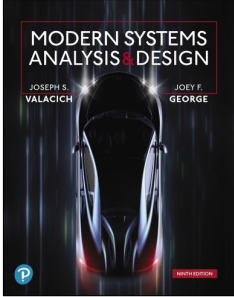



Modern Systems Analysis and Design
Ninth Edition



Chapter 11
Designing Interfaces and Dialogues

 Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

1

Learning Objectives

11.1 Explain the process of designing interfaces and dialogues and the deliverables for their creation


11.2 Contrast and apply several methods for interacting with a system

11.3 Describe and apply the general guidelines for designing interfaces and specific guidelines for layout design, structuring data entry fields, providing feedback, and system help

11.4 Design human–computer dialogues and understand how dialogue diagramming can be used to design dialogues

11.5 Design graphical user interfaces


11.6 Discuss guidelines for the design of interfaces and dialogues for Internet-based electronic commerce systems

 Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

2

Introduction

- Defining the manner in which humans and computers exchange inform
- Interface design – focuses on how information is provided to and captured from users
- Dialogues – analogous to a conversation between two people

 Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

3

Interface Designs and Dialogues

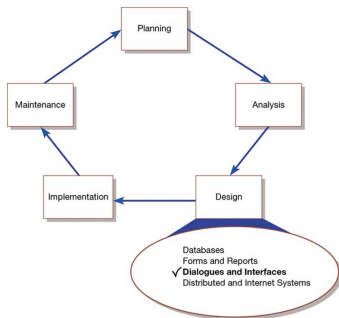
11.1 Explain the process of designing interfaces and dialogues and the deliverables for their creation

- User-focused activity
- Prototyping methodology of iteratively:
 - Collecting information
 - Constructing a prototype
 - Assessing usability
 - Making refinements
- Must answer the who, what, when, where, and how questions

Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

4

Figure 11-1: Systems Development Life Cycle



Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

5

Deliverables and Outcomes

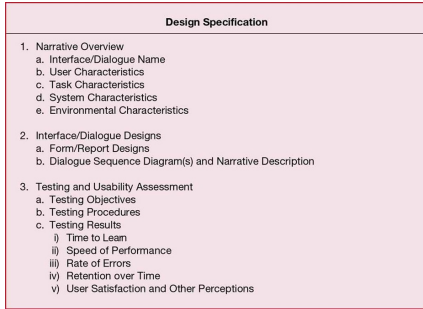
11.1 Explain the process of designing interfaces and dialogues and the deliverables for their creation

- Deliverable is the creation of a design specification that includes:
 1. Narrative overview
 2. Sample design
 3. Testing and usability assessment
 4. **Dialogue sequence**
 - The ways a user can move from one display to another

Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

6

Figure 11-2: Specification Outline for the Design of Interfaces and Dialogues



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

7

Interaction Methods and Devices

11.2 Contrast and apply several methods for interacting with a system

- **Interface** – method by which users interact with an information system
- All human-computer interfaces must:
 - have an interaction style
 - use some hardware device(s) for supporting this interaction



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

8

Methods of Interacting

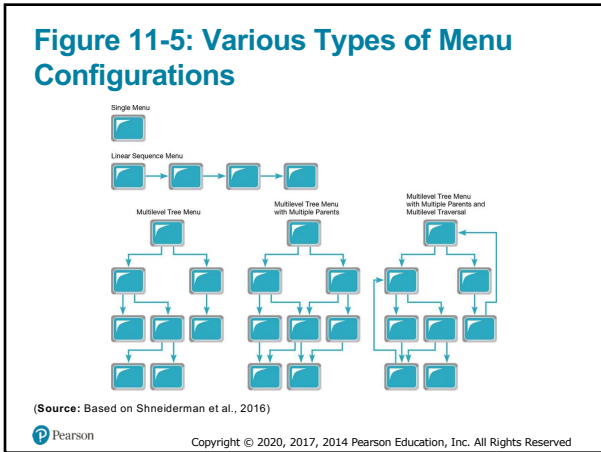
11.2 Contrast and apply several methods for interacting with a system

