



Design Guidelines: Windows

- Computer users need to consult multiple sources rapidly.
- They require the adoption of multiple-window display strategy.



Design Challenge for Multiple-Window Strategy

- Offer users sufficient information and flexibility to accomplish tasks.
- Minimize disruption by reducing
 - Window housekeeping actions.
 - Distracting clutter.
 - Eye-head movement.



Window Housekeeping

- Manipulation of windows
 - Window opening and closing
 - Changing size of window
- Arrangement of the information on the multiple windows.
- Scrolling activity to bring necessary information into view.



Window vs Full-Screen System

- Window housekeeping activities
 - Relate to the interface only.
 - Are not directly related to the user's task.
- Task-completion times.
 - Longer for windowed system if time for housekeeping activities are included.
 - Shorter if the time is not included.
- Fewer errors are made in window systems.



Direct Manipulation of Windows

- Direct manipulation strategy is applied to window due to its visual nature.
- Direct manipulation actions on windows
 - Stretching.
 - Moving.
 - Scrolling
 - Minimizing (Maximizing)



Definition of Windows

- A rectangular area containing a software application or a document file.
- Multiple windows can be opened at the same time on the desktop.
- Actions on windows
 - Opening and closing.
 - Moving and resizing.
 - Shrinking to icons and enlarging to fill the entire desktop.



Individual Window Design (Appearance)

- Essential features on windows
 - Titles
 - Borders or frames
 - Scroll bars



Individual Window Design: Titles

- Window title usually appears at top center or top left.
- Change of shading or color of title bars is used to highlight the current active window.
- When a window is minimized, its title is usually shown on the right or below the icon.



Individual Window Design: Borders or Frames

- May be one or more pixels thick.
- Functions
 - To accommodate selection for resizing.
 - To distinguish windows from the background.
- Border thickness should be a compromise between
 - Functionalities included on borders.
 - Pixels it takes up which can otherwise be assigned to window contents



Individual Window Design: Scroll Bars

- A window is small compared to its contents.
- Method is required to move contents over window.
- Basic operations of scroll bar
 - Move up or down and left or right.
- Require support for incremental and destination actions.



Individual Window Design: Scroll Bars (cont'd)

- Incremental action
 - Up and down arrows to produce a small motion.
 - Important to permit smooth scrolling when arrow is selected continuously.
 - Permit finer control compared with direct dragging of scroll box or repeated clicking.



Individual Window Design: Scroll Bars

- Destination action.
 - Direct dragging of scroll box to the desired destination.
 - Clicking above or below the scroll box.
 - Clicking on the double arrows for page turning.



Individual Window Design: Scroll Bars (cont'd)

- Proposed design for scroll bars
 - Page number display on scroll box
 - Fixed markers on scroll bar to show document section boundaries.
 - User selected marker on scroll bar to allow direct jump to specified locations.



Individual Window Design (Actions)

- Window interface actions include
 - Open action
 - Open place and size
 - Close action
 - Resize action
 - Move action
 - Bring forward or activation



Individual Window Design: Open Action

- Windows can be opened in a number of ways
 - Double click on icon
 - Single click on taskbar button
 - Typed command
 - Menu selection
 - Voice command



Individual Window Design: Open Action (cont'd)

- Open action is accompanied by various different types of feedback.
 - Simply having the window appear.
 - Animated series of growing boxes emanating from icon.
 - Zoom lines going to the corners of the window.
 - 3-D flips or spins from icon to full window.



Individual Window Design: Open Place and Size

- Important to choose the initial position for window opening.
- Adopt the most-recently-used place and size approach.
- Choose initial window position which is
 - Close to the current focus to limit eye motion.
 - Far enough away to avoid obscuring the current focus.



Individual Window Design: Close Action

- Windows are closed by clicking on a specific icon on the title bar.
- Closing animation is symmetric with the open action
 - No animation.
 - Animated series of shrinking boxes moving toward icon.
 - 3-D spins and flips of windows as it shrinks to an icon.



Individual Window Design: Resize Action

- Different approaches in resizing windows
 - Sizing from a size box at window corner (Macintosh)
 - Sizing by all four corners and by each of the four sides (Windows)
- Need to define the lower and upper bounds of window size.



Individual Window Design: Resize Action (cont'd)

- Important questions to consider when resizing windows.
 - Reformatting of text by changing font size.
 - Reformatting of graphics to ensure that the whole object is visible.
 - Reformatting of icons to ensure that all icons are visible.



Individual Window Design: Move Action

- Use title bar as handle for move action.
- An outline of the window is dragged until user is satisfied with the placement.
- Systems with fast display rates can show the full window as it is dragged.
- Some systems permit portions of a window to be moved beyond the screen border.



Individual Window Design: Bring Forward or Activation

- To bring forward and activate a totally or partially obscured window.
- Approaches include
 - Clicking any part of window.
 - Clicking the window title bar.
 - Simply moving the cursor into a window.
 - Select one from a list of open windows.



Individual Window Design: Bring Forward or Activation (cont'd)

- Activation may be shown as
 - Changes in color or thickness of title bar.
 - Changes in color of window title.
 - Changes in text brightness.



Multiple Window Design

- Approaches to provide multiple sources of information
 - Multiple monitors.
 - Rapid display flipping
 - Split displays.
 - Tiled windows.
 - Overlapped windows
 - Cascaded windows



Multiple Window Design: Multiple Monitors

- Used when windows on a single display cannot accommodate all required information.
- Small number of monitors with multiple windows is preferred to prevent distraction of eye movement across the gaps.



