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

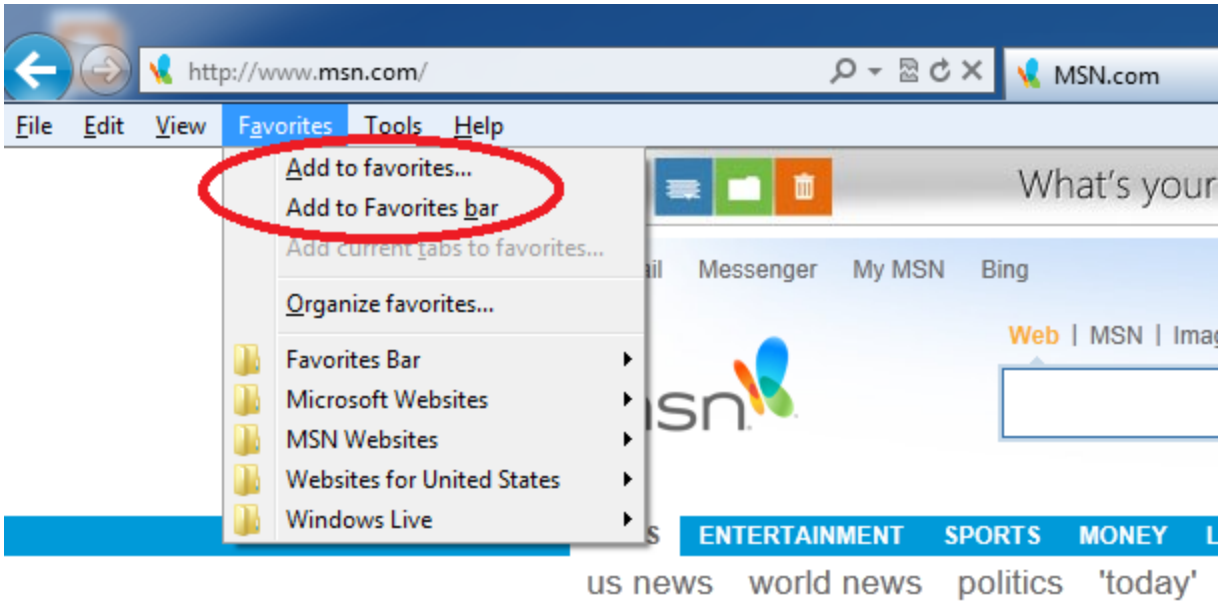
W3C guidelines for accessibility

- 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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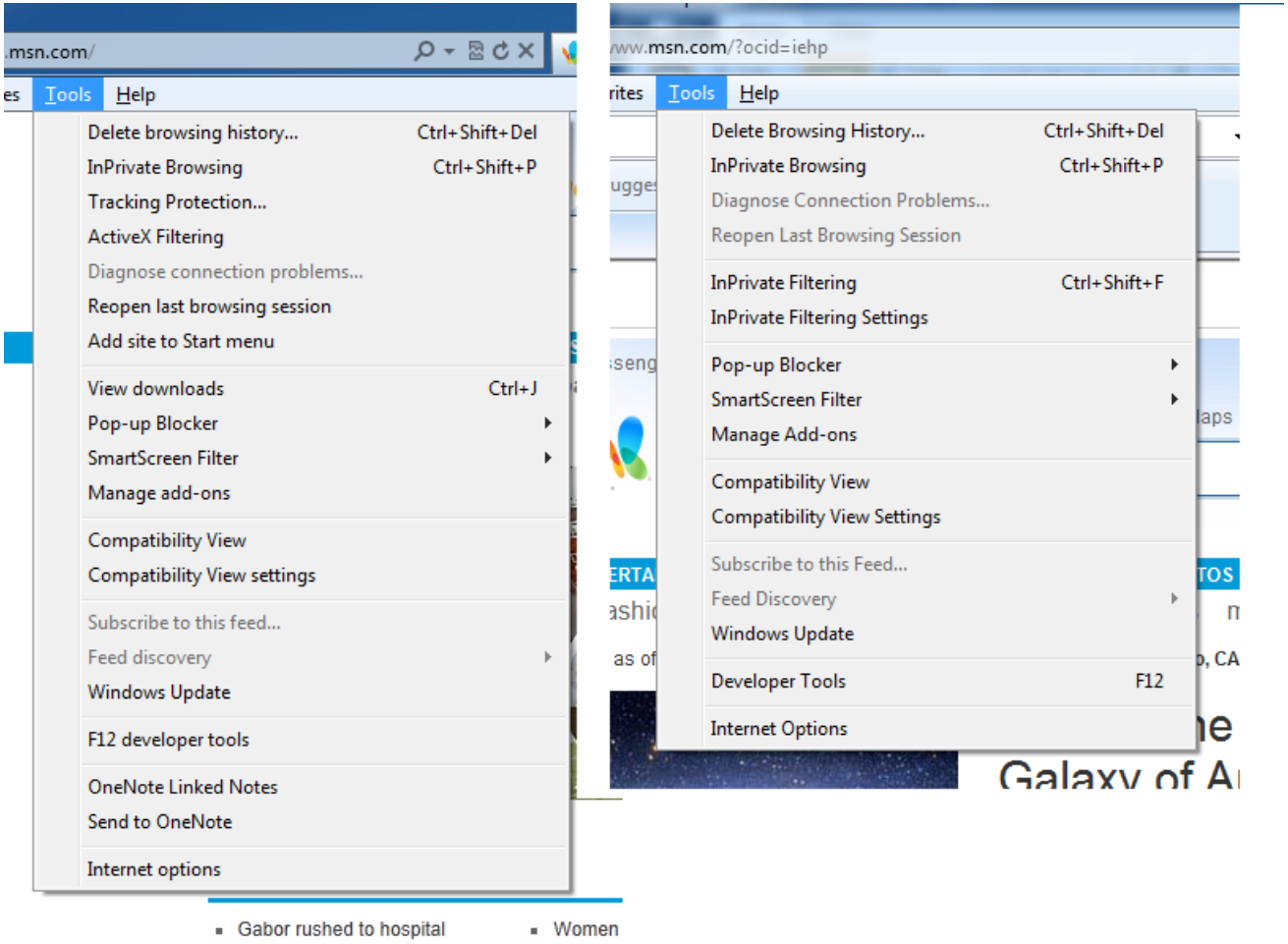

.msn.com/
Tools
Help
Delete browsing history... Ctrl+Shift+Del
InPrivate Browsing Ctrl+Shift+P
Tracking Protection...
ActiveX Filtering
Diagnose connection problems...
Reopen last browsing session
Add site to Start menu
View downloads Ctrl+J
Pop-up Blocker
SmartScreen Filter
Manage add-ons
Compatibility View
Compatibility View settings
Subscribe to this feed...
Feed discovery
Windows Update
F12 developer tools
OneNote Linked Notes
Send to OneNote
Internet options
www.msn.com/?ocid=iehp
Tools
Help
Delete Browsing History... Ctrl+Shift+Del
InPrivate Browsing Ctrl+Shift+P
Diagnose Connection Problems...
Reopen Last Browsing Session
InPrivate Filtering Ctrl+Shift+F
InPrivate Filtering Settings
Pop-up Blocker
SmartScreen Filter
Manage Add-ons
Compatibility View
Compatibility View Settings
Subscribe to this Feed...
Feed Discovery
Windows Update
Developer Tools F12
Internet Options
Gabor rushed to hospital
Women

Entering phone numbers

Phone:

