

CS 315 – Intro to Human Computer Interaction (HCI)

Guidelines



The state of HCI art has gone way
past intuition.....

.... though reality doesn't quite reflect that yet

Three levels for better design:

- Guidelines
 - Very specific rule sets usually centered on organizations or commercial entities
- Principles
 - Mid level of abstractions
- Theories and Models
 - Universal notions, capable of being predictive

Guidelines

Guidelines

- Shared language
- Best practices
- Critics
 - Too specific, incomplete, hard to apply, and sometimes wrong
- Proponents
 - Encapsulate experience

Guidelines

- By far the most heavily documented
 - Each set of guidelines is an HCI universe unto itself
- Well known guidelines include:
 - [Apple Human Interface Guidelines](#)
 - [Windows User Experience Interaction Guidelines](#)
 - [Android User Interface Guidelines](#)
- We will focus on specific tidbits of interest from assorted guidelines documents

National Cancer Institute

- 388-guideline set for web pages
 - Standardize task sequences
 - Ensure that embedded links are descriptive
 - Use unique and descriptive headings
 - Use radio buttons for mutually exclusive options
 - Develop pages that will print properly
 - Use thumbnail images to preview larger images

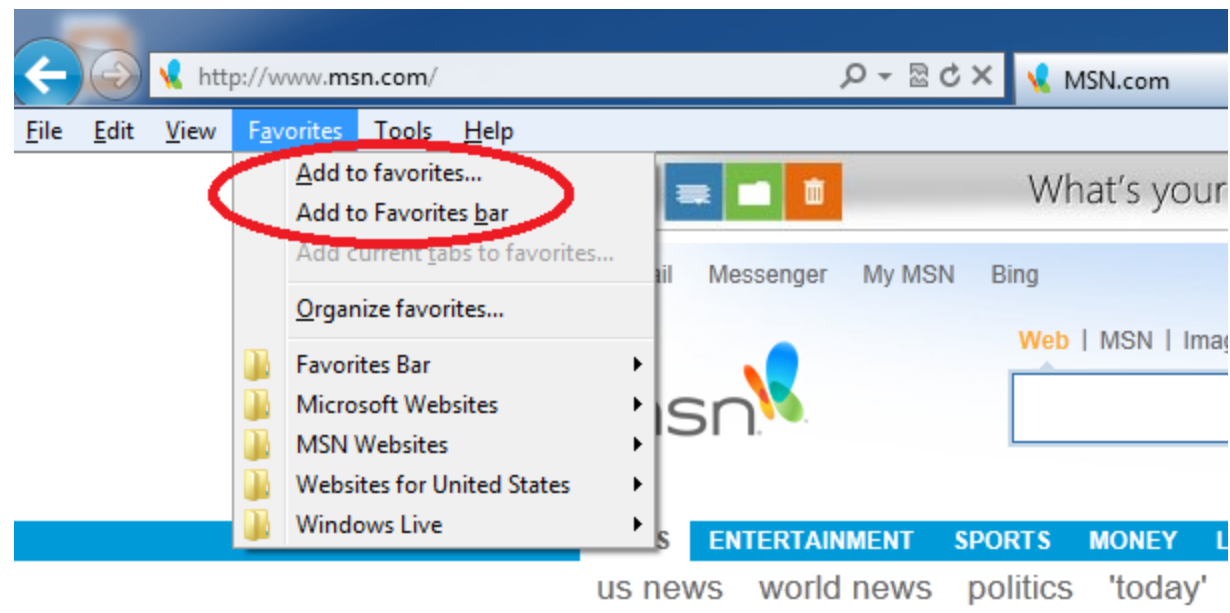
W3C guidelines for accessibility

- Provide a text equivalent for every non-text element
- For any time-based multimedia presentation synchronize equivalent alternatives
- Information conveyed with color should also be conveyed without it
- Title each frame to facilitate form identification and navigation