- Five widely used styles of interacting include:
 - Command line
 - Includes keyboard shortcuts and function keys
 - Menu
 - Form
 - Object-based
 - Natural language



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

9



13

Pop-Up Menu

11.2 Contrast and apply several methods for interacting with a system

- **Pop-up menu** – menu-positioning method that places a menu near the current cursor position
 - Also called a dialogue box
 - Users don't have to move their position or eyes to view system options
- **Drop-down menu** – menu-positioning method that places the access point of the menu near the top line of the display; when accessed, menus open by dropping down onto the display

Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

14

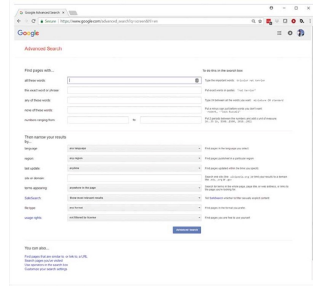
Table 11-1: Guidelines for Menu Design

Wording	<ul style="list-style-type: none"> • Each menu should have a meaningful title. • Command verbs should clearly and specifically describe operations. • Menu items should be displayed in mixed uppercase and lowercase letters and have a clear, unambiguous interpretation.
Organization	<ul style="list-style-type: none"> • A consistent organizing principle should be used that relates to the tasks the intended users perform; for example, related options should be grouped together, and the same option should have the same wording and codes each time it appears.
Length	<ul style="list-style-type: none"> • The number of menu choices should not exceed the length of the screen. • Submenus should be used to break up exceedingly long menus.
Selection	<ul style="list-style-type: none"> • Selection and entry methods should be consistent and reflect the size of the application and sophistication of the users. • How the user is to select each option and the consequences of each option should be clear (e.g., whether another menu will appear).
Highlighting	<ul style="list-style-type: none"> • Highlighting should be minimized and used only to convey selected options (e.g., a check mark) or unavailable options (e.g., dimmed text).

Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

15

Figure 11-9: Example of Form Interaction from the Google Advanced Search Engine



(Source: Google, Inc.)



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

19

Object-Based Interaction

11.2 Contrast and apply several methods for interacting with a system

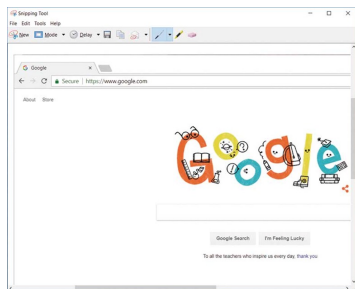
- **Object-based interaction** – human-computer interaction method in which symbols are used to represent commands or functions
- **Icon** – graphical picture that represents specific functions within a system
 - Take up little screen space
 - Quickly understood by most users



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

20

Figure 11-10: Object-Based (Icon) Interface from Microsoft's Snipping Tool



(Source: Microsoft Corporation)



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

21

Natural Language Interaction

11.2 Contrast and apply several methods for interacting with a system

- **Natural language interaction** – human-computer interaction method whereby inputs to and outputs from a computer-based application are in a conventional spoken language such as English
 - Based on research in artificial intelligence
 - Current implementations are tedious and difficult to work with, not as viable as other interaction methods



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

22

Hardware Options for System Interaction

11.2 Contrast and apply several methods for interacting with a system

- A growing number of hardware devices are employed to support human-computer interaction
- Selection of an interaction device must be selected during the logical design phase
- To design the most effective interfaces you need to understand the capabilities of the various methods and devices