Phone: ( ) -

Getting the user's attention

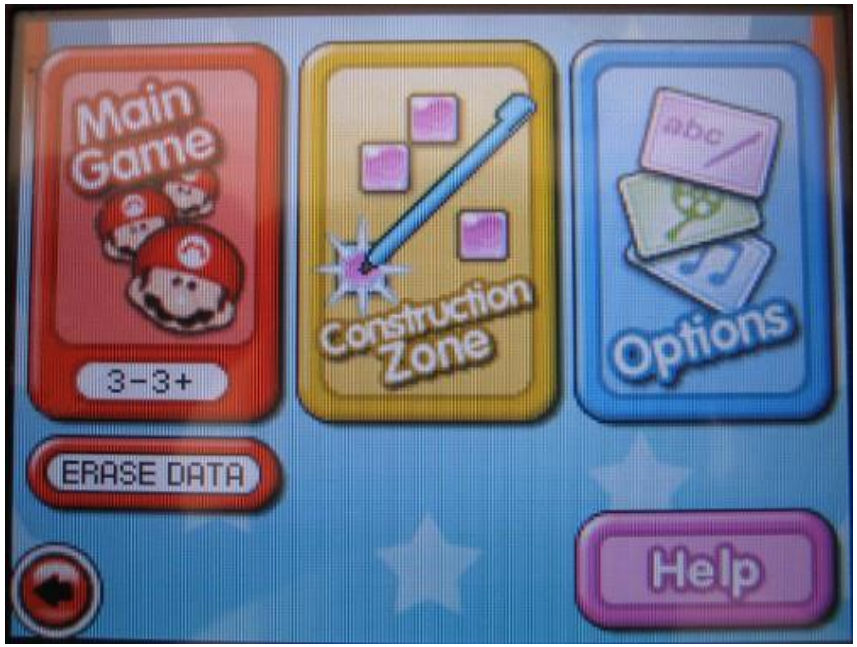
- Wickens and Hollands (2000) offer these techniques for getting the user's attention:
  - Intensity
  - Marking
  - Size
  - Choice of fonts
  - Inverse video
  - Blinking
  - Color
  - Audio

Use of color

CAUSECAST
Feedback
Join Now
Login
Search
VIDEOS
ORGANIZATIONS
LEADERS
MEMBERS
WHO WE ARE
DONATE
Explore Causes:
ANIMALS
ARTS
COMMUNITY
ENVIRONMENT
HEALTH
HUMAN RIGHTS
YOUTH
LATEST VIDEOS
Jack Healey on Universal Declara...
Know Your Rights: Univ. Dec. of...
Aung San Suu Kyi - Freedom Song...
Will Ferrell | Human Rights Month
Jack Healey on Universal Declaration of Human Rights
Get Involved
CAUSECAST is a place to explore issues while helping you connect with a community of people wanting to make a difference. Join Now or Log In.
CAUSECONNECT
Email Address
Subscribe
Featured News
Causecast Activity

Use of colors and symmetry

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

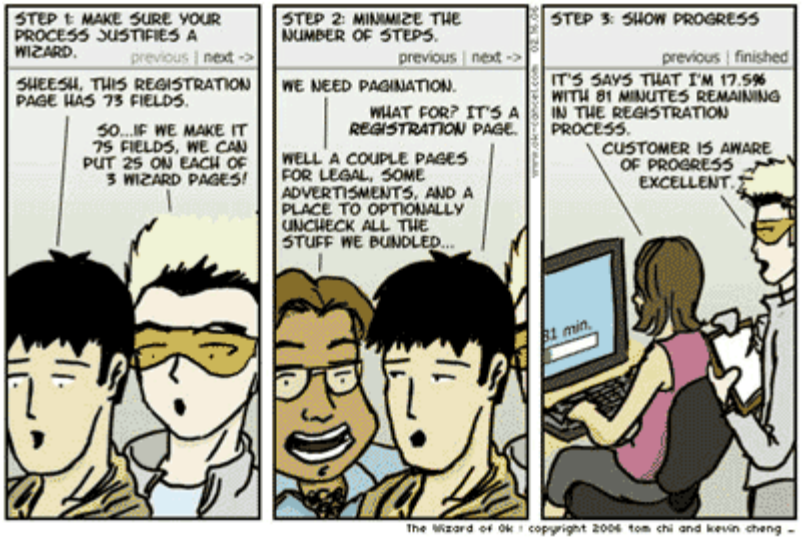
Principles

- 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

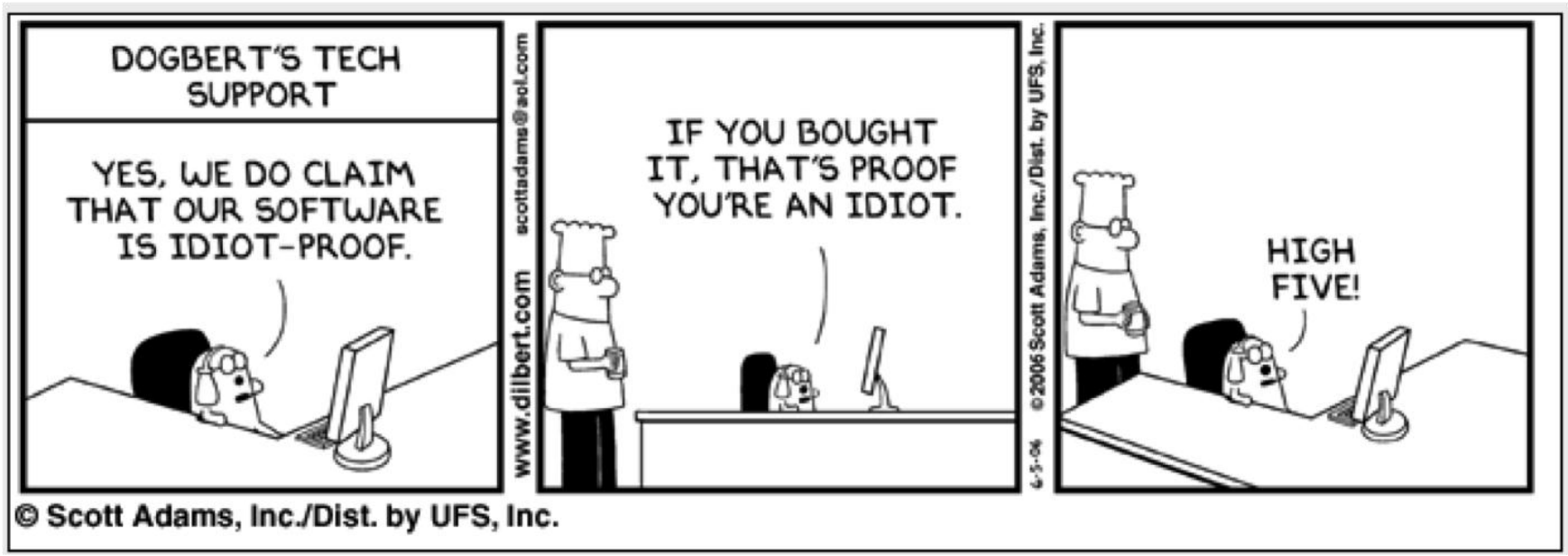
“Know thy user” Hansen (1971)