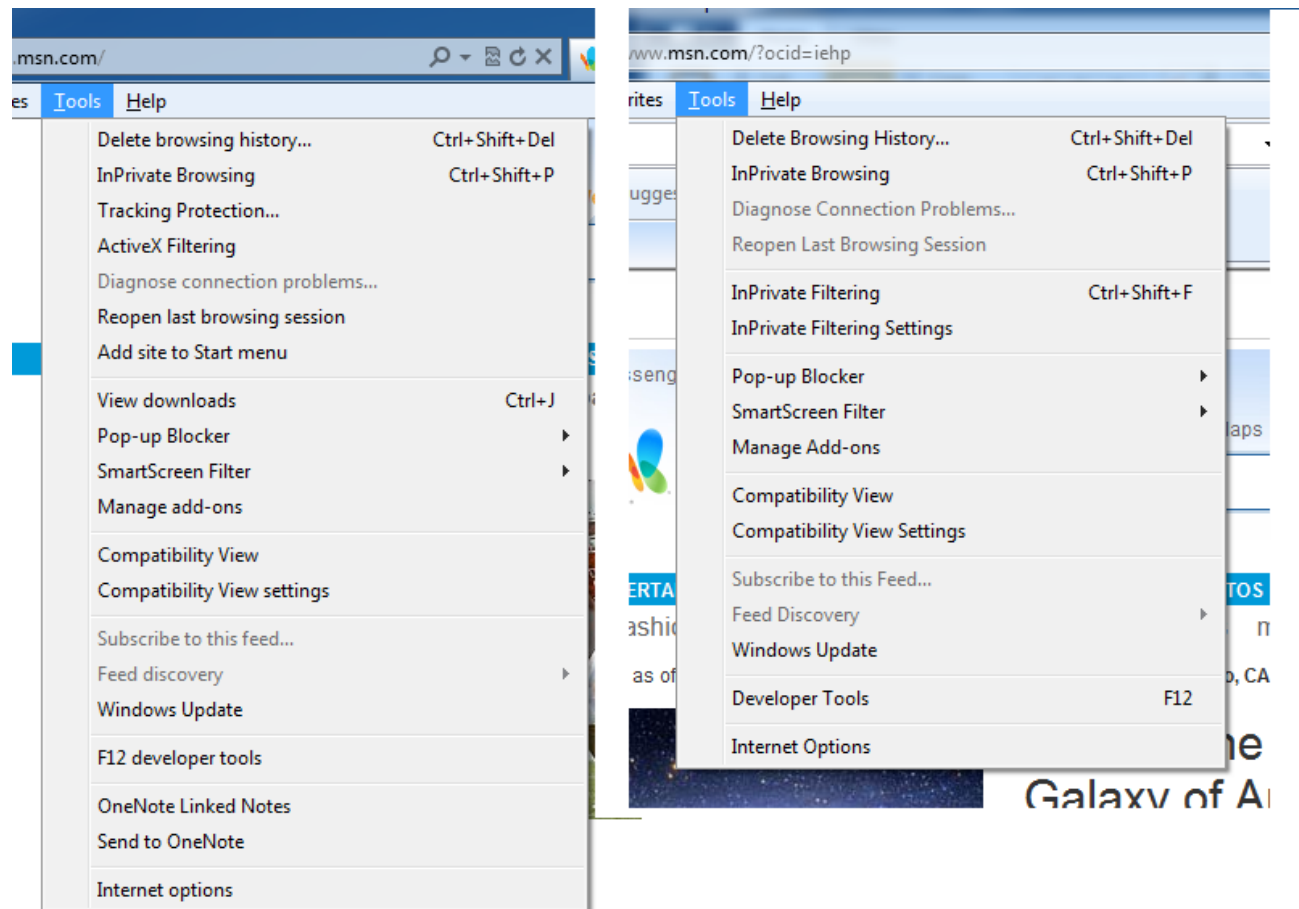
Organizing the display

- Smith and Mosier (1986) offer five high-level goals
 - Consistency of data display
 - Efficient information assimilation by the user
 - Minimal memory load on the user
 - Compatibility of data display with data entry
 - Flexibility for user control of data display

IE9



IE9



- Gabor rushed to hospital
- Women

Entering phone numbers

Phone:

Phone: () -

Getting the user's attention

- Wickens and Hollands (2000) offer these techniques for getting the user's attention:
 - Intensity
 - Marking
 - Size
 - Choice of fonts
 - Inverse video
 - Blinking
 - Color
 - Audio

