CHAPTER 6:
Menu Selection, Form Fill-In, and Dialog Boxes

Designing the User Interface:
Strategies for Effective Human-Computer Interaction

Fifth Edition

Ben Shneiderman & Catherine Plaisant

in collaboration with

Maxine S. Cohen and Steven M. Jacobs

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Task-Related Organization

"The primary goal for menu, form fill-in, and dialog-box designers is to create a sensible, comprehensible, memorable, and convenient organization relevant to the user's task."

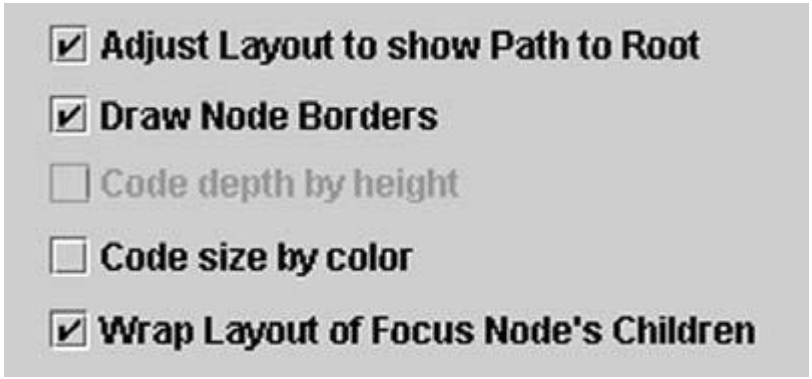
Single Menus

- **Binary Menus**
  - Mnemonic letters
  - Radio Buttons
  - Button Choice

3. What is your marital status?
   - o Single
   - o Married
   - o Widowed/divorced/separated

Single Menus (cont.)

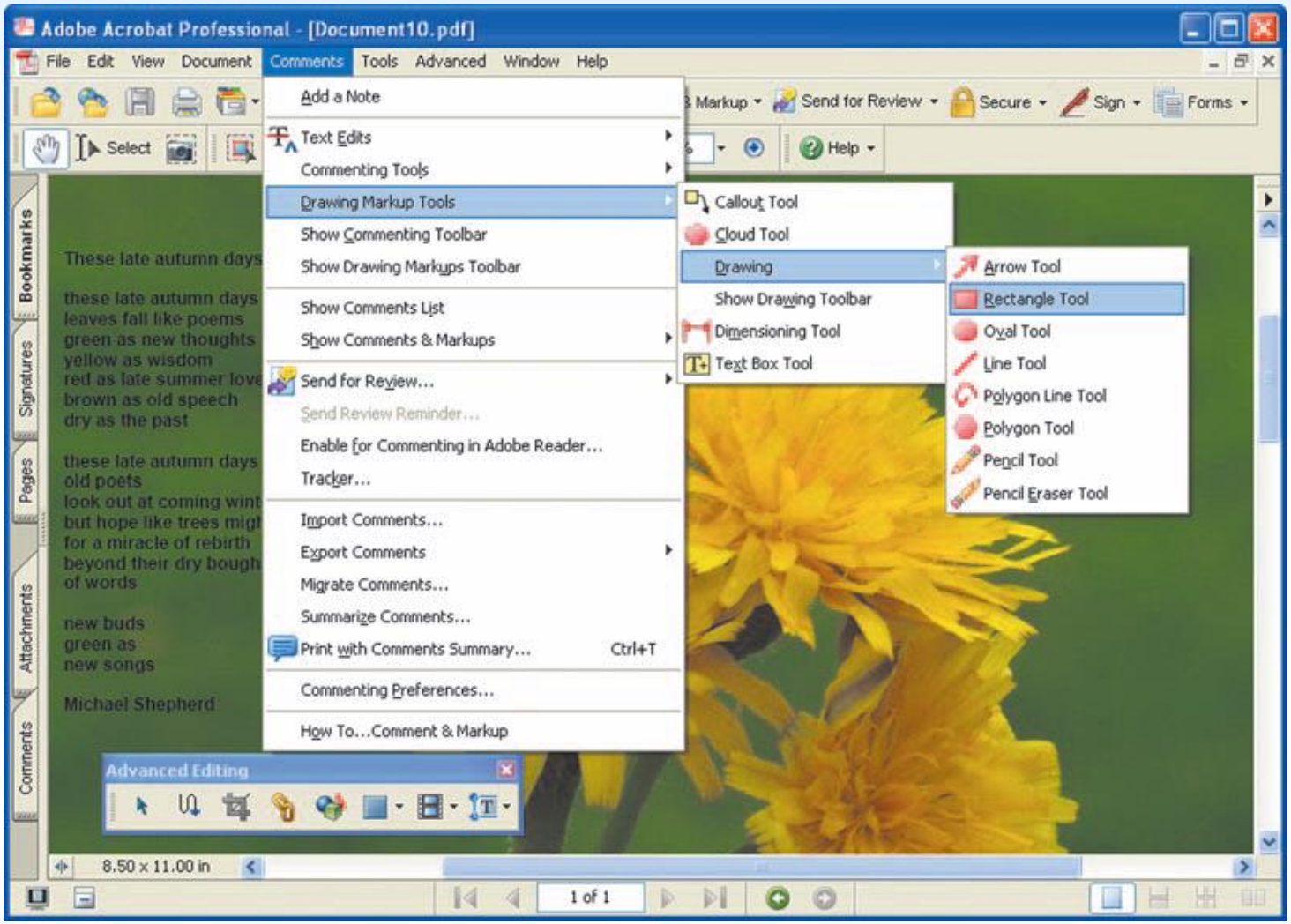
- **Multiple-item Menus**
- **Multiple-selection menus or check boxes**