- 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

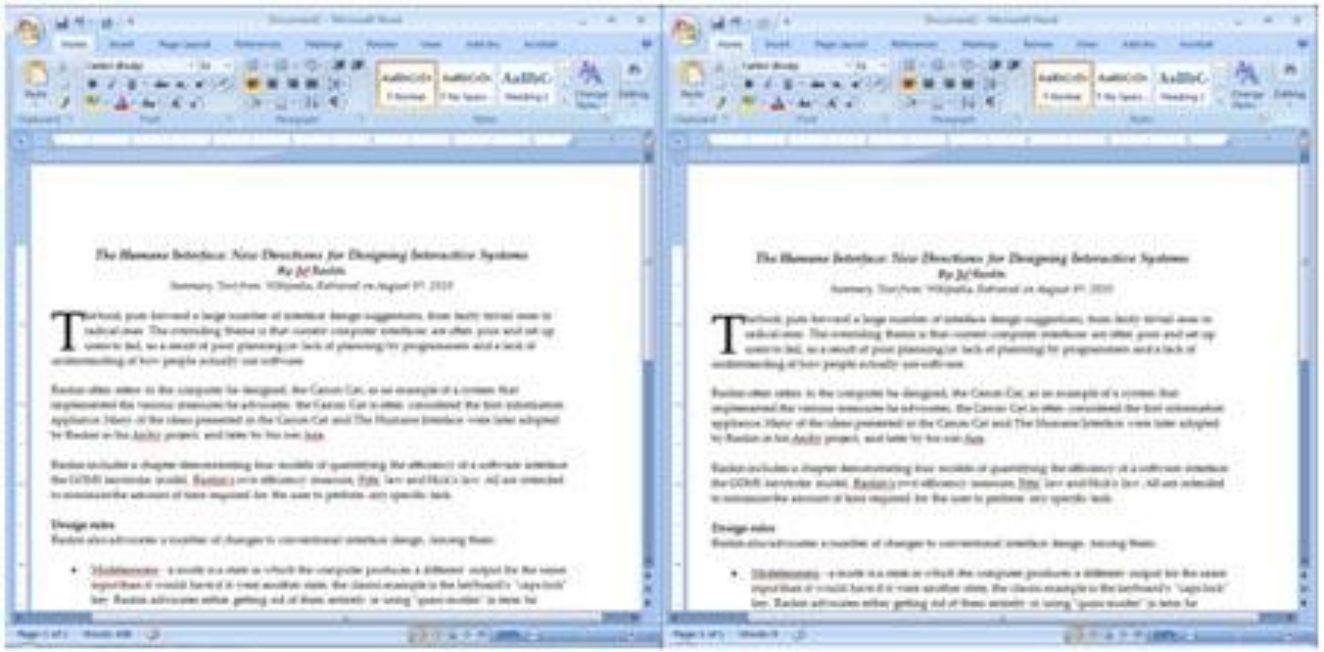
Wizards


STEP 1: MAKE SURE YOUR PROCESS JUSTIFIES A WIZARD.
previous | next ->
SHEESH, THIS REGISTRATION PAGE HAS 73 FIELDS.
SO...IF WE MAKE IT 75 FIELDS, WE CAN PUT 25 ON EACH OF 3 WIZARD PAGES!
STEP 2: MINIMIZE THE NUMBER OF STEPS.
previous | next ->
WE NEED PAGINATION.
WHAT FOR? IT'S A REGISTRATION PAGE.
WELL A COUPLE PAGES FOR LEGAL, SOME ADVERTISMENTS, AND A PLACE TO OPTIONALLY UNCHECK ALL THE STUFF WE BUNDLED...
STEP 3: SHOW PROGRESS
previous | finished
IT'S SAYS THAT I'M 17.5% WITH 81 MINUTES REMAINING IN THE REGISTRATION PROCESS.
CUSTOMER IS AWARE OF PROGRESS
EXCELLENT.
81 min.
The Wizard of Ok : copyright 2006 tom chi and kevin cheng _

Novice Users



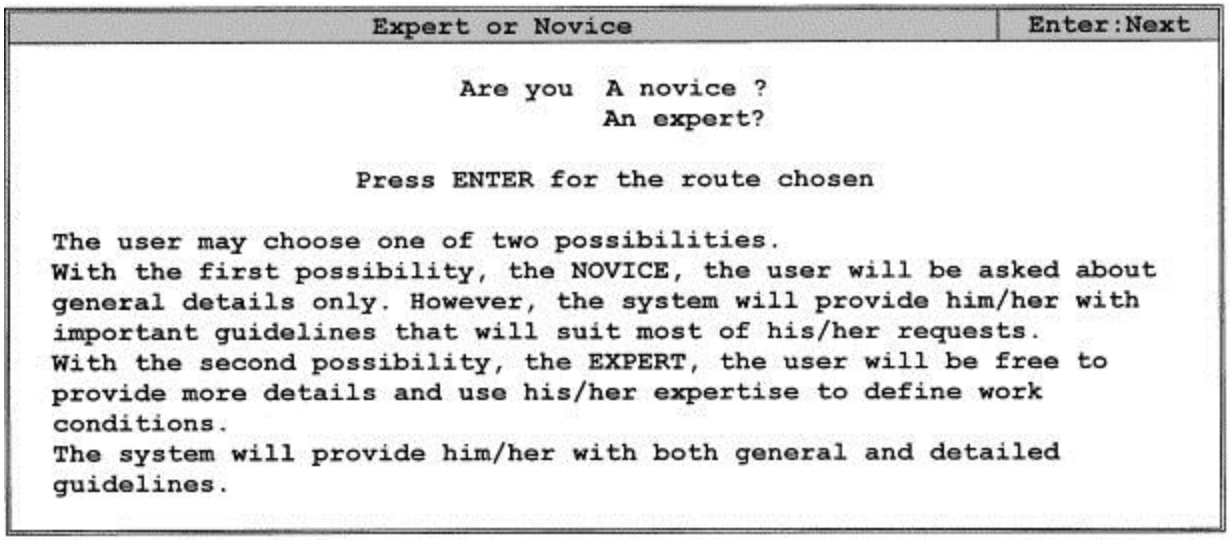
Microsoft word



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
Are you A novice ?
An expert?
Press ENTER for the route chosen
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.