Use of color

The screenshot displays the Causecast website interface. At the top, the logo "CAUSECAST" is prominently featured in white on a dark blue background. Navigation tabs include "VIDEOS", "ORGANIZATIONS", "LEADERS", "MEMBERS", "WHO WE ARE", and "DONATE". Below these, a secondary menu lists categories: "ANIMALS", "ARTS", "COMMUNITY", "ENVIRONMENT", "HEALTH", "HUMAN RIGHTS", and "YOUTH". A search bar is located in the top right corner. The main content area features a large video player on the left showing a person holding a newspaper titled "Human Rights". To the right, a "LATEST VIDEOS" section lists three videos with their titles, dates, and view counts. At the bottom, a pink banner promotes Causecast as a place to explore issues and connect with a community. Below this, there are sections for "Featured News", "Causecast Activity", and a "CAUSECONNECT" form with an "Email Address" input field and a "Subscribe" button.

Use of colors and symmetry

REKALL WIN A LUXURY BREAK United States (English)

For The Memory Of A Lifetime

HOME CHEAP CARE CHEAP HOTELS WIFE RESTAURANTS REALTY CHECKS EDWORKERS MARRIAGES

Search Manage My Account Live This Site Memory Questions Desktop Planning Special Offers Contact Customer Service

READY FOR DREAM LAND?
CATALOGUE FOR THE YEAR 2006 NOW AVAILABLE

VIRTUAL TRIPS FALSE MEMORIES FAKI JOBS

Reality Dream Ego Trip

Choose severity: Normal One | Duration Time: 03 Weeks | Details: 00 Submits

Going to: Mars | Special Package: Fruits & Vegetables | 00 Personalities

I have read and accept Terms of Use | I do not have any previous memory replacements

BOOK CHEAP VIRTUAL TRIP

CHEAP RIDES
WELCOME TO SCRAMMY WORLD

CHEAP VIRTUAL TRIPS AND MEMORIES

- SKI AT THE ANTARCTICA from \$ 99 \$
- VACATION AT BOTTOM OF THE OCEAN from \$ 99 \$
- CLIMB MOUNTAINS OF MARS from \$ 99 \$
- BE A CONSTRUCTION WORKER WITH HUGE DRILL from \$ 99 \$

MORE CHEAP TRIPS AND MEMORIES

ADDITIONAL SERVICES

EXTRA SERVICES

SPECIAL SERVICES

MARS

Three different destinations - Venusville, Grand Canal, and Mt. Pyramis. Experience the fattuous 9th planet and discover ancient mysteries.

Read More

ANTARCTICA

Put on your skis on and get ready for some of your life, too more carrying your heavy gear, no fear of bumping into a dead volcano.

Read More

SEALED

Time to wake up for the unique breakfast at bottom of the ocean. For the 4th star hotel, clean water and endless amounts of weed tolex.

Read More

CHEAP SAFETY

JUST ONE CRUNCH AND NO MORE BUGS

THE LAST RESORT CLUB
Responsible. Always.

CLEAN AIR
GAMBLING
MUTANTS

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Cheap trips, no travel. Dreams are our business.

Bad UI makes children cry



Caveat on notification

- Notification is an area where trade-offs may occur:
 - Boy-who-cried-wolf syndrome
 - Sound saves display real estate, but like visual attention grabbers, must not be overdone

Facilitating data entry

- Smith and Mosier (1986) offer five high-level objectives as part of their guidelines for data entry
 - Consistency of data-entry transactions
 - Minimal input actions by user
 - Minimal memory load on users
 - Compatibility of data entry with data display
 - Flexibility for user control of data entry

