



# Chapter 7

Menu Selection, Form Fillin, and Dialog Boxes

# Outline

- Introduction
- Task-related menu organization
- Single menus
- Combinations of multiple menus
- Content organization
- Fast movement through menus
- Data entry with menus
- Audio menus and menus for small display

# Introduction

- When designers cannot create appropriate direct-manipulation strategies, menu selection and form fillin are attractive alternatives.
- Menus can be pull-downs, pop-ups, checkboxes/radio buttons in dialog boxes, or embedded links on web pages.
- They are effective because they support ... “recognition, rather than recall”
- Simple menus are effective for less-trained or intermittent users.
- With careful design of complex menus and high-speed interaction, menus can be made appealing even to expert frequent users.

# Task-Related Menu Organization

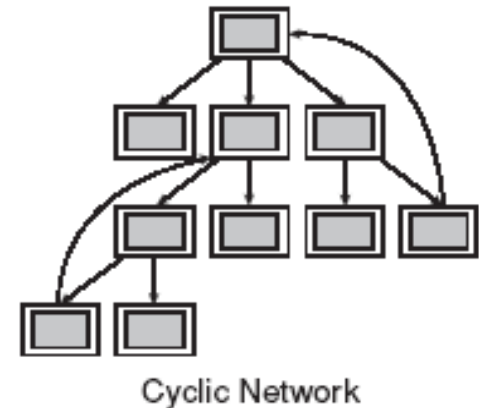
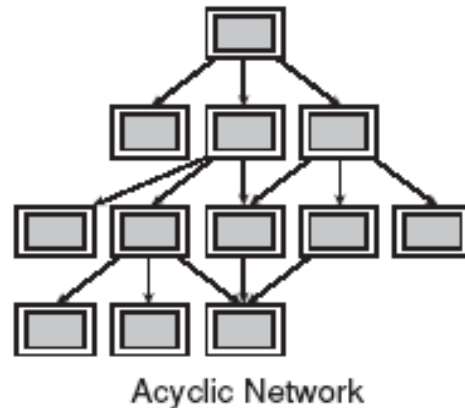
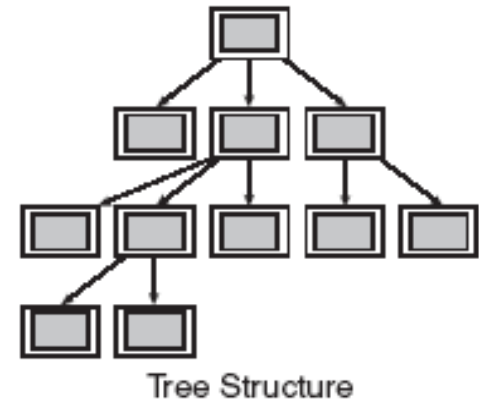
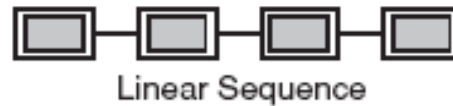
- The primary goal for menu, form-fillin, and dialog-box designers is to create a sensible, comprehensible, memorable, and convenient organization relevant to the user's task.
  - Hierarchical decompositions are natural and comprehensible to most people but difficult to use in some cases
- Consider a restaurant menu! Computer menus design is more difficult
  - Categories should be comprehensible and distinctive so that users are confident in making their selections

# ► Task-Related Menu Organization

- Studies show that categorical menus are more efficient than pure alphabetical
- The key to menu-structure design is first to consider task-related objects and actions.
  - Examples ...?
- In some applications, frequency of use is a useful way of organizing menus.
  - E.g., in mobile phones
    - “Add contact” is more frequent than “Remove contact”

# ► Task-Related Menu Organization

- Menus may range from single menus to linear sequences, to hierarchical and network menus.