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

23

Table 11-2: Common Devices for Interacting with an Information System

Device	Description and Primary Characteristics or Usage
Keyboard	Users push an array of small buttons that represent symbols that are then translated into words and commands. Keyboards are widely understood and provide considerable flexibility for interaction.
Mouse	A small plastic box that users push across a flat surface and whose movements are translated into cursor movement on a computer display. Buttons on the mouse tell the system when an item is selected. A mouse works well on flat desks but may not be practical in dirty or busy environments, such as a shop floor or check-out area in a retail store. Newer pen-based mice provide the user with more of the feel of a writing implement.
Joystick	A small vertical lever mounted on a base that steers the cursor on a computer display. Provides similar functionality to a mouse.
Trackball	A sphere mounted on a fixed base that steers the cursor on a computer display. A suitable replacement for a mouse when work space for a mouse is not available.
Touch Screen	Selections are made by touching a computer display. This works well in dirty environments or for users with limited dexterity or expertise.
Light Pen	Selections are made by pressing a pen-like device against the screen. A light pen works well when the user needs to have a more direct interaction with the contents of the screen.
Graphic Tablet	Moving a pen-like device across a flat tablet steers the cursor on a computer display. Selections are made by pressing a button or by pressing the pen against the tablet. This device works well for drawing and graphical applications.
Voice	Spoken words are captured and translated by the computer into text and commands. This is most appropriate for users with physical challenges or when hands need to be free to do other tasks while interacting with the application.



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

24

Table 11-3: Summary of Interaction Device Usability Problems

Device	Visual Blocking	User Fatigue	Movement Scaling	Durability	Adequate Feedback	Speed	Pointing Accuracy
Keyboard	□	□	■	□	■	■	□
Mouse	□	□	■	□	■	□	□
Joystick	□	□	■	□	■	□	■
Trackball	□	□				□	□
Touch Screen	■	■	□	■	□	□	■
Light Pen	■	■	□	□	□	□	■
Graphics Tablet	□	□	■	□	■	□	□
Voice	□	□	■	□	■	□	■

□ = little to no usability problems ■ = potentially high usability problems for some applications



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

25

Table 11-4: Summary of General Conclusions from Experimental Comparisons of Input Devices in Relation to Specific Task Activities

Task	Most Accurate	Shortest Positioning	Most Preferred
Target Selection	Trackball, graphics tablet, mouse, joystick	Touch screen, light pen, mouse, graphics tablet, trackball	Touch screen, light pen
Text Selection	Mouse	Mouse	—
Data Entry	Light pen	Light pen	—
Cursor Positioning	—	Light pen	—
Text Correction	Light pen, cursor keys	Light pen	Light pen
Menu Selection	Touch screen	—	Keyboard, touch screen

Key:
 Target Selection = moving the cursor to select a figure or item
 Text Selection = moving the cursor to select a block of text
 Data Entry = entering information of any type into a system
 Cursor Positioning = moving the cursor to a specific position
 Text Correction = moving the cursor to a location to make a text correction
 Menu Selection = activating a menu item
 — = no clear conclusion from the research



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

26

Designing Interfaces

11.3 Describe and apply the general guidelines for designing interfaces and specific guidelines for layout design, structuring data entry fields, providing feedback, and system help

- Should use standard forms for forms/reports
- Typical paper based form has several common general areas such as:
 - Header information
 - Sequence and time-related information
 - Instruction or formatting information
 - Body or data details
 - Totals or data summary
 - Authorization or signatures
 - Comments



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

27

Figure 11-11: Paper-Based Form for Reporting Customer Sales Activity (Pine Valley Furniture)

Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

28

Figure 11-12: Computer-Based Form Reporting Customer Sales Activity (Pine Valley Furniture)

(Source: Microsoft Corporation) Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

29


Figure 11-13: Contrasting the Navigation Flow Within a Data Entry Form (a) Proper Flow Between Data Entry Field (b) Poor Flow Between Data Entry Fields

Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

30

Table 11-5: Data Entry Screen Functional Capabilities (1 of 2)


- **Cursor Control Capabilities:**
 - Move the cursor forward to the next data field
 - Move the cursor backward to the previous data field
 - Move the cursor to the first, last, or some other designated data field
 - Move the cursor forward one character in a field
 - Move the cursor backward one character in a field
- **Editing Capabilities:**
 - Delete the character to the left of the cursor
 - Delete the character under the cursor
 - Delete the whole field
 - Delete data from the whole form (empty the form)

 Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

31

Table 11-5: Data Entry Screen Functional Capabilities (2 of 2)


- **Exit Capabilities:**
 - Transmit the screen to the application program
 - Move to another screen/form
 - Confirm the saving of edits or go to another screen/form
- **Help Capabilities:**
 - Get help on a data field
 - Get help on a full screen/form

 Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

32

Table 11-6: Guidelines for Structuring Data Entry Fields

Entry	Never require data that are already online or that can be computed; for example, do not enter customer data on an order form if those data can be retrieved from the database, and do not enter extended prices that can be computed from quantity sold and unit prices.
Defaults	Always provide default values when appropriate; for example, assume today's date for a new sales invoice, or use the standard product price unless overridden.
Units	Make clear the type of data units requested for entry; for example, indicate quantity in tons, dozens, pounds, etc.
Replacement	Use character replacement when appropriate; for example, allow the user to look up the value in a table or automatically fill in the value once the user enters enough significant characters.
Captioning	Always place a caption adjacent to fields; see Table 11-7 for caption options.
Format	Provide formatting examples when appropriate; for example, automatically show standard embedded symbols, decimal points, credit symbol, or dollar sign.
Justify	Automatically justify data entries; numbers should be right justified and aligned on decimal points, and text should be left justified.
Help	Provide context-sensitive help when appropriate; for example, provide a hot key, such as the F1 key, that opens the help system on an entry that is most closely related to where the cursor is on the display.

 Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

33

Table 11-7: Options for Entering or Selecting Text

Options	Example
Line Caption	Phone Number () - _____
Drop Caption	() - _____
Boxed Caption	Phone Number [Phone Number]
Delimited Characters	[]
Check Boxes	Phone Number Method of communication (check one or more) <input type="checkbox"/> E-mail <input type="checkbox"/> SMS (Text Message) <input type="checkbox"/> Phone
Radio Buttons	Method of communication (check preferred method) <input type="radio"/> E-mail <input type="radio"/> SMS (Text Message) <input checked="" type="radio"/> Phone

Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

34

Table 11-8: Sources of Data Errors

Data Error	Description
Appending	Adding additional characters to a field
Truncating	Losing characters from a field
Transcribing	Entering invalid data into a field
Transposing	Reversing the sequence of one or more characters in a field

Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

35

Table 11-9: Validation Tests and Techniques to Enhance the Validity of Data Input

Validation Test	Description
Class or Composition	Test to ensure that data are of proper type (e.g., all numeric, all alphabetic, all alphanumeric)
Combinations	Test to see if the value combinations of two or more data fields are appropriate or make sense (e.g., Does the quantity sold make sense given the type of product?)
Expected Values	Test to see if data are what is expected (e.g., match with existing customer names, payment amount, etc.)
Missing Data	Test for existence of data items in all fields of a record (e.g., Is there a quantity field on each line item of a customer order?)
Pictures/Templates	Test to ensure that data conform to a standard format (e.g., Are hyphens in the right places for a student ID number?)
Range	Test to ensure data are within proper range of values (e.g., Is a student's grade point average between 0 and 4.0?)
Reasonableness	Test to ensure data are reasonable for situation (e.g., pay rate for a specific type of employee)
Self-Checking Digits	Test where an extra digit is added to a numeric field in which its value is derived using a standard formula (see Figure 11-14)
Size	Test for too few or too many characters (e.g., Is social security number exactly nine digits?)
Values	Test to make sure values come from set of standard values (e.g., two-letter state codes)

Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

36

Figure 11-14: Using Check Digits to Verify Data Correctness

Description	Techniques where extra digits are added to a field to assist in verifying its accuracy
Method	<ol style="list-style-type: none"> 1. Multiply each digit of a numeric field by a weighting factor (e.g., 1, 2, 1, 2, ...). 2. Sum the results of weighted digits. 3. Divide sum by modulus number (e.g., 10). 4. Subtract remainder of division from modulus number to determine check digit. 5. Append check digits to field.
Example	<p>Assume a numeric part number of: 12473</p> <p>1-2. Multiply each digit of part number by weighting factor from right to left and sum the results of weighted digits:</p> $\begin{array}{r} 1 \quad 2 \quad 4 \quad 7 \quad 3 \\ \times 1 \quad \times 2 \quad \times 1 \quad \times 2 \quad \times 1 \\ \hline 1 \quad + \quad 4 \quad + \quad 4 \quad + \quad 14 \quad + \quad 3 \quad = \quad 26 \end{array}$ <p>3. Divide sum by modulus number.</p> $26/10 = 2 \text{ remainder } 6$ <p>4. Subtract remainder from modulus number to determine check digit.</p> $\text{check digit} = 10 - 6 = 4$ <p>5. Append check digits to field.</p> <p>Field value with appended check digit = 124734</p>

Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

37

Providing Feedback

11.3 Describe and apply the general guidelines for designing interfaces and specific guidelines for layout design, structuring data entry fields, providing feedback, and system help

- Three types of system feedback:
 - **Status information:** keep user informed of what's going on, helpful when user has to wait for response
 - **Prompting cues:** tell user when input is needed, and how to provide the input
 - **Error or warning messages:** inform user that something is wrong, either with data entry or system operation

Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

38

Table 11-10: Examples of Poor and Improved Error Messages

Poor Error Messages	Improved Error Messages
ERROR 56 OPENING FILE	The file name you typed was not found. Press F2 to list valid file names.
WRONG CHOICE	Please enter an option from the menu.
DATA ENTRY ERROR	The prior entry contains a value outside the range of acceptable values. Press F9 for list of acceptable values.
FILE CREATION ERROR	The file name you entered already exists. Press F10 if you want to overwrite it. Press F2 if you want to save it to a new name.

Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

39

Table 11-11: Guidelines for Designing Usable Help

Guideline	Explanation
Simplicity	Use short, simple wording, common spelling, and complete sentences. Give users only what they need to know, with the option to find additional information.
Organize	Use lists to break information into manageable pieces.
Show	Provide examples of proper use and the outcomes of such use.

Pearson

Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

40

Table 11-12: Types of Help

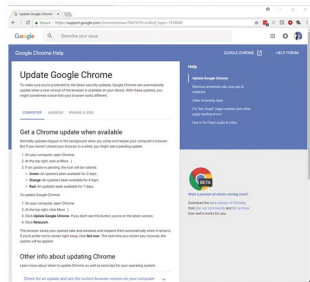
Type of Help	Example of Questions
Help on Help	How do I get help?
Help on Concepts	What is a customer record?
Help on Procedures	How do I update a record?
Help on Messages	What does "Invalid File Name" mean?
Help on Menus	What does "Graphics" mean?
Help on Function Keys	What does each Function key do?
Help on Commands	How do I use the "Cut" and "Paste" commands?
Help on Words	What do "merge" and "sort" mean?

Pearson

Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

41

Figure 11-16: Hypertext-Based Help System from Chrome Web Browser



(Source: Google, Inc.)

Pearson

Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

42

Designing Dialogues

11.4 Design human–computer dialogues and understand how dialogue diagramming can be used to design dialogues;

- **Dialogue** – sequence of interaction between a user and a system
- Three major steps in the dialogue design process:
 - Designing a dialogue sequence
 - Building a prototype
 - Assessing usability