Single Menus (cont.)

- **Pull-down, pop-up, and toolbar menus**
  - Pull-down menus
    - Always available to the user by making selections on a top menu bar
  - Pull-down menus (cont.)
    - Key board shortcuts
      - E.g., Ctrl-C important to support expert user efficiency
    - Toolbars, iconic menus, and palletes
      - Offers actions on a displayed object
    - Pop-up menus
      - Appear on a display in response to a check or tap with a pointing device.

Single Menus (cont.)

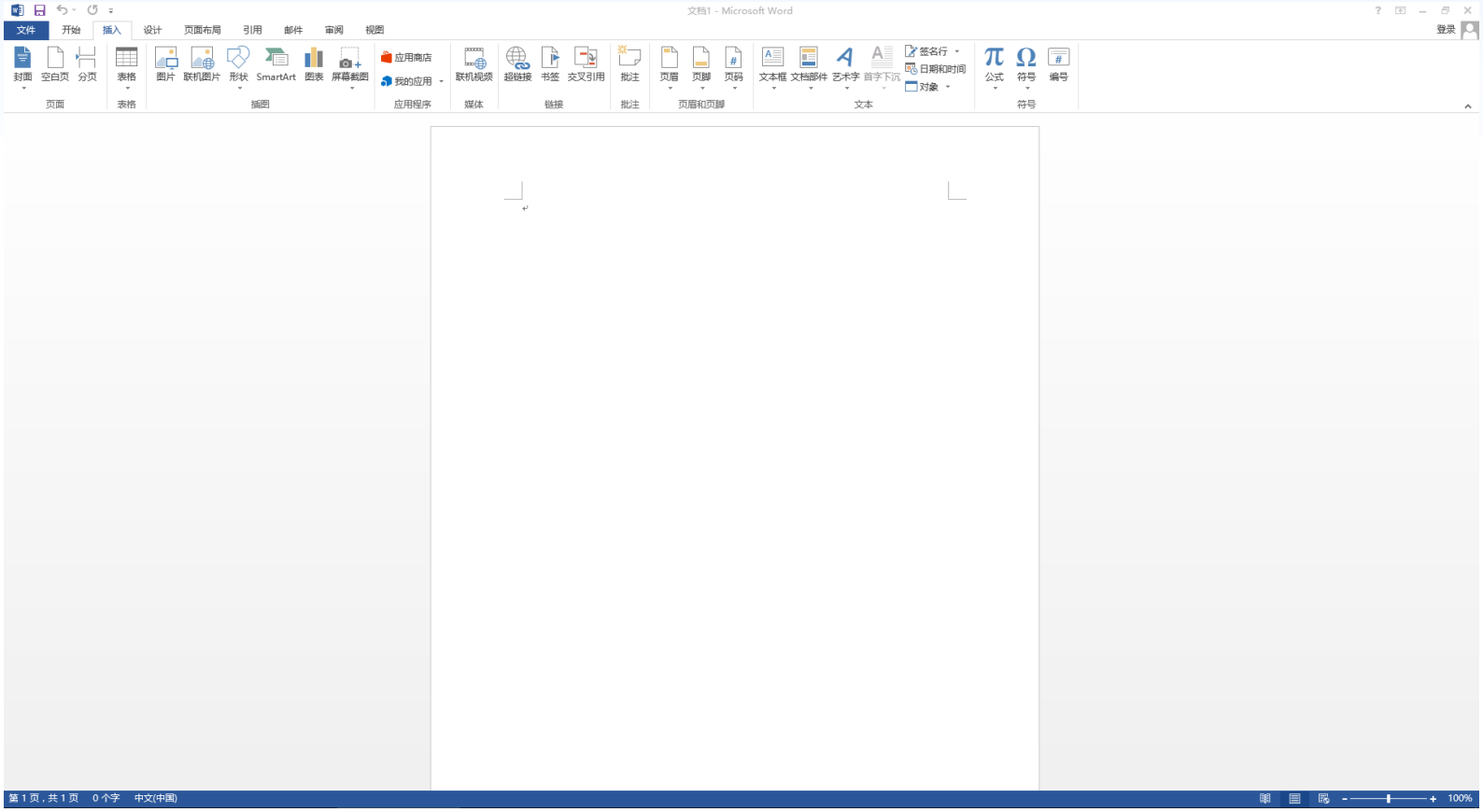


Single Menus (cont.)

• To see updates from friends, photos and feeds, the Zumobi Ziibii interface (http://www.zumobi.com) allows users to choose between two styles of presentation.
• On the left is a static list of text/image items with a gestural swipe used to control paging, and on the right is a dynamic scrolling ticker (called “River”) which horizontally scrolls titles and images across the screen.

Single Menus (cont.)

Single Menus (cont.)

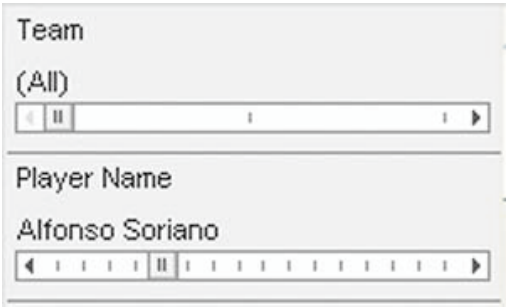


Single Menus (cont.)

- **Menus for long lists**
  - Scrolling menus, combo boxes, and fisheye menus
    - 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 filed.
    - Fisheye menus display all of the menu items on the screen at once, but show only items near the cursor at full size.

Single Menus (cont.)

- **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.



Single Menus (cont.)

- **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.

Single Menus (cont.)

Single Menus (cont.)