# ▶ Single Menus

## ■ Binary Menus

- Radio Buttons
- Button Choice

## ■ Multiple-item Menus

- Radio Buttons
- Links (Lists)

## ■ Multiple-selection menus or check boxes

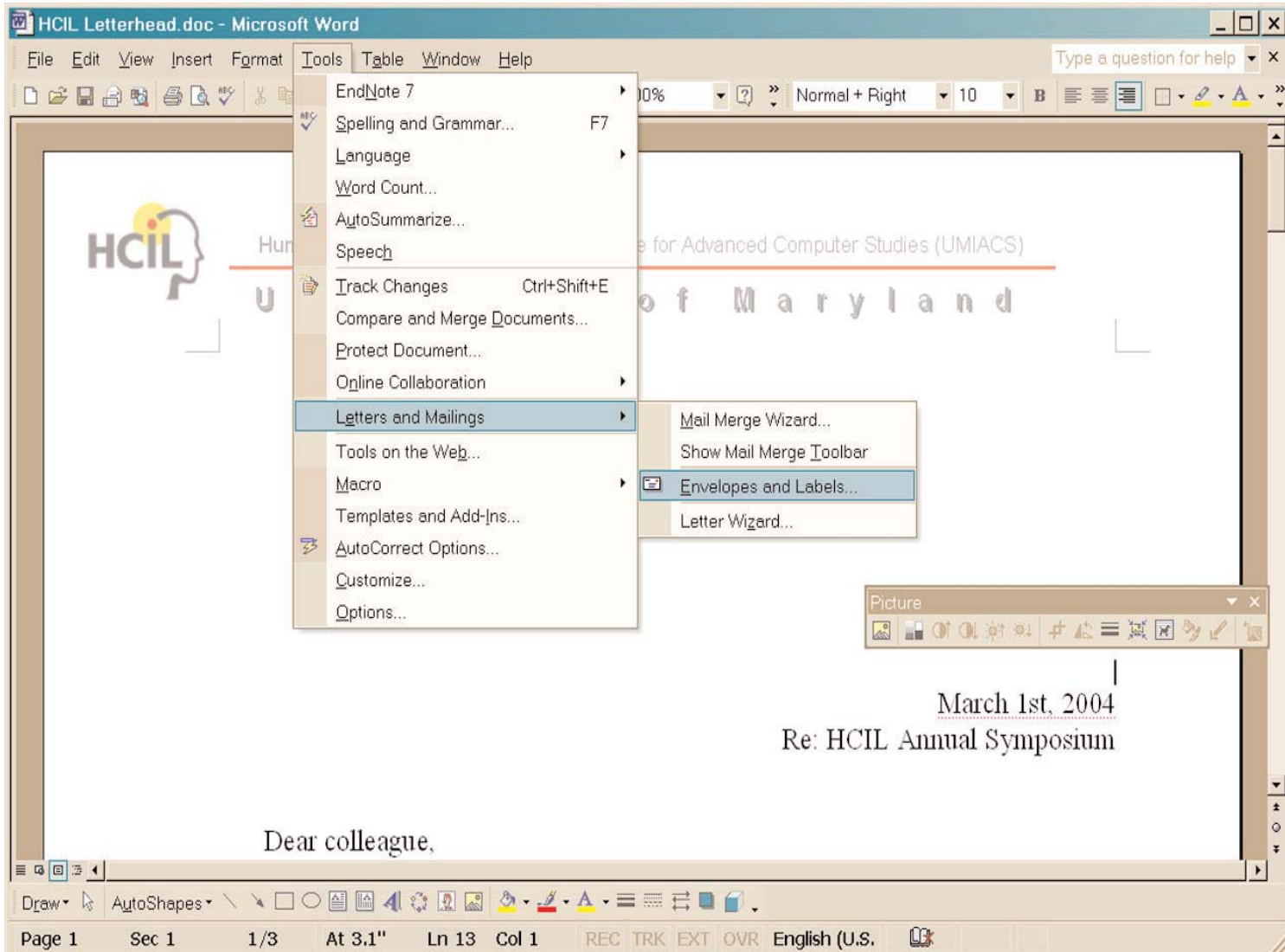
- They are a convenient selection method for handling multiple binary choices