Know thy domain

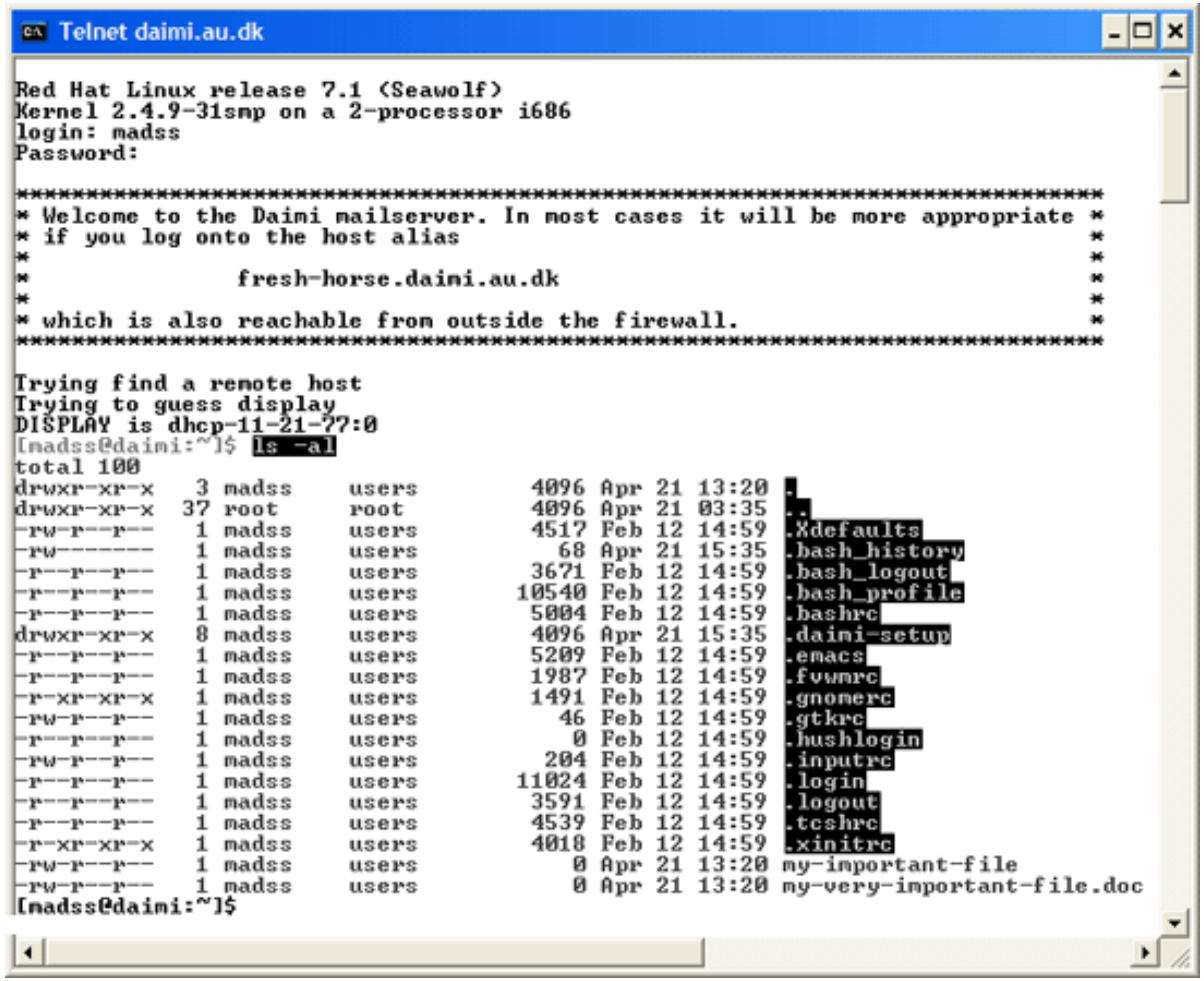
- Identify the tasks
- Task Analysis usually involve long hours observing and interviewing users
- Decomposition of high level tasks
- Relative task frequencies