Principles

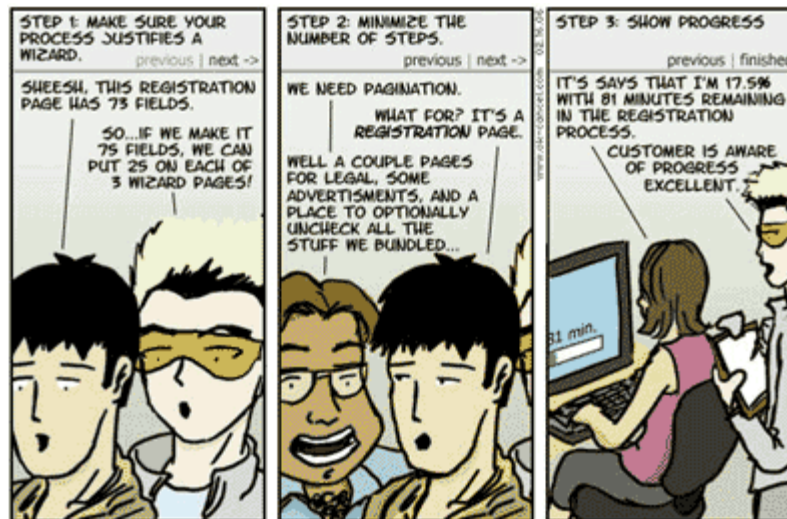
Principles

- More fundamental, widely applicable, and enduring than guidelines
- Need more clarification
- Fundamental principles
 - Determine user's skill levels
 - Identify the tasks
- Five primary interaction styles
- Eight golden rules of interface design
- Prevent errors
- Automation and human control

“Know thy user” Hansen (1971)

- Corollary: If you think you know thy user, think again
- Age, gender, physical and cognitive abilities, education, cultural or ethnic background, training, motivation, goals and personality
- Design goals based on skill level
 - Novice or first-time users
 - Knowledgeable intermittent users
 - Expert frequent users
- Multi-layer designs

Wizards

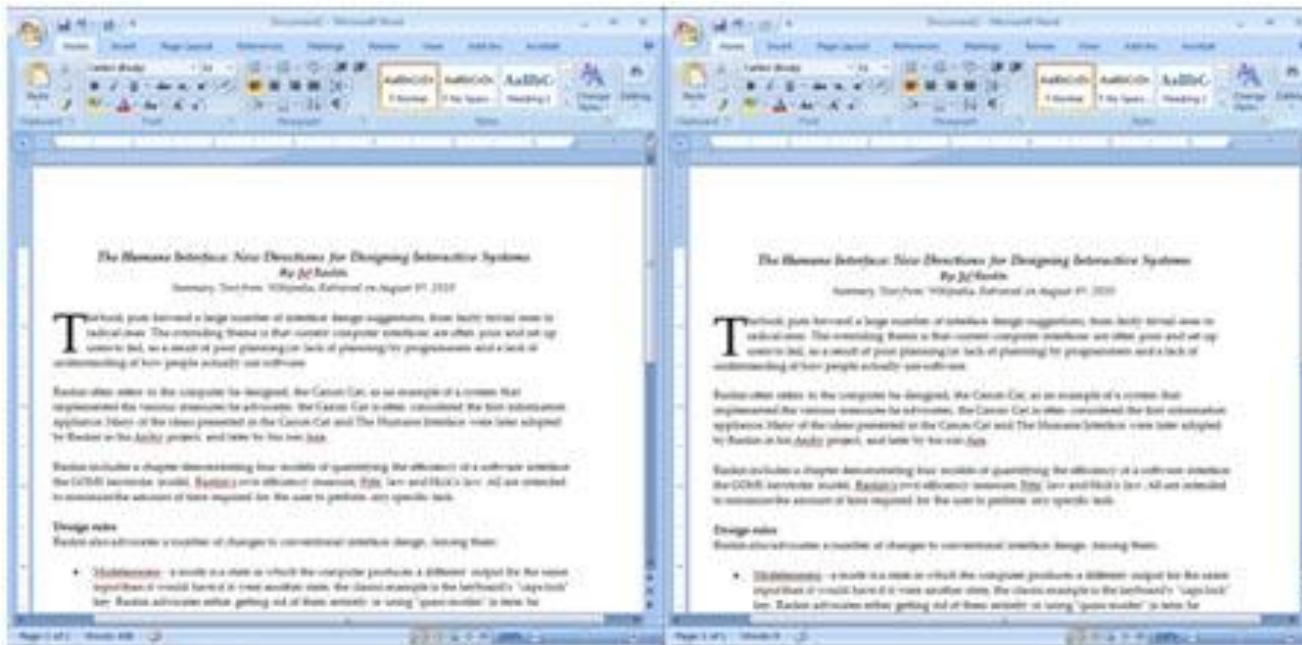


The Wizard of Oz | copyright 2006 Tom chi and Kevin Cheng -

Novice Users



Microsoft word



Accommodating multiple user profiles

- Are we designing for all profiles? Or just a subset?
- Multi-layer, level-structured, or spiral interfaces
 - Novices get training wheels
 - Increased proficiency enables increased functionality
 - Multiple layers include both software and documentation
- Not unlike progressing through a modern video game