# ▶ Single Menus

- Pull-down, pop-up, and toolbar menus
  - Pull-down menus
    - Always available to the user on a top menu bar
    - Unavailable-for-selection item should be grayed out rather than removed. (positional constancy principle)
    - Key board shortcuts (e.g., Ctrl-C)
      - Should be consistent, and be indicated next to the items
  - Toolbars, iconic menus, and palettes
    - Offers actions on a displayed object
    - Should be customizable (because they take space)
  - Pop-up menus
    - Should be small
    - Pie menus



# ▶ Single Menus



# ▶ Single Menus

**Pie Menu**

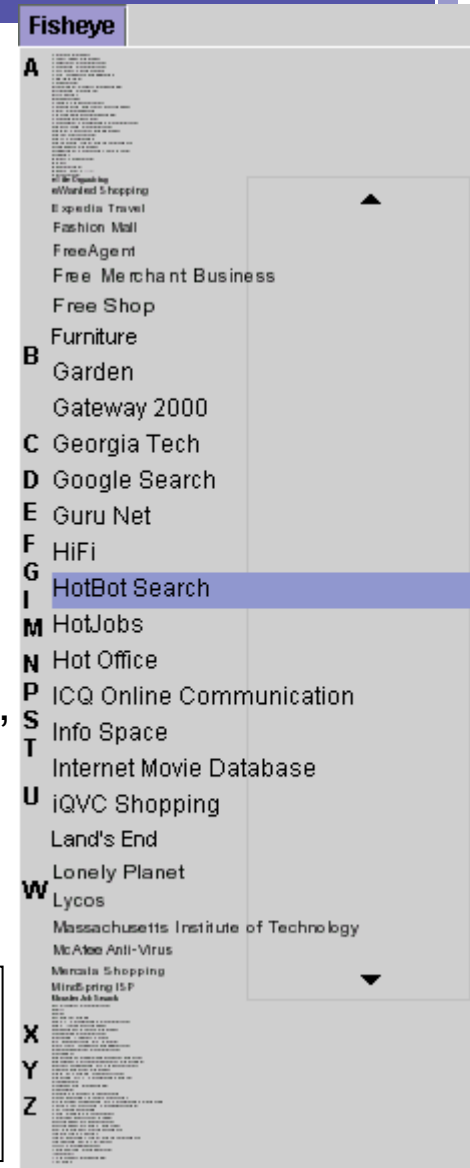


# ▶ Single Menus

## ■ Menus for long lists

- Scrolling menus:
  - display the first portion of the menu and an additional menu item, typically an arrow that leads to the next set of items in the menu sequence.
- Combo boxes:
  - combine a scrolling menu with a text-entry field.
- Fisheye menus:
  - display all of the menu items on the screen at once, but show only items near the cursor at full size.

Fisheye menus (and others) demo:  
<http://www.cs.umd.edu/hcil/fisheyemenu/fisheyemenu-demo.shtml>



## ▶ Single Menus

### ■ Menus for long lists (cont.)

#### □ Sliders and alphasliders

- When items consist of ranges or numerical values, a slider is a natural choice to allow the selection of a value.
- The alphaslider uses multiple levels of granularity in moving the slider thumb and therefore can support tens or hundreds of thousand of items.

#### Alphasliders



# ▶ Single Menus

- Menus for long lists (cont.)
  - Two-dimensional menus
    - “Fast and vast” two-dimensional menus give users a good overview of the choices, reduce the number of required actions, and allow rapid selection.
    - Useful in web-page design because they minimize scrolling

# ▶ Single Menus

## Two-Dimensional Menu

The screenshot displays the Peapod by Giant website interface. At the top, there is a navigation bar with links for "Save & Exit", "My Account", "Help", and "Quick Guide". Below this is a secondary navigation bar with "Peapod Home", "Express Shop", "Browse Aisles", "My Lists", "Specials", "Recipes & More", and "Delivery Times". A search bar is present with a "Search" button and a checked option for "Show product images".