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

43

Table 11-13: Guidelines for the Design of Human–Computer Dialogues

Guideline	Explanations
Consistency	Dialogues should be consistent in sequence of actions, keystrokes, and terminology (e.g., the same labels should be used for the same operations on all screens, and the location of the same information should be the same on all displays).
Shortcuts and Sequence	Allow advanced users to take shortcuts using special keys (e.g., CTRL-C to copy highlighted text). A natural sequence of steps should be followed (e.g., enter first name before last name, if appropriate).
Feedback	Feedback should be provided for every user action (e.g., confirm that a record has been added, rather than simply putting another blank form on the screen).
Closure	Dialogues should be logically grouped and have a beginning, middle, and end (e.g., the last in the sequence of screens should indicate that there are no more screens).
Error Handling	All errors should be detected and reported; suggestions on how to proceed should be made (e.g., suggest why such errors occur and what user can do to correct the error). Synonyms for certain responses should be accepted (e.g., accept either "Y" or "TRUE").
Reversal	Dialogues should, when possible, allow the user to reverse actions (e.g., undo a deletion); data should not be deleted without confirmation (e.g., display all the data for a record the user has indicated is to be deleted).
Control	Dialogues should make the user (especially an experienced user) feel in control of the system (e.g., provide a consistent response time at a pace acceptable to the user).
Ease	It should be a simple process for users to enter information and navigate between screens (e.g., provide means to move forward, backward, and to specific screens, such as first and last).

(Source: Based on Shneiderman et al., 2016)



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

44

Designing the Dialogue Sequence (1 of 3)

11.4 Design human–computer dialogues and understand how dialogue diagramming can be used to design dialogues

- Typical dialogue between user and Customer Information System:
 - Request to view individual customer information
 - Specify the customer of interest
 - Select the year-to-date transaction summary display
 - Review the customer information
 - Leave system



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

45

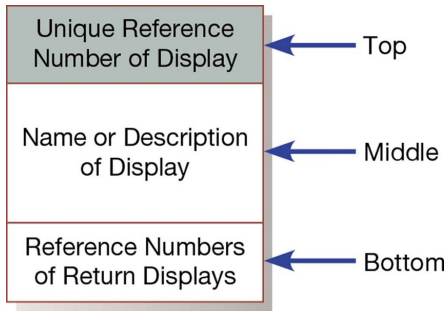
Designing the Dialogue Sequence (2 of 3)

11.4 Design human-computer dialogues and understand how dialogue diagramming can be used to design dialogues

- **Dialogue diagramming** – formal method for designing and representing human-computer dialogues using box and line diagrams
- Dialogue diagramming has one symbol with three boxes representing three sections as follows:
 - **Top**—contains a unique display reference number used by other displays for referencing it
 - **Middle**—contains the name or description of the display
 - **Bottom**—contains display reference numbers that can be accessed from the current display

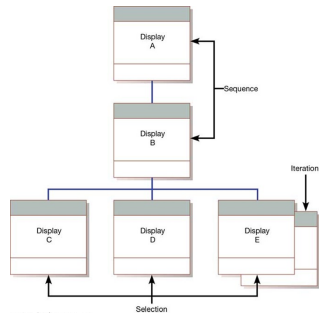
46

Figure 11-17: Sections of a Dialogue Diagramming Box



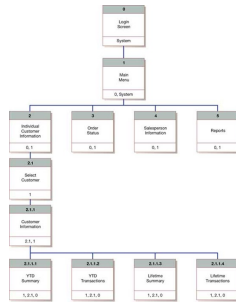
47

Figure 11-18: Dialogue Diagram Illustrating Sequence, Selection, and Iteration



48

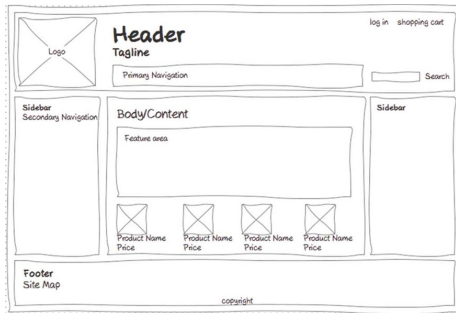
Figure 11-19: Dialogue Diagram for the Customer Information System (Pine Valley Furniture)



Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

49

Figure 11-20: Wireframes are Often Used for Testing Usability



Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

50

Designing the Dialogue Sequence (3 of 3)

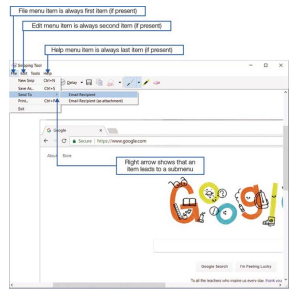
11.5 Design graphical user interfaces

- Become an expert user of the GUI environment
 - Understand how other applications have been designed
 - Understand standards
- Understand the available resources and how they can be used
 - Become familiar with standards for menus and forms
 - Failure to follow standard design conventions can prove very confusing to users

Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

51

Figure 11-21: Highlighting GUI Design Standards



(Source: Microsoft Corporation)



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

52

Table 11-14: Common Properties of Windows and Forms in a GUI Environment That Can Be Active or Inactive

Property	Explanation
Modality	Requires users to resolve the request for information before proceeding (e.g., need to cancel or save before closing a window)
Resizable	Allows users to resize a window or form (e.g., to make room to see other windows that are also on the screen)
Movable	Allows users to move a window or form (e.g., to allow another window to be seen)
Maximize	Allows users to expand a window or form to a full-size screen (e.g., to avoid distraction from other active windows or forms)
Minimize	Allows users to shrink a window or form to an icon (e.g., to get the window out of the way while working on other active windows)
System Menu	Allows a window or form to also have a system menu to directly access system-level functions (e.g., to save or copy data)

(Source: Based on Wagner, 1994)



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

53

General Guideline Problems

11.6 Discuss guidelines for the design of interfaces and dialogues for Internet-based electronic commerce systems

- Growth of the Web has resulted in interface design problems (result of nonprofessionals developing Web sites):
 - Web's single "click-to-act" method of loading static hypertext documents (i.e. most buttons on the Web do not provide click feedback)
 - Limited capabilities of most Web browsers to support finely grained user interactivity
 - Limited agreed-upon standards for encoding Web content and control mechanisms
 - Lack of maturity of Web scripting and programming languages as well as limitations in commonly used Web GUI component libraries




Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

54

Table 11-15: Common Errors When Designing the Interface and Dialogues of Websites (1 of 2)

Error	Description
Opening New Browser Window	Avoid opening a new browser window when a user clicks on a link unless it is clearly marked that a new window will be opened; users may not see that a new window has been opened, which will complicate navigation, especially moving backward.
Breaking or Slowing Down the Back Button	Make sure users can use the back button to return to prior pages. Avoid opening new browser windows, using an immediate redirect where, when users click the back button, they are pushed or forward to an undesired location.
Complex URLs	Avoid overly long and complex URLs because it makes it more difficult for users to understand where they are and can cause problems if users want to e-mail page locations to colleagues.
Orphan Pages	Avoid having pages with no "parent" that can be reached by using a back button; requires users to "hack" the end of the URL to get back to some other prior page.
Scrolling Navigation Pages	Avoid placing navigational links below where a page opens because many users may miss these important options that are below the opening window.
Lack of Navigation Support	Make sure your pages conform to users' expectations by providing commonly used icon links such as a site logo at the top or other major elements. Also place these elements on pages in a consistent manner.

 Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

55

Table 11-15: Common Errors When Designing the Interface and Dialogues of Websites (2 of 2)

Error	Description
Hidden Links	Make sure you leave a border around images that are links, don't change link colors from normal defaults, and avoid embedding links within long blocks of text.
Links That Don't Provide Enough Information	Avoid not turning off link-marking borders so that links clearly show which links users have clicked and which they have not. Make sure users know which links are internal anchor points versus external links, and indicate if a link brings up a separate browser window from those that do not. Finally, make sure link images and text provide enough information to users so that they understand the meaning of the link.
Buttons That Provide No Click Feedback	Avoid using image buttons that don't clearly change when being clicked; use Web GUI toolkit buttons, HTML form-submit buttons, or simple textual links.


 Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

56

Menu-Driven Navigation with Cookie Crumbs

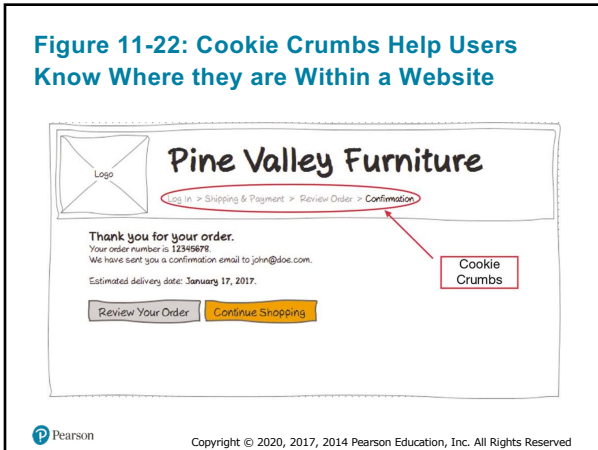
11.6 Discuss guidelines for the design of interfaces and dialogues for Internet-based electronic commerce systems

- **Cookie crumbs** – technique of placing “tabs” or sequenced links on a Web page that show a user where he or she is within a site and where he or she has been
 - Allow users to navigate to a point previously visited and will assure they are not lost
 - Clearly show users where they have been and how far they have gone from home

 Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

57

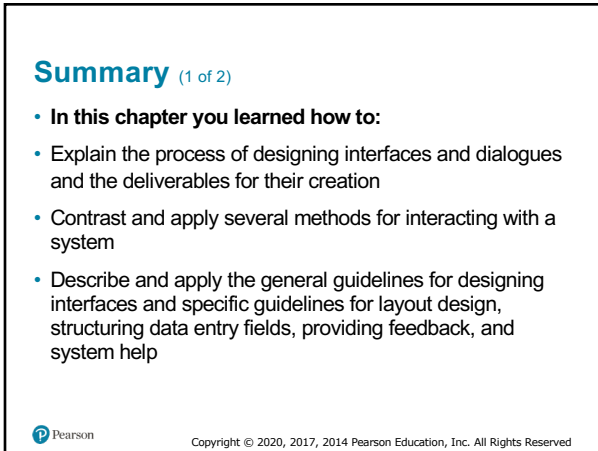
Figure 11-22: Cookie Crumbs Help Users Know Where they are Within a Website



58

Summary (1 of 2)

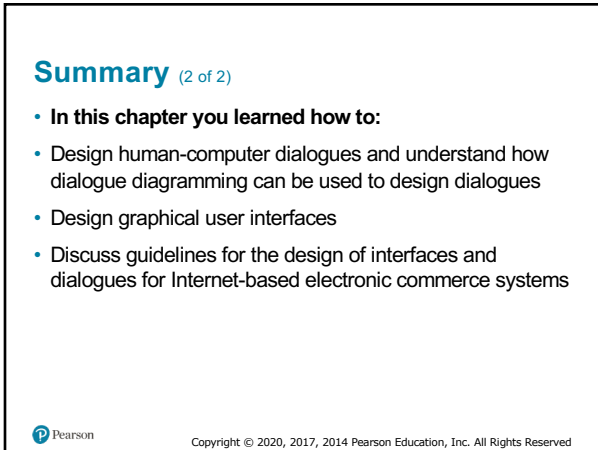
- In this chapter you learned how to:
- Explain the process of designing interfaces and dialogues and the deliverables for their creation
- Contrast and apply several methods for interacting with a system
- Describe and apply the general guidelines for designing interfaces and specific guidelines for layout design, structuring data entry fields, providing feedback, and system help



59

Summary (2 of 2)

- In this chapter you learned how to:
- Design human-computer dialogues and understand how dialogue diagramming can be used to design dialogues
- Design graphical user interfaces
- Discuss guidelines for the design of interfaces and dialogues for Internet-based electronic commerce systems



60

Copyright



This work is protected by United States copyright laws and is provided solely for the use of instructors in teaching their courses and assessing student learning. Dissemination or sale of any part of this work (including on the World Wide Web) will destroy the integrity of the work and is not permitted. The work and materials from it should never be made available to students except by instructors using the accompanying text in their classes. All recipients of this work are expected to abide by these restrictions and to honor the intended pedagogical purposes and the needs of other instructors who rely on these materials.



Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved
