

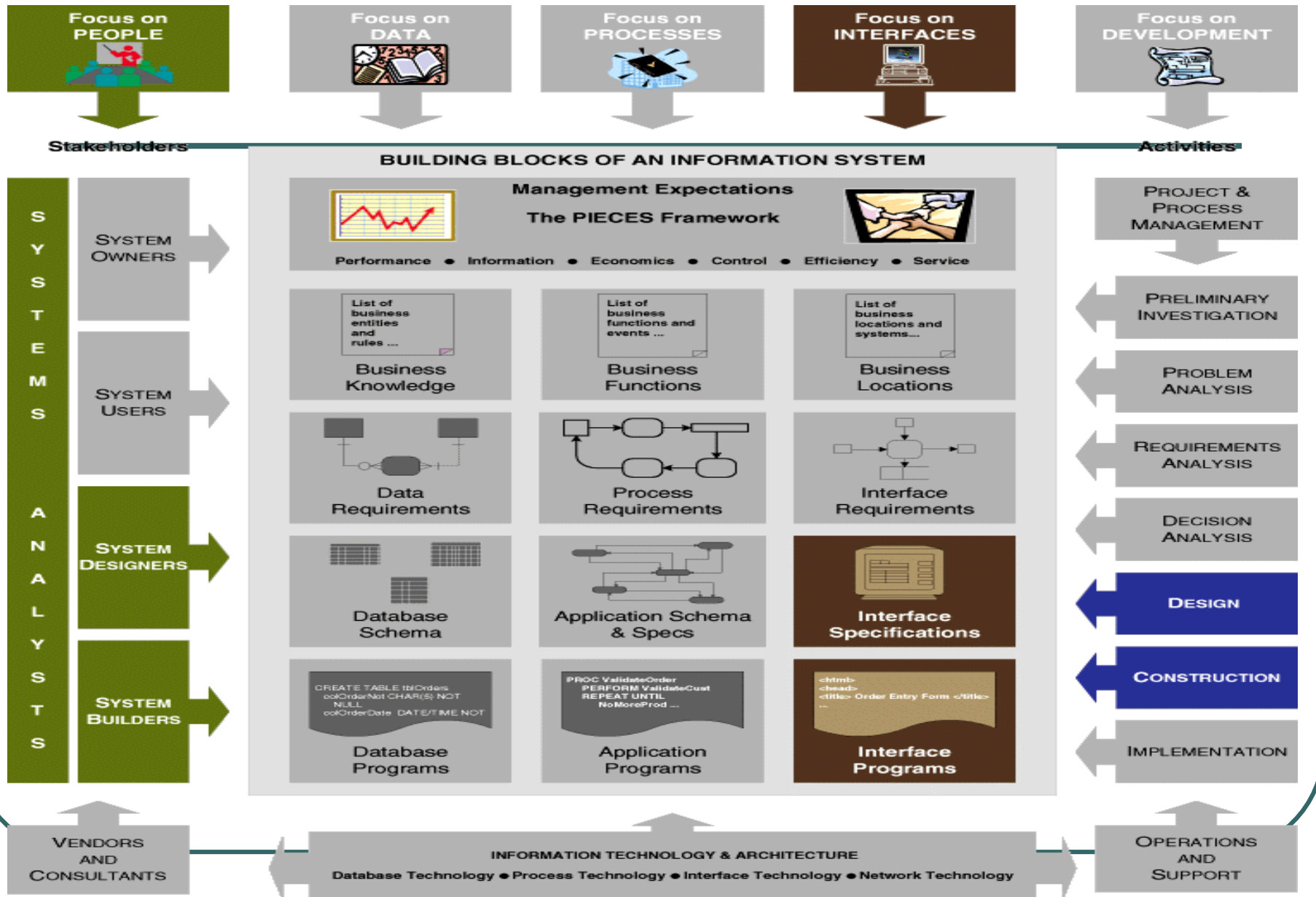
CHAPTER

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# 14

**INPUT  
DESIGN AND  
PROTOTYPING**

# Chapter Map



# Input Implementation Methods

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- Keyboard
- Mouse
- Point-of-sale terminals
- Sound and speech
- Automatic data capture
  - Optical mark recognition (OMR)
    - Bar codes
  - Optical character recognition (OCR)
  - Magnetic Ink
  - Electromagnetic transmission
  - Smart cards
  - Biometric

# Automatic Identification: Bar Codes

**Bar Code Component Example**

UPC/EAN | Interleaved 2 of 5 | Codabar | Code 11 | Code 39 | Code 93 | Code 128

Code: Fill Alpha-Numeric  
123456789ABCD Update Symbol




123456789ABCD

Show code

Print Test Validate Save Copy

Close

Code 93 bar code attached to a database field



4-976 Sugarloaf Hwy

CustNo	Company	Addr1	Ac
1221	Kauai Dive Shoppe	4-976 Sugarloaf Hwy	Su
1231	Unisco	PO Box Z-547	

# Input Design Guidelines

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- Capture only variable data.
- Do not capture data that can be calculated or stored in computer programs as constants.
- Use business codes for appropriate attributes.

## Source Document / Form Design Guidelines

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- Include instructions for completing the form.
- Minimize the amount of handwriting.
- Data to be entered (keyed) should be sequenced so that it can be read like a book, that is, top-to-bottom and left-to-right.
- When possible, based input design on known metaphors.

# Bad Flow in a Form

**Bad Entry Layout**

Applicant Information:

Social Security #:	Salutation:	Current Date:	Other Information:
<input type="text"/>	<input type="text"/>	<input type="text"/>	<div style="border: 1px solid black; height: 100%; width: 100%;"></div>
First Name:	Last Name:	State:	
<input type="text"/>	<input type="text"/>	<input type="text"/>	
Middle Name:	Telephone:	Zip Code:	
<input type="text"/>	<input type="text"/>	<input type="text"/>	
City:	Address Line 1:		
<input type="text"/>	<input type="text"/>		
	Address Line 2:		
	<input type="text"/>		

# Good Flow in a Form

**Good Entry Layout**

Applicant Information:

Social Security #:  → Saluation:  → Current Date:

First Name:  ← Middle Name:  → Last Name:

Address Line 1:  ← Telephone:  → Other Information:

Address Line 2:

City:  ↓ State:  → Zip Code:

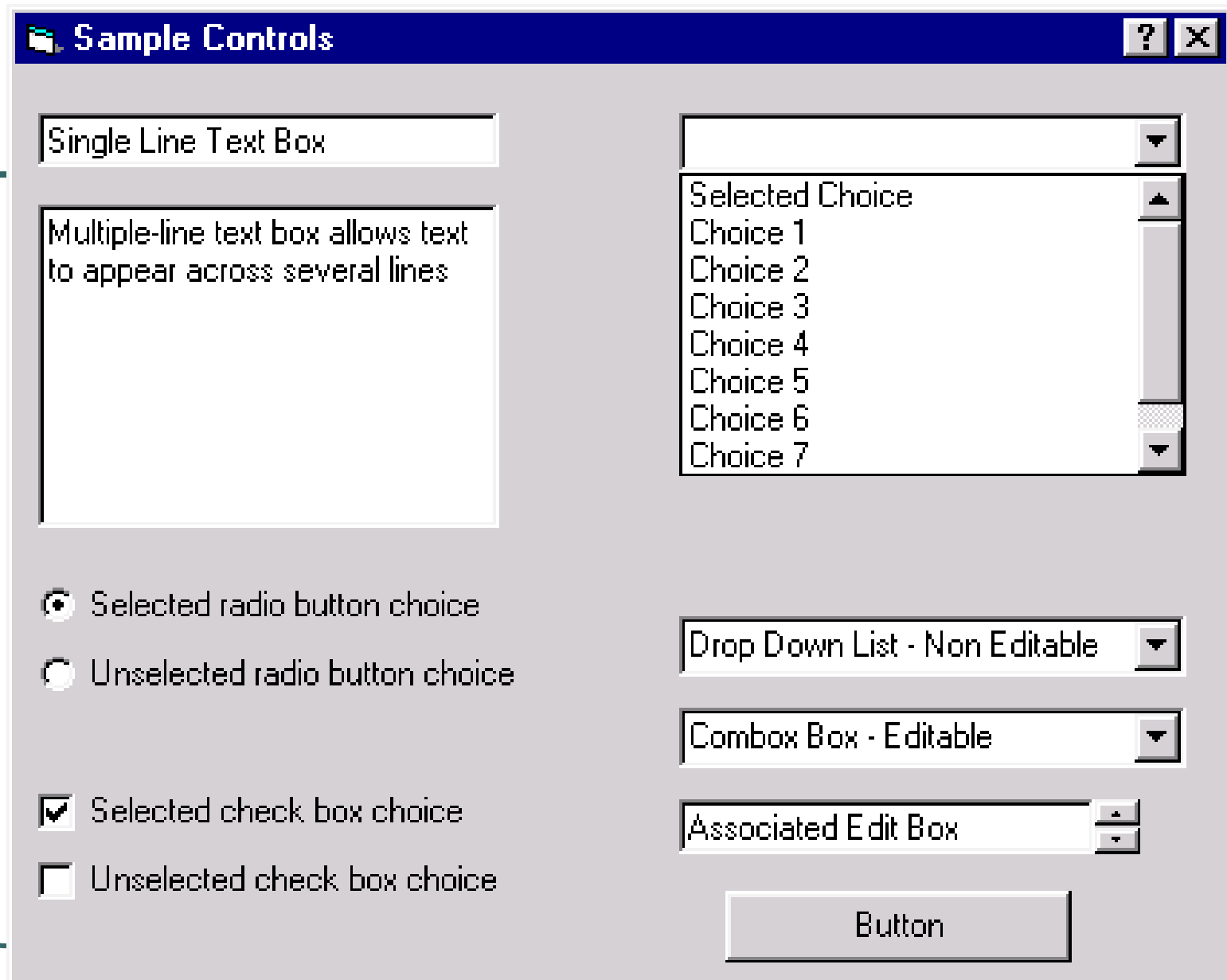
The form illustrates a logical flow of data entry. Red arrows indicate the sequence: Social Security #, Saluation, Current Date, First Name, Middle Name, Last Name, Address Line 1, Telephone, Other Information, Address Line 2, City, State, and Zip Code. The 'Other Information' field is a large, empty text area.



# GUI Components (or Controls)

- **Common GUI controls (for both Windows and Web interfaces)**
  - Text boxes
  - Radio buttons
  - Check boxes
  - List boxes
  - Drop down lists
  - Combination boxes
  - Spin boxes
  - Buttons
  - Hyperlinks (yes, also for Windows applications—see Quicken 2000)
- **Advanced controls (mostly for Windows interfaces)**
  - Drop down calendars
  - Slider edit controls
  - Masked edit controls
  - Ellipsis controls
  - Alternate numerical spinners
  - Check list boxes
  - Check tree boxes

# Common GUI Components



# Advanced GUI Components

The screenshot displays a window titled "Examples of Advanced Input Controls" with several GUI components:

- Drop Down Calendar Control:** A date field showing "2/12/00" with a dropdown arrow. Below it is a calendar for February 2000. The date "22" is circled in red, and the text "Today: 2/22/00" is also circled in red.
- Check List Box:** A list of eight items with checkboxes. Item 3 and Item 6 are checked. Item 6 is highlighted with a blue background.
- Check Tree List Box:** A list of six items with checkboxes. Item 5 has a plus sign in its checkbox, indicating it is expanded.
- Alternate Numeric Spinner Control:** A numeric field with a minus sign, the number "0", and a plus sign.
- Internet Hyperlink Control:** A blue underlined text "<http://www.microsoft.com>".