The main menu is organized into a grid of categories, each with a representative image and a text label:

- General Grocery** (highlighted)
- Produce Stand
- Meat & Seafood
- The Deli
- Meals Made Easy
- Health & Beauty

The grid categories include:

- Dairy
- Frozen Foods
- Beverages
- Bread & Bakeshop
- Breakfast Foods
- Snacks, Cookies & Candy
- Grains, Pasta & Side Dishes
- Soups & Canned Goods
- Baking Goods
- Condiments
- Oil, Vinegar & Salad Dressing
- Sauces, Spices & Seasonings
- Baby's Place
- Natural & Organic
- Kosher Foods
- Pet Store
- Household
- Office & School Supplies
- Newsstand & Videos
- Holiday

On the right side, there is a shopping cart summary:

- Total: **\$10.97**
- Review Order** button
- CHECKOUT** button
- Cart items:
  - Quantity: 2, Nutella Chocolatey Creamy Hazelnut Spread Pepperidge
  - Quantity: 1, Farm Swirl Bread Raisin Cinnamon
- Empty Cart button
- Recommendation: "May we suggest Perrier Sparkling Mineral Water 25 oz. Buy 3, Save \$1 Click to Shop" with a coupon icon.

# ▶ Single Menus

## ■ Embedded menus and hotlinks

- Embedded menus are an alternative to *explicit menus*
- It is natural to allow users reading about people, events, and places to retrieve detailed information by selecting menus in context.
  - Examples: hotlinks on the web, calendar months in grid format
- Graphical menus are particularly attractive to present selection options while providing context to help users make their choices.
  - Examples:
    - Digital geographical maps
    - Ekisupato (pronounced the same as “Expert” by a Japanese)

# ► Single Menus





# Combination of Multiple Menus

## ■ Linear menu sequences and simultaneous menus

### □ Linear

- Guide the user through complex decision-making process.
- One decision at a time
  - Effective for novice users performing simple tasks
- Examples: Online exams, wizards

### □ Simultaneous

- Present multiple active menus at the same time and allows users to enter choices in any order
- May benefit experienced users
- Example: <http://bailando.sims.berkeley.edu/flamenco.html>

# ► Combination of Multiple Menus

## ■ Tree-structured menus

- Designers can form categories of similar items to create a tree structure
  - E.g., fonts, size, style, spacing
- They have the power to make large collections of data available to novice or intermittent users. (imagine 4 levels & 30 items at each level)
- Fast retrieval if natural and comprehensive
- Should use terminology from the task domain
- *Expanding menus* maintain the full context of each choice
  - E.g., Windows Explorer
- Depth-breadth tradeoff
  - Studies show that breadth should be preferred over depth (no more than 3 to 4 levels)

# ► Combination of Multiple Menus

## ■ Menu Maps

- Menu maps can help users stay oriented in a large menu tree
- Effective for providing overviews to minimize user disorientation.
- On websites, site maps

## ■ Acyclic and Cyclic Networks

- Arise naturally in social relationships and the Web.
- Navigating can cause confusion and disorientation.
- Developing mental model of a network structure is difficult than that of a tree structure – (the notion of “level” helps)
- But it provides more flexibility in navigation