	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

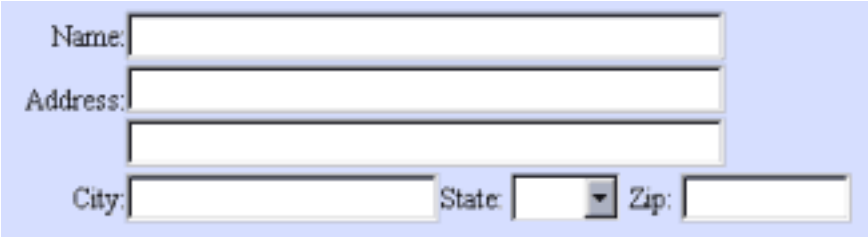
Choose an interaction style

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

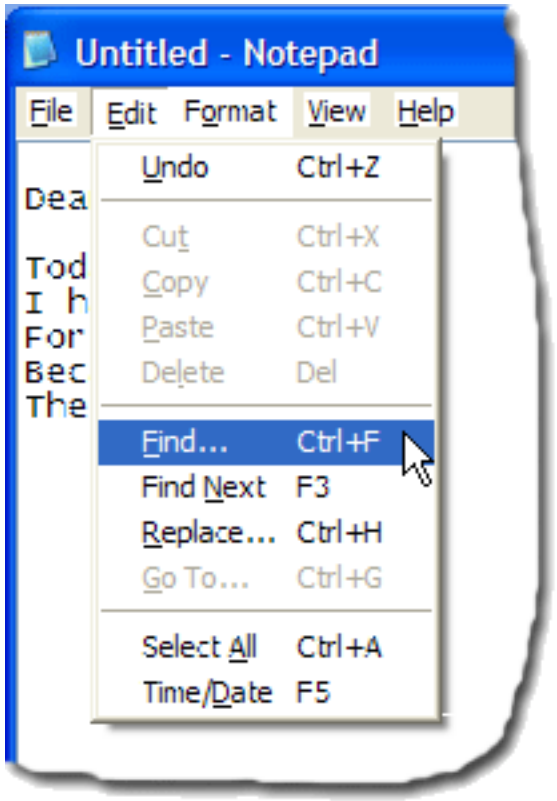