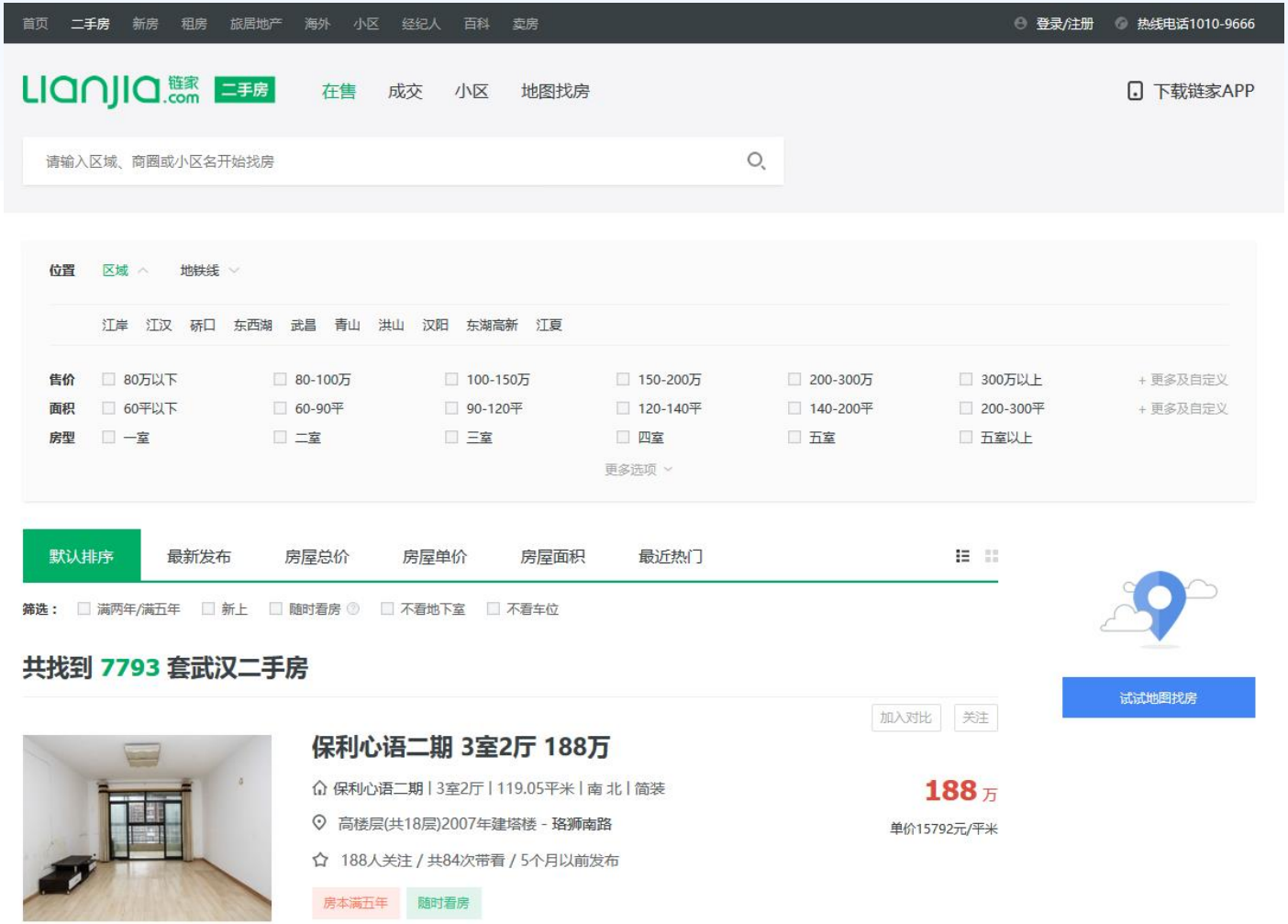
- **Embedded menus and hotlinks**
  - Embedded menus are an alternative to explicit menus
  - It is natural to allow users reading about people, events, and places to retrieve detailed information by selecting menus in context.

Single Menus (cont.)

Combination of multiple menus

- **Linear menu sequences and simultaneous menus**
  - Linear
    - Guide the user through complex decision-making process.
      - E.g. cue cards or "Wizards"
    - Effective for novice users performing simple tasks
  - Simultaneous
    - Present multiple active menus at the same time and allows users to enter choices in any order