Examples

Expert or Novice	Enter:Next
<p>Are you A novice ? An expert?</p> <p>Press ENTER for the route chosen</p> <p>The user may choose one of two possibilities. With the first possibility, the NOVICE, the user will be asked about general details only. However, the system will provide him/her with important guidelines that will suit most of his/her requests. With the second possibility, the EXPERT, the user will be free to provide more details and use his/her expertise to define work conditions. The system will provide him/her with both general and detailed guidelines.</p>	

Know thy domain

- Identify the tasks
- Task Analysis usually involve long hours observing and interviewing users
- Decomposition of high level tasks
- Relative task frequencies

	TASK				
Job title	Query by Patient	Update Data	Query across Patients	Add Relations	Evaluate System
Nurse	0.14	0.11			
Physician	0.06	0.04			
Supervisor	0.01	0.01	0.04		
Appointment personnel	0.26				
Medical-record maintainer	0.07	0.04	0.04	0.01	
Clinical researcher			0.08		
Database programmer			0.02	0.02	0.05

Choose an interaction style

- Direct Manipulation
- Menu selection
- Form fillin
- Command language
- Natural language

Command Language

```

Telnet daimi.au.dk

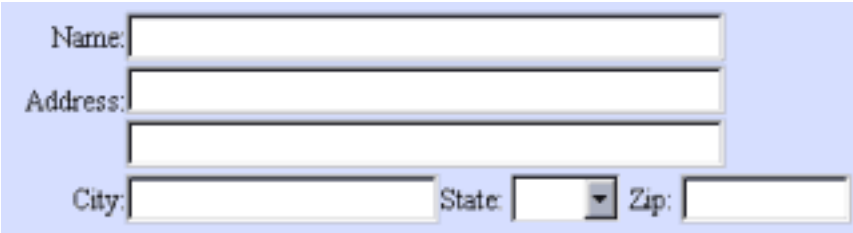
Red Hat Linux release 7.1 (Seawolf)
Kernel 2.4.9-31smp on a 2-processor i686
login: madss
Password:

*****
* Welcome to the Daimi mailserver. In most cases it will be more appropriate *
* if you log onto the host alias                                           *
*                                                                           *
*               fresh-horse.daimi.au.dk                                   *
*                                                                           *
* which is also reachable from outside the firewall.                       *
*****

Trying find a remote host
Trying to guess display
DISPLAY is dhcp-11-21-??:0
[madss@daimi:~]$ ls -al
total 100
drwxr-xr-x  3 madss  users      4096 Apr 21 13:20 .
drwxr-xr-x 37 root   root       4096 Apr 21 03:35 ..
-rw-r--r--  1 madss  users      4517 Feb 12 14:59 .Xdefaults
-rw-r--r--  1 madss  users        68 Apr 21 15:35 .bash_history
-r--r--r--  1 madss  users     3671 Feb 12 14:59 .bash_logout
-r--r--r--  1 madss  users    10540 Feb 12 14:59 .bash_profile
-r--r--r--  1 madss  users     5004 Feb 12 14:59 .bashrc
drwxr-xr-x  8 madss  users     4096 Apr 21 15:35 .daimi-setup
-r--r--r--  1 madss  users     5209 Feb 12 14:59 .emacs
-r--r--r--  1 madss  users     1987 Feb 12 14:59 .fvwmrc
-r-xr-xr-x  1 madss  users     1491 Feb 12 14:59 .gnomerc
-rw-r--r--  1 madss  users        46 Feb 12 14:59 .gtkrc
-r--r--r--  1 madss  users         0 Feb 12 14:59 .hushlogin
-rw-r--r--  1 madss  users       204 Feb 12 14:59 .inputrc
-r--r--r--  1 madss  users    11024 Feb 12 14:59 .login
-r--r--r--  1 madss  users     3591 Feb 12 14:59 .logout
-r--r--r--  1 madss  users     4539 Feb 12 14:59 .tcshrc
-r-xr-xr-x  1 madss  users     4018 Feb 12 14:59 .xinitrc
-rw-r--r--  1 madss  users         0 Apr 21 13:20 my-important-file
-rw-r--r--  1 madss  users         0 Apr 21 13:20 my-very-important-file.doc
[madss@daimi:~]$