**A menu-combination example: presenting thousands of items**  
<http://www.epicurious.com/>

# Content Organization

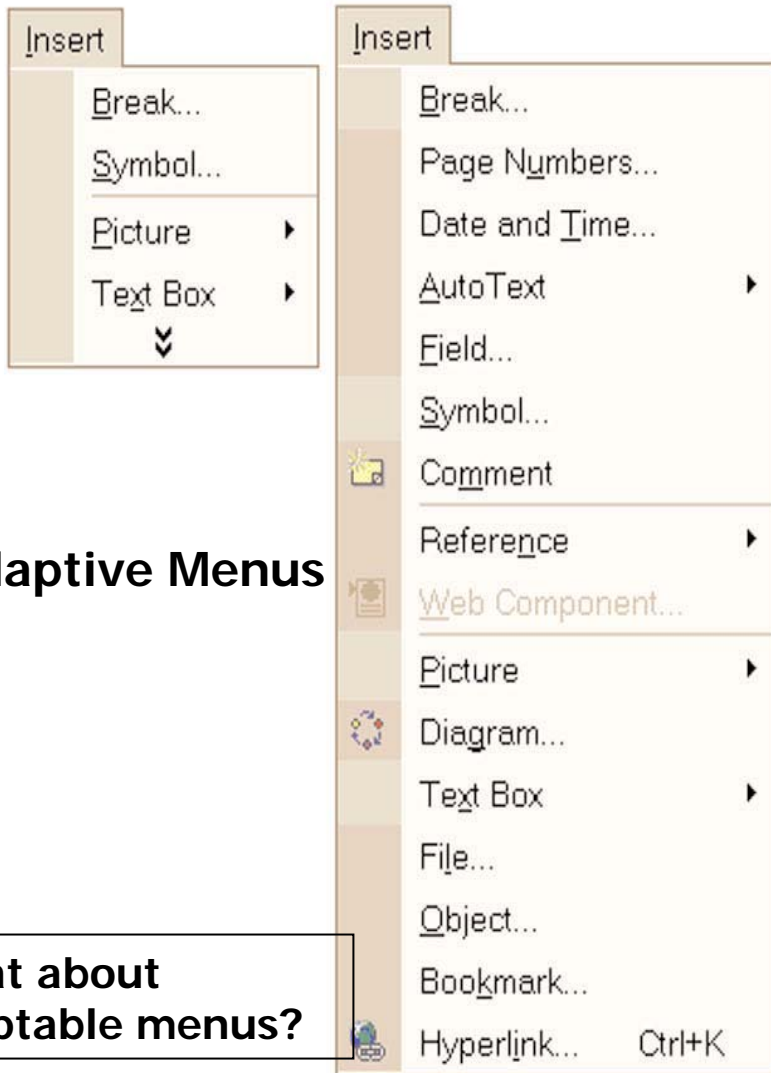
- Task-related grouping in tree organization
  - Create groups of logically similar items
    - e.g., countries at level 1, states at level 2, ...
  - Form groups that cover all possibilities
    - e.g., age groups
  - Make sure that items are non-overlapping
    - e.g., “Entertainment” and “Events” are poor choices compared to “Concerts” and “Sports”
  - Use familiar terminology, but ensure that items are distinct from one another
    - e.g., “Day” and “Night” maybe too vague; consider “6am to 6pm” ...

# ▶ Content Organization

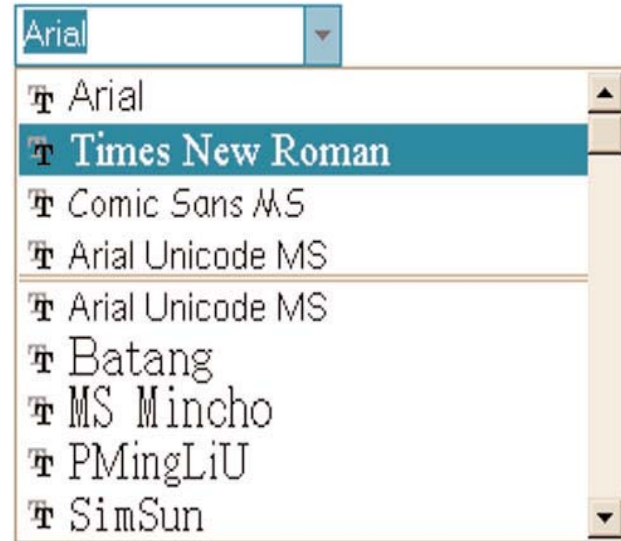
## ■ Item Presentation Sequence

- The order of items in the menu is important, and should take natural sequence into account when possible:
  - Time (chronological ordering)
  - Numeric ordering (ascending or descending ordering)
  - Physical properties (increasing or decreasing length, area, ...)
- When cases have no task-related orderings, the designer must choose from such possibilities as:
  - Alphabetic sequence of terms
  - Grouping of related items
  - Most frequently used items first
  - Most important items first.