Combination of multiple menus



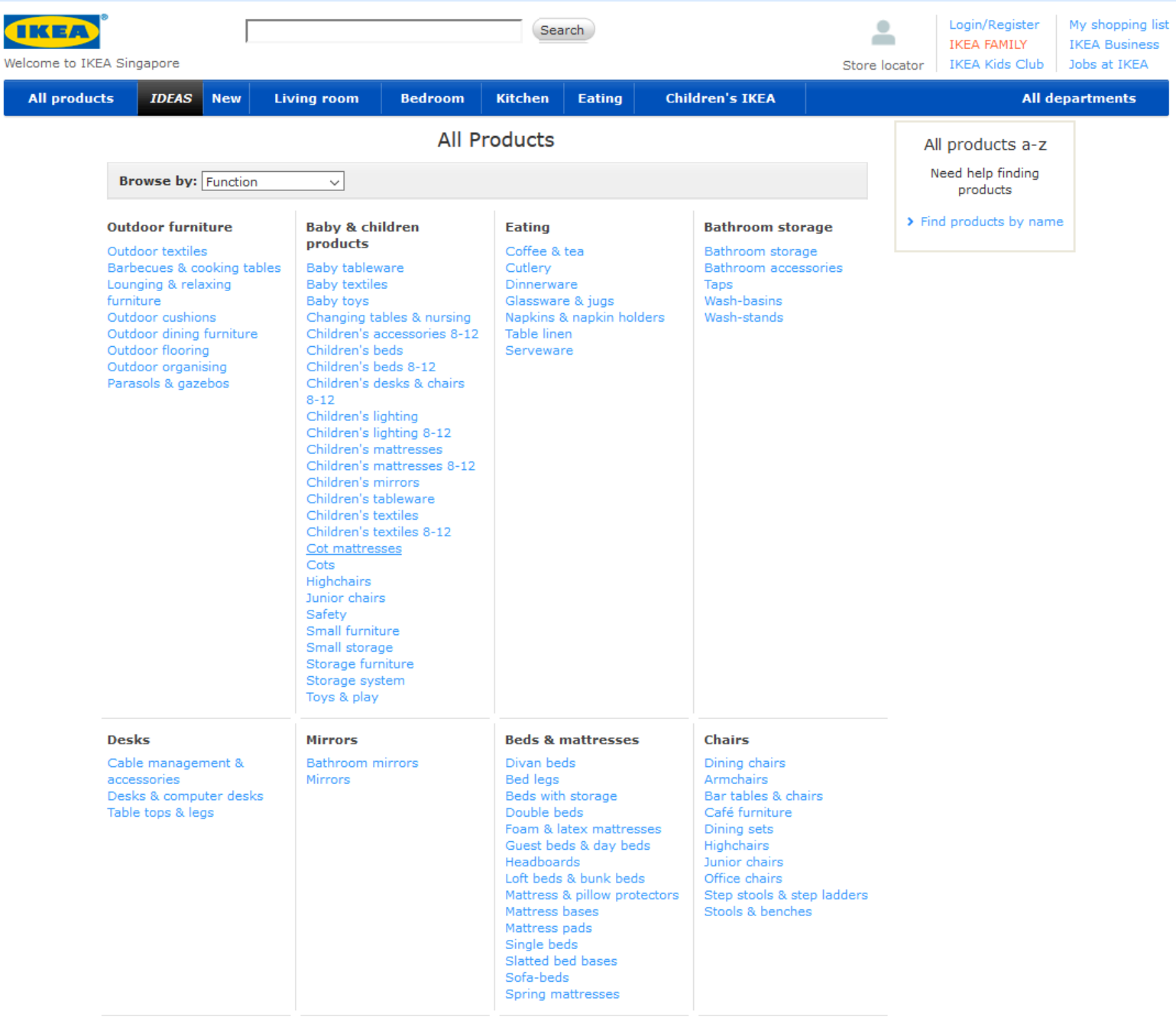
Combination of multiple menus (cont.)

- **Tree-structured menus**
  - Designers can form categories of similar items to create a tree structure
    - E.g., fonts, size style, spacing
  - Fast retrieved if natural and comprehensive
  - Use terminology from the task domain
  - Expanding menus maintain the full context of each choice
    - E.g., Windows Explorer

Combination of multiple menus (cont.)

- **Menu Maps**
  - Menu maps can help users stay oriented in a large menu tree
  - Effective for providing overviews to minimize user disorientation.

- **Acyclic and Cyclic Networks**
  - Useful for
    - social relationships
    - transportation routing
    - scientific-journal citations
    - Can cause confusion and disorientation.



Content Organization

- **Task-related grouping in tree organization**
  - Create groups of logically similar items
  - Form groups that cover all possibilities
  - Make sure that items are nonoverlapping
  - Use familiar terminology, but ensure that items are distinct from one another

Content Organization (cont.)

- **Item Presentation Sequence**
  - The order of items in the menu is important, and should take natural sequence into account when possible:
    - Time
    - Numeric ordering
    - Physical properties
  - 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 (cont.)

Adaptive menus in Microsoft Office.

A font-selection menu lists the recently used fonts near the top of the menu (as well as in the full list), making it easier to quickly select the popular fonts.

Content Organization (cont.)