```

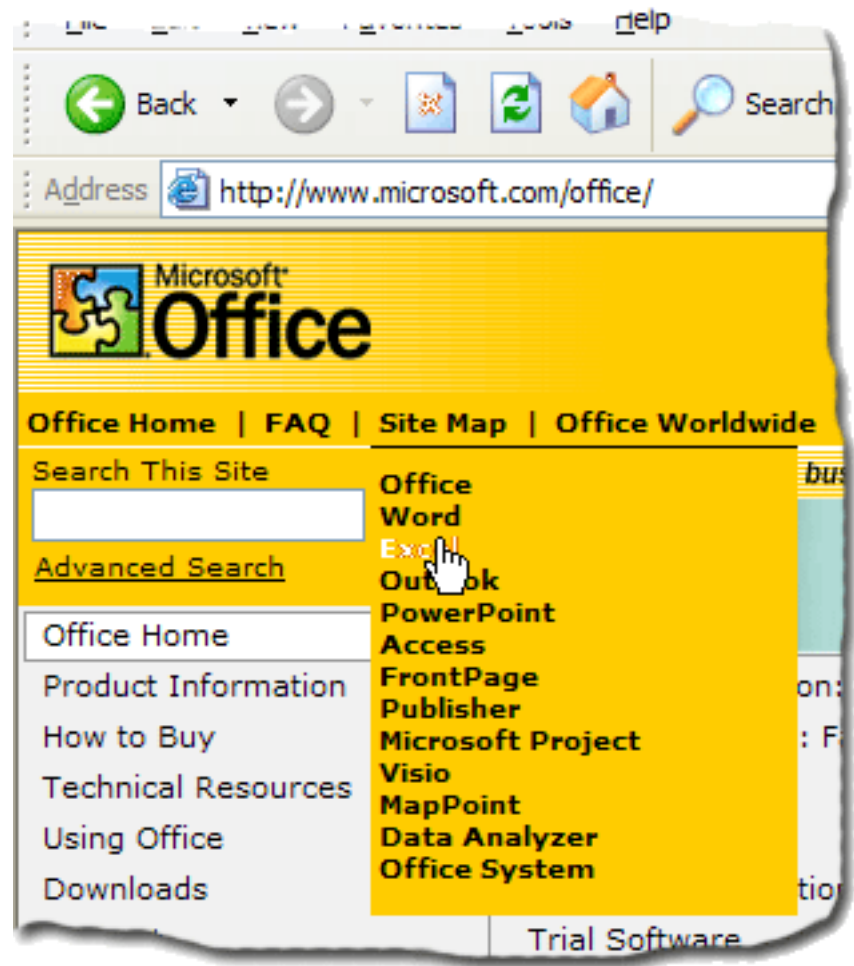
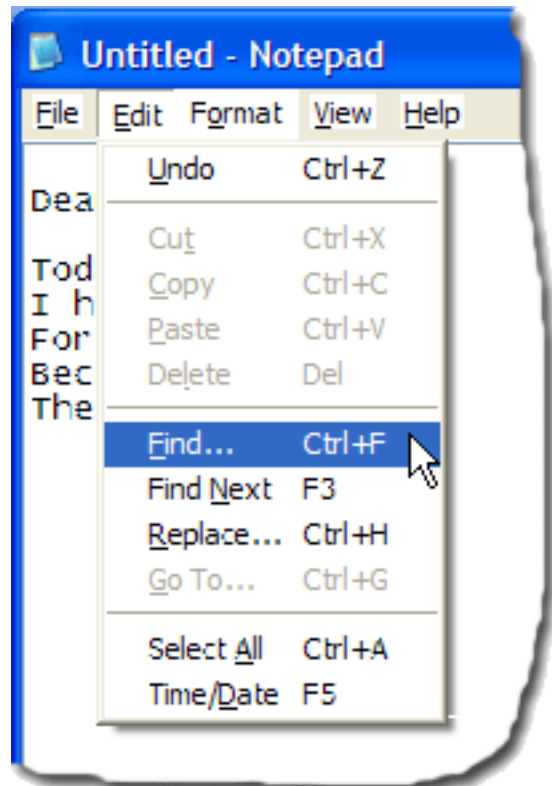
Form Fillin