Command Language

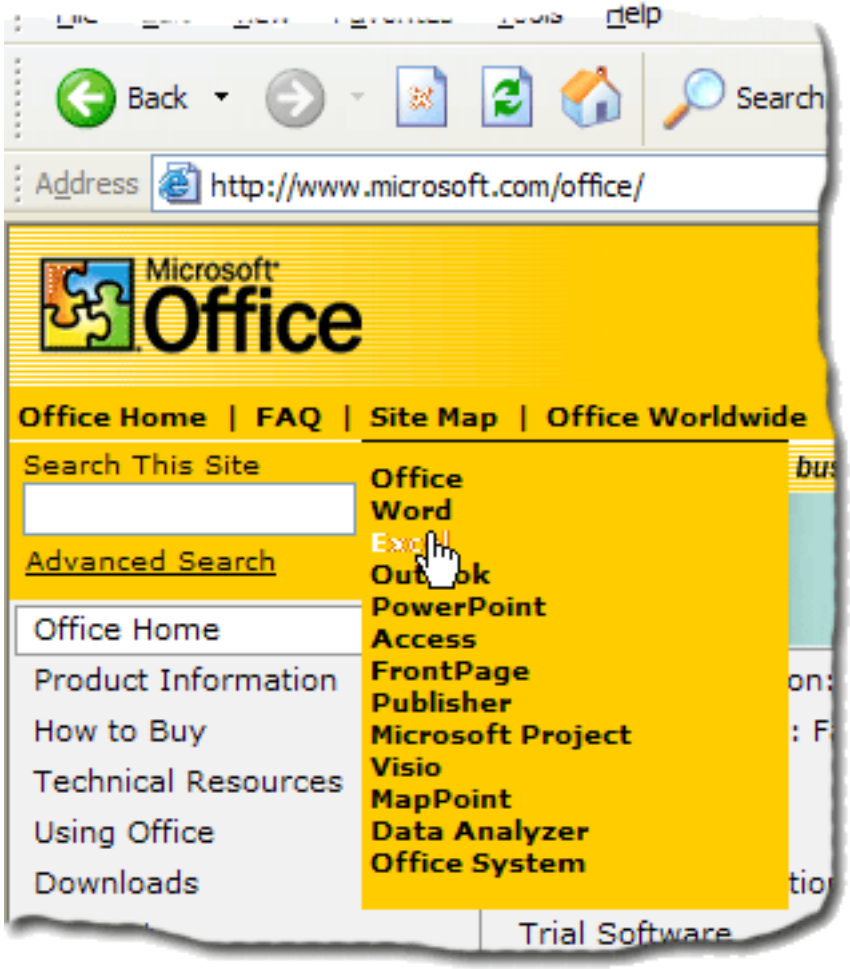


Form Fillin

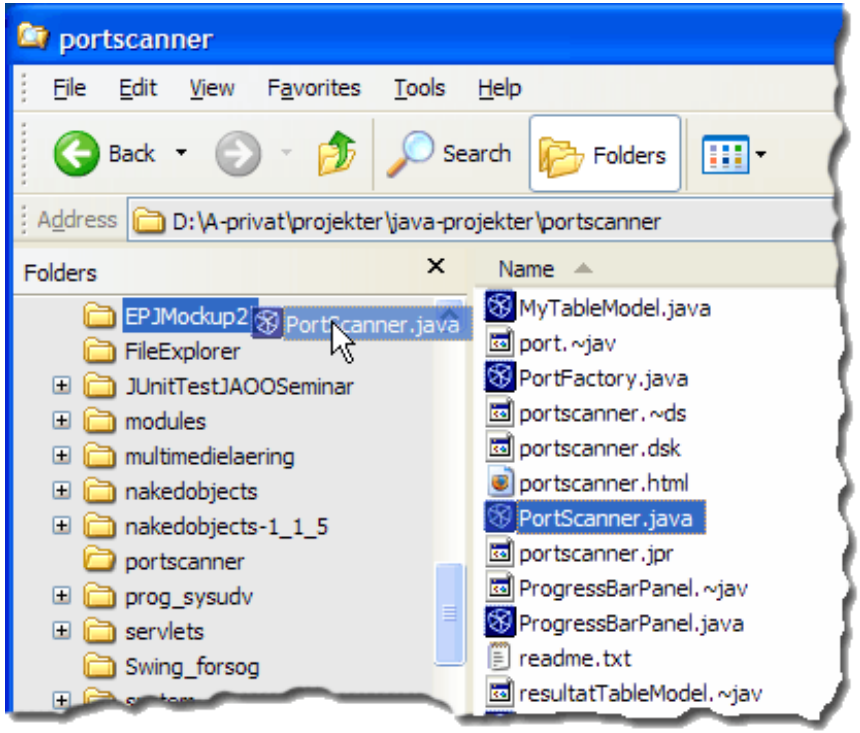


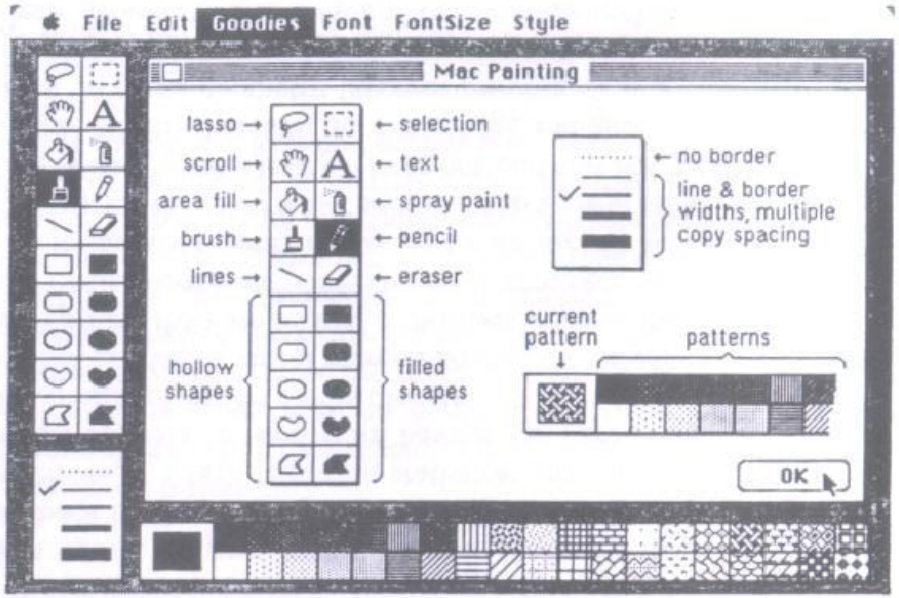
Menu Selection





Direct Manipulation





Natural Language