# Advanced GUI Components (continued)

**Examples of Advanced Input Controls**

Drop Down Calendar Control  
2/12/00

Slider Edit Control

Masked Edit Control  
(219)923-9239

Elipsis indicating additional detail  
Click ... for options

Alternate Numeric Spinner Control  
- 10 +

Internet Hyperlink Control  
<http://www.microsoft.com>

Check List Box

- Item 1
- Item 2
- Item 3
- Item 4
- Item 5
- Item 6
- Item 7
- Item 8

Check Tree List Box

- Item 1
- Item 2
- Item 3
- Item 4
- Item 5
  - Item 5-1
    - Item 5-1-1
- Item 6

# Input Design Process

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- Identify system inputs and review logical requirements.
- Select appropriate input components/controls.
- As necessary, design any source documents.
- Design, validate and test inputs using some combination of:
  - Layout tools (e.g., hand sketches, spacing charts, or CASE tools).
  - Prototyping tools (e.g., spreadsheet, PC DBMS, 4GL)

# Input Prototype for Data Maintenance

## Video Titles Maintenance

Product Type:  
 General Merchandise  
 Entertainment Merchandise

New Delete  
Edit Exit




Common Information:  
UPC: 8616-21425-3    Quantity in Stock: 29  
MSRP: \$24.99    Monthly Unit Sales: 2  
Club Price: \$19.99    Year Unit Sales: 4  
Special Price: \$17.99    Total Unit Sales: 6

Product Number: 1477328  
Title: The Matrix  
Starring: Keanu Reeves, Laurence Fish  
Director: Andy Wachowski, Larry Wach

CC:   
Rating: R  
Time: 136  
Copyright: 1999  
Credit Value: 1

Mind-warp stunts. Techno-slammin' visuals, Mega-kick action. Keanu Reeves and Laurence Fishburne lead the fight to free humankind in The Matrix, the see-and-see-again cyberthriller written and directed by the Wachowski brothers (Bound). The story sears, the special effects stake out new moviemaking territory - the move flat out rocks.

Category: SF    Sub-Category:   
Type:  Audio  Game  Video  
Language:  Dubbed  English  Subtitled  
Video Media Type:  DVD  DVD DTS  Laserdisc  VHS  
Screen Aspect:  16:9  4:3  Anamorphic  Dual Format



# Input Prototype for Web Interface

LOG IN  
CHANGE PROFILE  
LOG OUT


**Videos**  
**Search**

DTS Only

GO!

**Browse by Category**  
Comedy


## SoundStage Entertainment Club



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**Videos**  
**General**

Click box cover for preview



[Special Features](#)

### The Matrix 1999

SoundStage Price: **\$18.99** [BUY](#)  
Retail Price: \$24.98 You save: **\$5.99**

Availability: [InStock](#)

**Starring:** [Keanu Reeves](#) [Laurence Fishburne](#) [Carrie-Anne Moss](#) [Hugo Weaving](#)  
**Director:** [Andy Wachowski](#) [Larry Wachowski](#)  
**Features:** [Collector's Edition](#), [Anamorphic Widescreen](#), [2.35:1 Aspect Ratio](#), [Behind-The-Scenes](#), [Commentary](#), [Trailers](#), [Documentary](#)

**Format:** [DVD](#) **MPAA Rating:** [R](#) **Release Date:** 9/21/1999

**Also available on:**

Description:	Format/Price:	Purchase:
Matrix, The (Widescreen)	DVD <b>\$17.99</b>	<a href="#">BUY</a>
Matrix, The (Special Edition)	VHS <b>\$14.49</b>	<a href="#">BUY</a>
Matrix, The (Special Edition)(Widescreen)	VHS <b>\$14.99</b>	<a href="#">BUY</a>
Matrix, The (with CD Soundtrack, Poster, Lobby Cards) (Special Edition)	VHS <b>\$67.99</b>	<a href="#">BUY</a>

# Input Prototype for Web Interface

LOG IN  
CHANGE PROFILE  
LOG OUT

**Videos**  
**Search**

DTS Only


GO!

**Browse by Category**

Comedy

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Entertainment Club  
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## SoundStage Entertainment Club



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Product	Stock	Quantity	Price	Total
<u>Matrix</u> (Videos)	YES	<input type="text" value="1"/>	\$18.99	\$18.99

Click "Update" after you have made a change in Quantity.

Update

**Sub Total: \$18.99**

Shipping:

†Standard shipping items may be shipped via USPS Priority, First Class Mail, FedEx or UPS. To calculate your total delivery time, please view our delivery map.  
Sndstage.com does not ship on Sunday or national holidays.

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