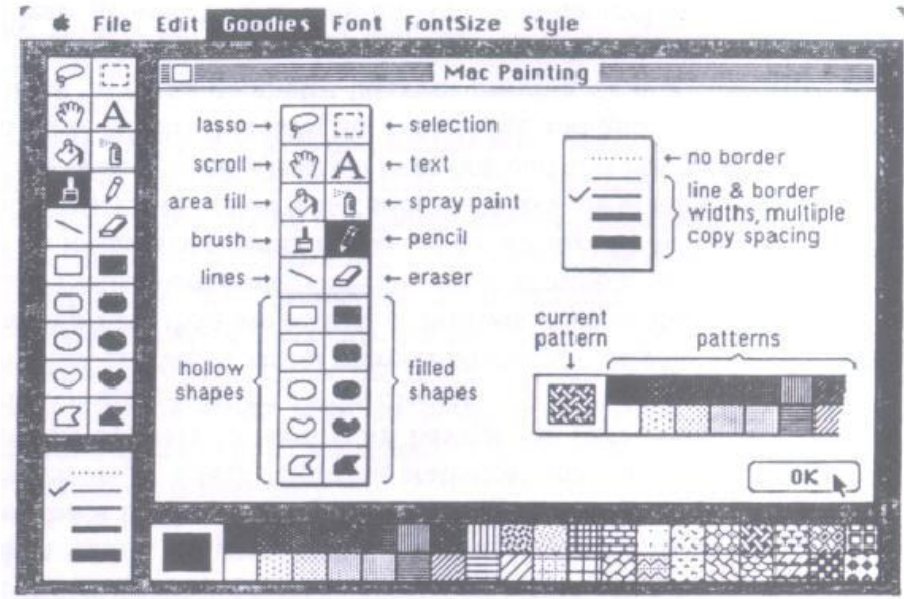
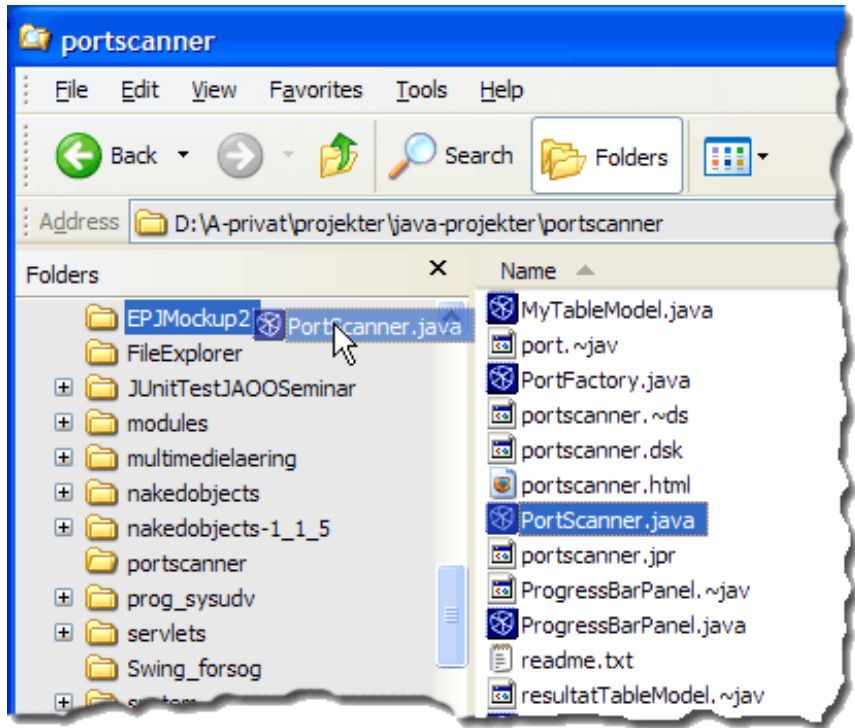
A form with a light blue background. It contains five input fields: a single-line text box for 'Name', a two-line text box for 'Address', a single-line text box for 'City', a dropdown menu for 'State', and a single-line text box for 'Zip'.

Name:	<input type="text"/>
Address:	<input type="text"/> <input type="text"/>
City:	<input type="text"/>
State:	<input type="text"/>
Zip:	<input type="text"/>

Menu Selection



Direct Manipulation



Natural Language