# ► Content Organization



**Adaptive Menus**



**If frequency of use is a guide to sequencing ...**

# ▶ Content Organization

## ■ Menu layout

### □ Titles

- For single menus, use a simple descriptive title.
- For tree-structured menus, use the exact same words in the higher-level menu items as in the titles for the next lower-level menu.
  - e.g. if a menu item is called “Business and Financial Services”, the next screen should have that phrase as its title.
- Consistency in placement of titles is also important

# ▶ Content Organization

## ■ Menu layout (cont.)

### □ Phrasing of menu items

- Ensure that items are distinct from one another
- Use consistent and concise phrasing
  - e.g., “Animal”, “Vegetable” and “Mineral” are better than “Information about Animals”, “Vegetable choices you can make” and “Viewing mineral categories”
- Bring the keyword to the fore
  - e.g., use “Size of type” instead of “Set the type size”



# ▶ Content Organization

## ■ Menu layout (cont.)

### □ Graphic layout and design

- Constraints (screen size, display rate, etc.) strongly influence the graphic layout of menus
- Establish guidelines for consistency of at least these menu components:
  - Titles (centered or left justified)
  - Item placement (justification, blank lines)
  - Instructions (should appear in the same position)
  - Error messages (consistent position, terminology & syntax)
  - Status reports (where is the user now)

# ► Content Organization

## ■ Menu layout (cont.)

### □ Techniques to indicate position in menu structure

- Like book chapters and sections, the followings can be used for different levels
  - Fonts (bold, italic, normal)
  - Indentation
  - Upper/lower case characters
- Position markers: +-----, -+-----, --+----, ---+---, ----+-, -----+
- Cascading or walking menus

# Fast Movement Through Menus

- Keyboard shortcuts
  - Supports expert use
  - Can make translation to a foreign language more difficult
- In pie menus, inserting a short delay before menu items are displayed, may allow users to *mouse ahead* by relying on their muscle memory. When unsure, users can wait until the menu appears.
- User configured toolbars (icons for *macros*)
- When items of a lower-level menu need to be used multiple times in a row, *tear-off menus* can be useful to keep the list of options visible on screen

# Data Entry with Menus: Form Fillin, Dialog Boxes, and Alternatives

## ■ Form Fillin

- For some tasks, keyboard typing is more attractive than menu selection. e.g.,
  - Entry of personal names or numeric values
- Few instructions are necessary, since the display resembles familiar paper forms.
- Widely used for specifying complex searches.
- A combination of form fillins, pop-up or scrolling menus, and custom widgets can support rapid selection

# Form-Fillin Design Guidelines

- Meaningful title (identify the topic)
- Comprehensible instructions (avoid pronouns; “type”, “press” or “enter”)
- Logical grouping and sequencing of fields
- Visually appealing layout of the form
- Familiar field labels (“Home Address” instead of “Domicile”)
- Consistent terminology and abbreviations
- Visible space and boundaries for data-entry fields
- Convenient cursor movement
- Error correction for individual characters and entire fields
- Error prevention (e.g., in numeric fields, allow only numbers, ...)
- Error messages for unacceptable values (hint about permissible values)
- Immediate feedback (about errors; close to the erroneous field)
- Optional fields clearly marked (should follow required fields)
- Explanatory information for fields (should be close to the field)
- Completion signal (like “Submit”); “how to finish” should be known

# Form-Fillin Example

## Alamo.com Membership Enrollment Form

### Login and Password \* Required Fields

Title	<input type="text" value="Mrs."/>	
First Name *	<input type="text" value="Catherine"/>	Middle Initial <input type="text" value="F"/>
Last Name *	<input type="text" value="Smith"/>	
Suffix	<input type="text" value="None"/>	
Email Address *	<input type="text" value="catherine@email.com"/>	
Confirm Email Address *	<input type="text" value="catherine@email.com"/>	
Create a Login Name * (or use email address)	<input type="text" value="CW"/>	
Create a Password *	<input type="text" value="*****"/>	Min. 6 characters and must contain at least one number
Confirm Password *	<input type="text" value="*****"/>	

### Password Clue

In case you forget your password this clue will help us retrieve and E-mail your password to you.