- **Menu layout**

  - Use task semantics to organize menus (single, linear sequence, tree structure, acyclic and cyclic networks).
  - Prefer broad–shallow to narrow–deep.
  - Show position by graphics, numbers, or titles.
  - Use items as titles for subtrees.
  - Group items meaningfully.
  - Sequence items meaningfully.
  - Use brief items; begin with the keyword.
  - Use consistent grammar, layout, and terminology.
  - Allow type ahead, jump ahead, or other shortcuts.
  - Enable jumps to previous and main menu.
  - Consider online help, novel selection mechanisms, and optimal response time, display rate, and screen size.

Content Organization (cont.)

- **Menu layout (cont.)**
  - **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.

Content Organization (cont.)

- **Menu layout**
  - **Titles (cont.)**
    - Phrasing of menu items
      - Use familiar and consistent terminology
      - Ensure that items are distinct from one another
      - Use consistent and concise phrasing
      - Bring the keyword to the left

Content Organization (cont.)

- **Menu layout (cont.)**
  - **Graphic layout and design**
    - Constraints
      - screen width and length
      - display rate
      - character set
      - highlighting techniques

Content Organization (cont.)

- **Menu layout (cont.)**
  - **Establish guidelines for consistency of at least these menu components:**
    - Titles
    - Item placement
    - Instructions
    - Error messages
    - Status reports

Content Organization (cont.)

- **Menu layout (cont.)**
  - **Techniques**
    - Indentation
    - Upper/lower case characters
    - Symbols such as * or - to create separators or outlines
    - Position markers
    - Cascading or walking menus
    - Magic lens

Fast Movement Through Menus

- **Keyboard shortcuts**
  - Supports expert use
  - Can make translation to a foreign language more difficult
  - Bookmarks in browsers
  - User configured toolbars

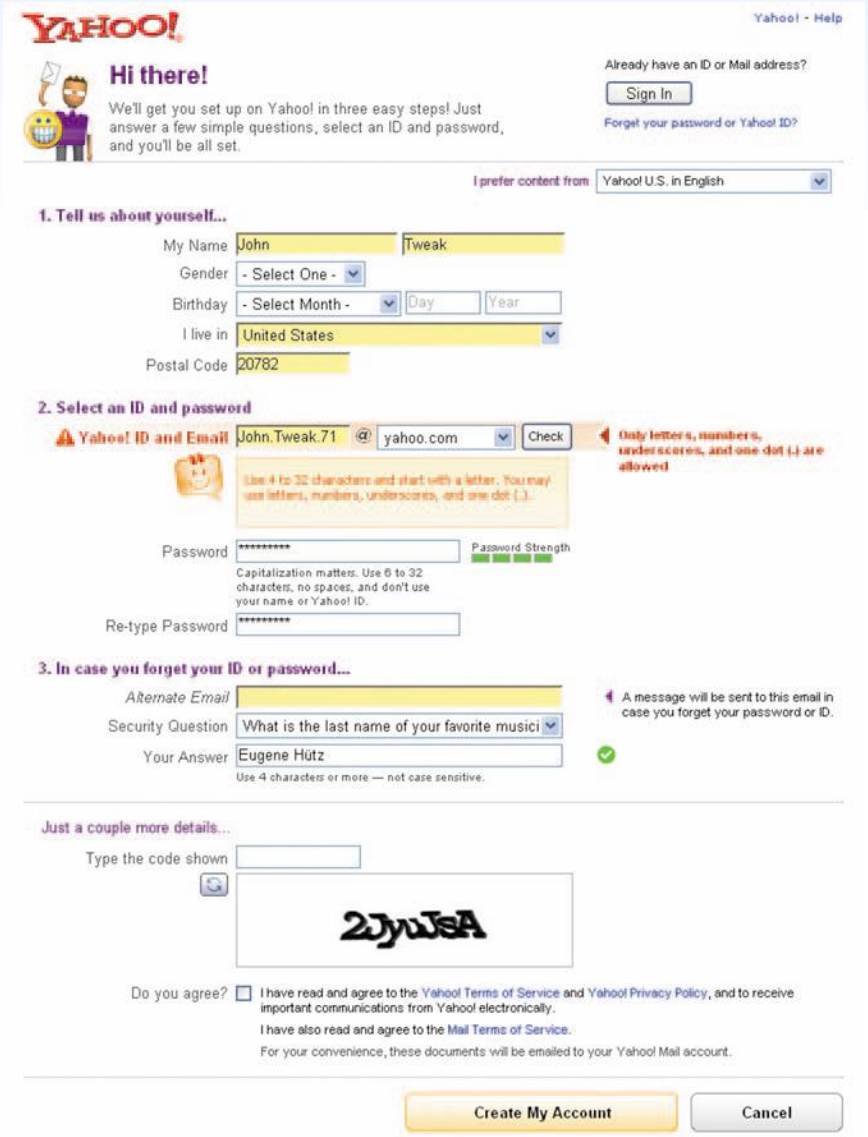
Data Entry with Menus: Form Fill-in, Dialog Boxes, and Alternatives

- **Form Fill-in**
  - Appropriate when many fields of data must be entered:
    - Full complement of information is visible to user.
    - Display resembles familiar paper forms.
    - Few instructions are required for many types of entries.
  - Users must be familiar with:
    - Keyboards
    - Use of TAB key or mouse to move the cursor
    - Error correction methods
    - Field-label meanings
    - Permissible field contents
    - Use of the ENTER and/or RETURN key.

Data Entry with Menus: Form Fill-in, Dialog Boxes, and Alternatives

- Meaningful title
- Comprehensible instructions
- Logical grouping and sequencing of fields
- Visually appealing layout of the form
- Familiar field labels
- 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 where possible
- Error messages for unacceptable values
- Marking of required fields
- Explanatory messages for fields
- Completion signal to support user control

Data Entry with Menus: Form Fill-in, Dialog Boxes, and Alternatives



Data Entry with Menus: Form Fill-in, Dialog Boxes, and Alternatives

- **Format-specific field**
  - **Coded fields**
    - Telephone numbers
    - Social-security numbers
    - Times
    - Dates
    - Dollar amounts (or other currency)

Data Entry with Menus: Form Fill-in, Dialog Boxes, and Alternatives

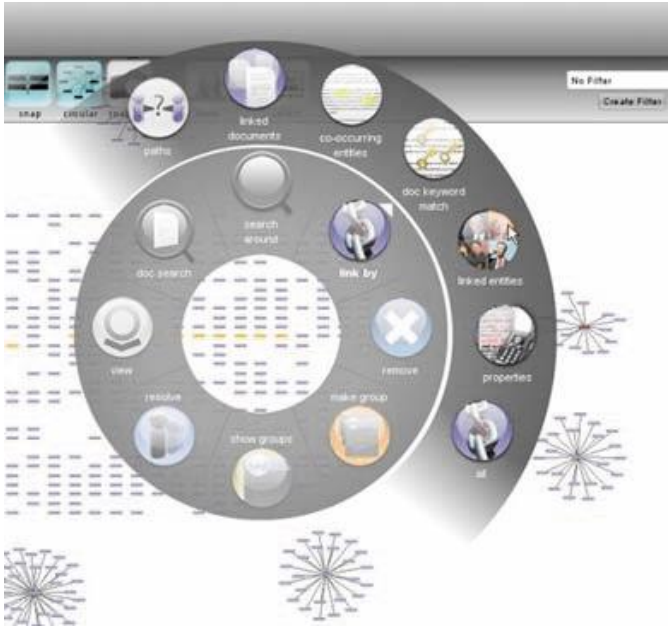
- **Dialog Boxes**
  - Combination of menu and form fill-in techniques.
  - Internal layout guidelines:
    - Meaningful title, consistent style
    - Top-left to bottom-right sequencing
    - Clustering and emphasis
    - Consistent layouts (margins, grid, white space, lines, boxes)
    - Consistent terminology, fonts, capitalization, justification
    - Standard buttons (OK, Cancel)
    - Error prevention by direct manipulation

Data Entry with Menus: Form Fill-in, Dialog Boxes, and Alternatives

- **Dialog Boxes (cont.)**
  - External Relationship
    - Smooth appearance and disappearance
    - Distinguishable but small boundary
    - Size small enough to reduce overlap problems
    - Display close to appropriate items
    - No overlap of required items
    - Easy to make disappear
    - Clear how to complete/cancel

