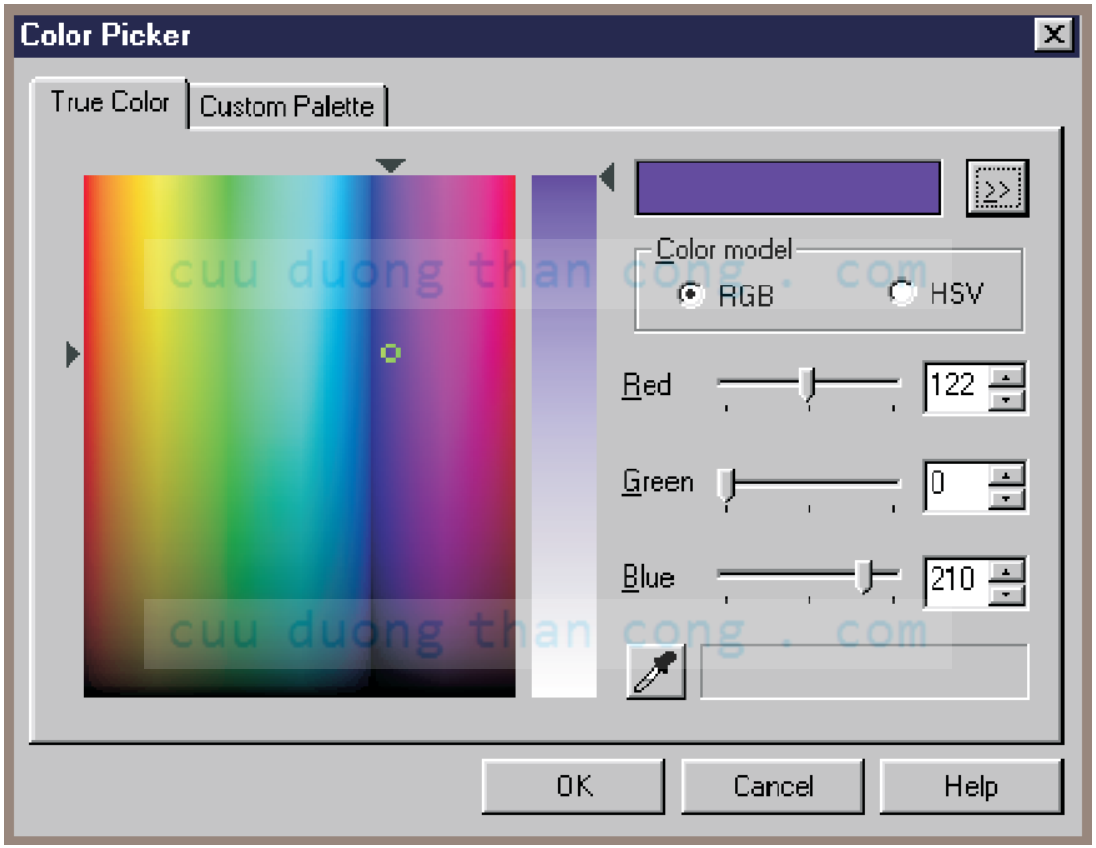
List and Drop-Down List Boxes

- Used when there is little room available on the page
- If there is a commonly selected choice, it is usually displayed in the drop-down list by default

Sliders, Spin Buttons, and Image Maps

- Sliders and spin buttons are used to change data that have a continuous range of values
- Image map fields are used to select values within an image

Figure 21.11 Sliders and spin buttons are two additional GUI components the analyst can use to design input screens



Text Area

- A text area is used for entering a larger amount of text
- Can view data larger then the box area
- Handling text:
  - Hard return is used to force new lines
  - Use word wrap within the text area

Message Boxes and Command Buttons

- Message boxes are used to warn users and provide feedback messages in a dialog box
- Command buttons perform an action when the user selects it

Form Controls and Values

- Each control in a GUI interface stores data associated with the control
- Web pages use a name and value pair that are transmitted to the server or in an email sent along with the form

Hidden Fields

- Not visible to the viewer
- Do not take up any space on the Web page
- Can only contain a name and value
- Used to store values sent from one Web form to the server

Event-Response Charts

- Used to:
  - list the variety of events that can occur
  - show what should happen
  - build a Web form that requires minimal action from the user
  - explore improvements to the Web page
- Events may be used to:
  - control navigation between Web pages
  - change the contents of drop-down lists

Dynamic Web Pages

- Web pages that change themselves as the result of some user action
- Advantage
  - Modify themselves quickly
- Disadvantage
  - Will not work if JavaScript is turned off
  - Dynamic Web pages may not be compliant with the American Disabilities Act

Ajax

- Uses JavaScript and XML
- Allows Web developers to build a Web page that works like a traditional desktop program
- The data may be either a small text file or an XML document containing many customers or repeating data
- Has the advantage of making the Web work faster and of providing a smoother viewing experience for users
- The disadvantages are that JavaScript must be enabled and the Web page may violate the American Disabilities Act

Tab Control Dialogue Boxes

- Create a separate tab for each unique feature
- Place the most commonly used tabs in front and display them first
- Consider including three basic buttons in your design
  - OK
  - Cancel
  - Help

Color

- The five most legible foreground/background color combinations:
  - Black on yellow
  - Green on white
  - Blue on white
  - White on blue
  - Yellow on black

Intranet and Internet Page Design

- Provide clear instructions
- Demonstrate a logical entry sequence for fill-in forms
- Use a variety of text boxes, push buttons, radio buttons, drop-down lists, and other GUI features
- Provide a scrolling text box if you are uncertain how much text will be entered

Intranet and Internet Page Design (Continued)

- Include two basic buttons: Submit and Clear
- If the form is lengthy, divide it into several simpler forms on separate pages
- Create a feedback screen that lists error messages if a form has not correctly been filled out

Ecommerce Applications

- Ecommerce applications involve more than just good designs of Web sites
- Customers need to feel confident in the site
  - Shopping cart

Summary

- Guidelines for well-designed input forms:
  - Forms must be easy to fill out
  - Forms must meet the purpose for which they are designed
  - Forms must be designed to ensure accurate completion
  - Forms must be pleasing and attractive

Summary (Continued)

- Guidelines for well-designed displays:
  - Displays must be kept simple
  - Displays must be consistent in presentation
  - Design must facilitate movement between pages
  - Displays must be attractive

Summary (Continued)

- Guidelines for Web fill-in forms
  - Provide clear instructions
  - Demonstrate a logical entry sequence for fill-in forms
  - Use a variety of text boxes, push buttons, drop-down menus, check boxes, and radio buttons
  - Provide a scrolling text box if you are uncertain about how much space users will need to respond to a question

Summary (Continued)

- Guidelines for Web fill-in forms (continued)
  - Prepare two basic buttons on every Web fill-in form: Submit and Clear Form
  - If the form is lengthy and the users must scroll extensively, divide the form into several simpler forms on separate pages
  - Create a feedback screen that highlights errors in an appropriate color and refuses submission of the form until mandatory fields are correctly filled in