What is your mother's maiden name?

### Type of Travel

Do you travel more on  Leisure or  Business

### Alamo Programs

If you are a member of Quicksilver or our Corporate program, please enter your ID number below.

Quicksilver ID   
(The number begins with an 'F')

Corporate ID#

# ▶ Form-Fillin

- Format-specific field
  - Alphabetic fields: usually left justified
  - Numeric fields: may be left justified on entry but then right justified on display.
    - Avoid entry and display of leftmost zeros.
    - Should lineup on decimal points.
  - Coded fields
    - Telephone numbers ( \_\_ ) \_\_\_ - \_\_\_\_\_
    - Social-security numbers ?
    - Times \_\_ : \_\_ \_\_ (09:30 AM or PM)
    - Dates (DD/MM/YYYY)
    - Amounts

# Dialog Boxes

- Request users to select options or perform limited data entry to complete a task. (e.g., print, save, open, find, font)
- Combination of menu and form-filling techniques
- Internal layout guidelines:
  - Meaningful title
  - Top-left to bottom-right sequencing
  - Clustering and emphasis
  - Consistent terminology, fonts, capitalization, justification, and layouts (margins, white space, lines, boxes)



# ▶ Dialog Boxes

- External Relationship
  - Size small enough to reduce overlap problems
  - Display close to related items
  - No overlap of required items
- For complex tasks, multiple dialog boxes may be needed.
  - Tabbed dialog box can be used

# Audio Menus and Menus for Small Displays

- Menu systems in small displays and situations where hands and eyes are busy are a challenge.
- Audio menus
  - Verbal prompts and option descriptions
  - Input is normally verbal or from keypad
  - Not persistent, like a visual display, so memorization is required
    - Complex menu structures should be avoided
  - Dial-ahead capabilities allow repeat users to skip through the prompts
  - Voice recognition enables users to speak their options instead of hitting keys
    - Natural language processing is a challenge. e.g.,
      - “Reserve two seats on the first flight tomorrow from New York to Washington”

# ▶ Audio Menus and Menus for Small Displays

## ■ Menus for small displays

### □ Examples

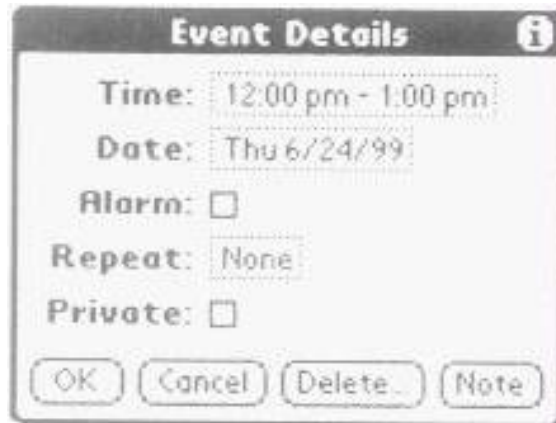
- Entertainment
- Information & communication services

### □ Learnability is a key issue

- Successful designs limit the number of functions to the most essential ones; “Less is More”



The early Palm style



The revised Palm style

# ▶ Audio Menus and Menus for Small Displays

- Menus for small displays (cont.)
  - Hardware buttons
    - Navigation, Select, and also for launching most common applications
  - Soft keys
  - Conciseness and consistency become more important



# Skipped Sections

The following section has been skipped:

- 7.7.4 Novel designs combining menus and direct manipulation