Data Entry with Menus: Form Fill-in, Dialog Boxes, and Alternatives

- **Novel design combining menus and direct manipulation**
  - Pie menus (example here)
  - Control menus
  - Marking menus
  - Flow menus
  - Toolglass



Audio Menus and Menus for Small Displays

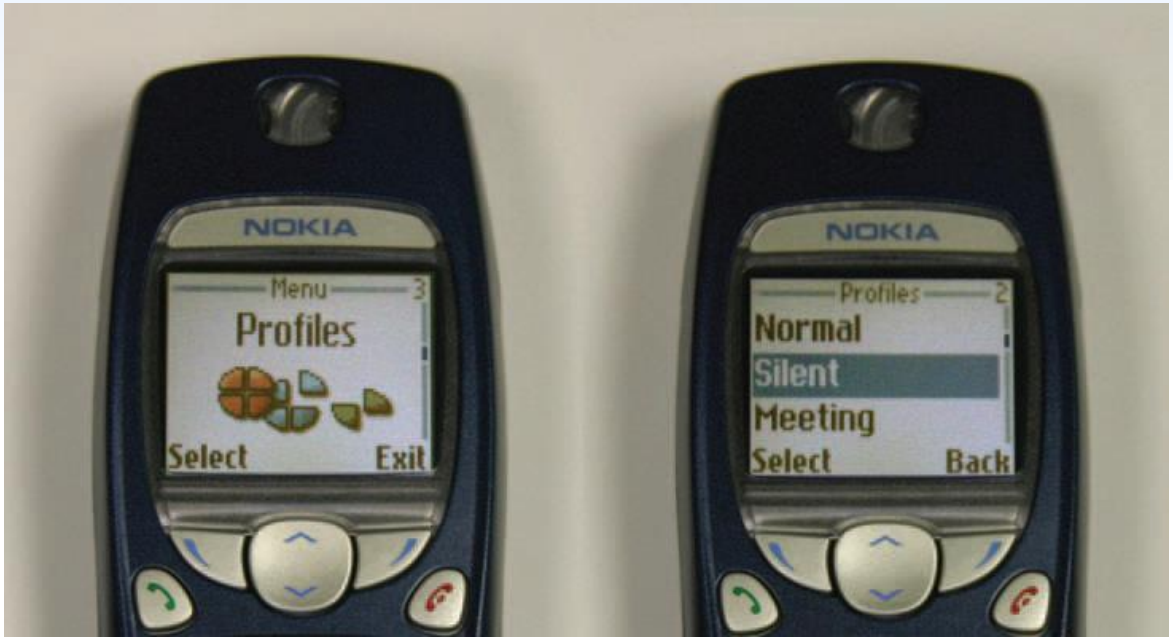
- Menu systems in small displays and situations where hands and eyes are busy are a challenge.

- **Audio menus**
  - Verbal prompts and option descriptions
  - Input is normally verbal or keypad
  - Not persistent, like a visual display, so memorization is required.
  - Request users can avoid listening to options

Audio Menus and Menus for Small Displays (cont.)

- **Menu for small displays**
  - E.g., entertainment, communication services
  - Learnability is a key issue
  - Hardware buttons
    - Navigation, select
  - Expect interactions
  - Tap interface
  - GPS and radio frequency identification provides same automatic input

Audio Menus and Menus for Small Displays (cont.)



Telephone menus use soft keys to present context-dependent menu items. The convention used here is to consistently place selections on the left side and back or exit options on the right side. Hard buttons control the connect and disconnect functions. Dedicated buttons facilitate scrolling through lists. The current position in the list is indicated on the right side of the screen.

Audio Menus and Menus for Small Displays (cont.)

The Zumobi interface (http://www.zumobi.com) on a mobile phone starts with four “tiles” using a two-level zoom interaction to see the tile details (left side). The user can specify which tiles are in their “zoomspace”. Then, when they become more familiar with the interface, they can add up to a total of 16 tiles using a three-level zoom interaction to smoothly go between overview, “zone” view, and detail view (right side). The application accommodates thumb use on touchscreens, numeric key pads for zone-based zooming, 4-way D-Pads, and even thumb-roller controllers.