Multiple Window Design: Rapid Display Flipping

- Flipping among displays can be controlled automatically or by users.
- Useful in public access information systems
 - Display of arrival and departure information in airports.



Multiple Window Design: Split Displays

- Windows are split into two or more parts to display related information.
- The splitting could be made horizontally or vertically.
- The only way to display multiple sources of information for early full-screen OS.

Multiple Window Design: Split Displays

Navigation sidebar (left pane):

- 搜索文档
- 标题 | 页面 | 结果
- RNA-binding residues prediction using structur...
Huizhu Ren1, Ying Shen2, 36
- Abstract
 - Background
 - Results
 - Conclusions
- Keywords
- Background
- Results
 - Experimental results
 - Comparison with other methods
- Conclusions
- Methods
 - Datasets
 - Identification of protein surface residues, sur...
 - Shape descriptor for protein residues
 - Template patches construction
 - Structural similarity between surface patches
 - Clustering template patches
 - The new structural features construction
 - Other features used for RNA-binding residu...
 - RNA-binding residue prediction using ense...
 - Methods for prediction performance evaluat...
- Authors' contributions
- Acknowledgements
- References
- Figures
 - Figure 1 - Hierarchical clustering on 3-aa an...
 - Figure 2 - Cluster 1 of 3-aa template patches
 - Figure 3 - Cluster 4 of 3-aa template patches
 - Figure 4 - Examples of RNA-binding residue...
- Tables
 - Table 1 - Proteins in the training set
 - Table 2 - Performance comparison
- Additional files

Main content (right pane):

531 **Table 2. Performance comparison**
532 Comparison of the prediction performances between our method and other four
533 methods.

- 23 -

Method	MCC	AUC
Our method	0.4263	0.8263
DRNA	0.4240	NA
<u>BindN+</u>	0.4182	0.8243
<u>PPRInt</u>	0.3392	0.7819
<u>RNABindR</u>	0.3355	0.8074

534 **Additional files**
535 **Additional file 1 – Clustering results of 2-aa template patches**
536 The file contains structures of 2-aa template patches (including their PDB IDs, names



Multiple Window Design: Tiled Windows.

- No overlapping between the multiple windows.
- Used in early window systems to avoid keeping track of window redrawing.
- All windows are visible at the same time.
- Position and size of windows are restricted.

Multiple Window Design: Tiled Windows.

```
:command ("php" "-l" "-d" "error_reporting=E_ALL" "-d" "display_errors=1"
"-d" "log_errors=0" source)

:error-patterns
((error line-start (or "Parse" "Fatal" "syntax") " error" (any ":" ";" " " "
(message) " in " (file-name) " on line " line line-end))
:modes (php-mode php+-mode web-mode))

(setq c-basic-offset 2)
;;(setq c-default-style "psr2")
(add-hook 'web-mode-hook (lambda ()
;;(flycheck-select-checker 'my-php)
(flycheck-mode t)))
(add-hook 'after-init-hook #'global-flycheck-mode)
(setq flycheck-phpmd-rulesets ('("codesize" "controversial" "design" "naming" "unusedcode"))
? (setq flycheck-phpcs-standard "Squiz"))

? ..hooks_for_mu Emacs
;; invented July 16 2014

? (eval-after-load "highlight-symbol-mode"
? (add-hook 'prog-mode-hook (setq highlight-symbol-mode
t)))

;;(add-hook 'prog-mode-hook 'hl-line-toggle-when-idle)

(eval-after-load "hl-sexp-mode"
(add-hook 'prog-mode-hook 'hl-sexp-mode))

(eval-after-load "hl-line-mode"
(prog)
(add-hook 'dired-mode-hook 'hl-line-mode)
(add-hook 'ibuffer-mode-hook 'hl-line-mode)
(add-hook 'package-menu-mode-hook 'hl-line-mode)
(add-hook 'recentf-mode-hook 'hl-line-mode)
(add-hook 'gnus-group-mode-hook 'hl-line-mode)
(add-hook 'gnus-summary-mode-hook 'hl-line-mode)))

(defun setup-lisp-minor-modes ()
[] (smartparens-mode)
;;(highlight-quoted-mode)
)

(add-hook 'emacs-lisp-mode-hook 'setup-lisp-minor-modes)
(add-hook 'eval-expression-minibuffer-setup-hook
'setup-lisp-minor-modes)
(add-hook 'ielm-mode-hook 'setup-lisp-minor-modes)
(add-hook 'lisp-mode-hook 'setup-lisp-minor-modes)
(add-hook 'lisp-interaction-mode-hook
'setup-lisp-minor-modes)
(add-hook 'scheme-mode-hook 'setup-lisp-minor-modes)
(add-hook 'clojure-mode-hook 'setup-lisp-minor-modes)

(require 'adjust-parens)
(eval-after-load "adjust-parens" (lambda ()
(add-hook 'emacs-lisp-mode-hook 'adjust-parens-mode)
(add-hook 'clojure-mode-hook 'adjust-parens-mode)))

(add-hook 'prog-mode-hook
'electric-indent-mode)
;;(add-hook 'prog-mode-hook
'servicing)
;;(hide-dos-eol)

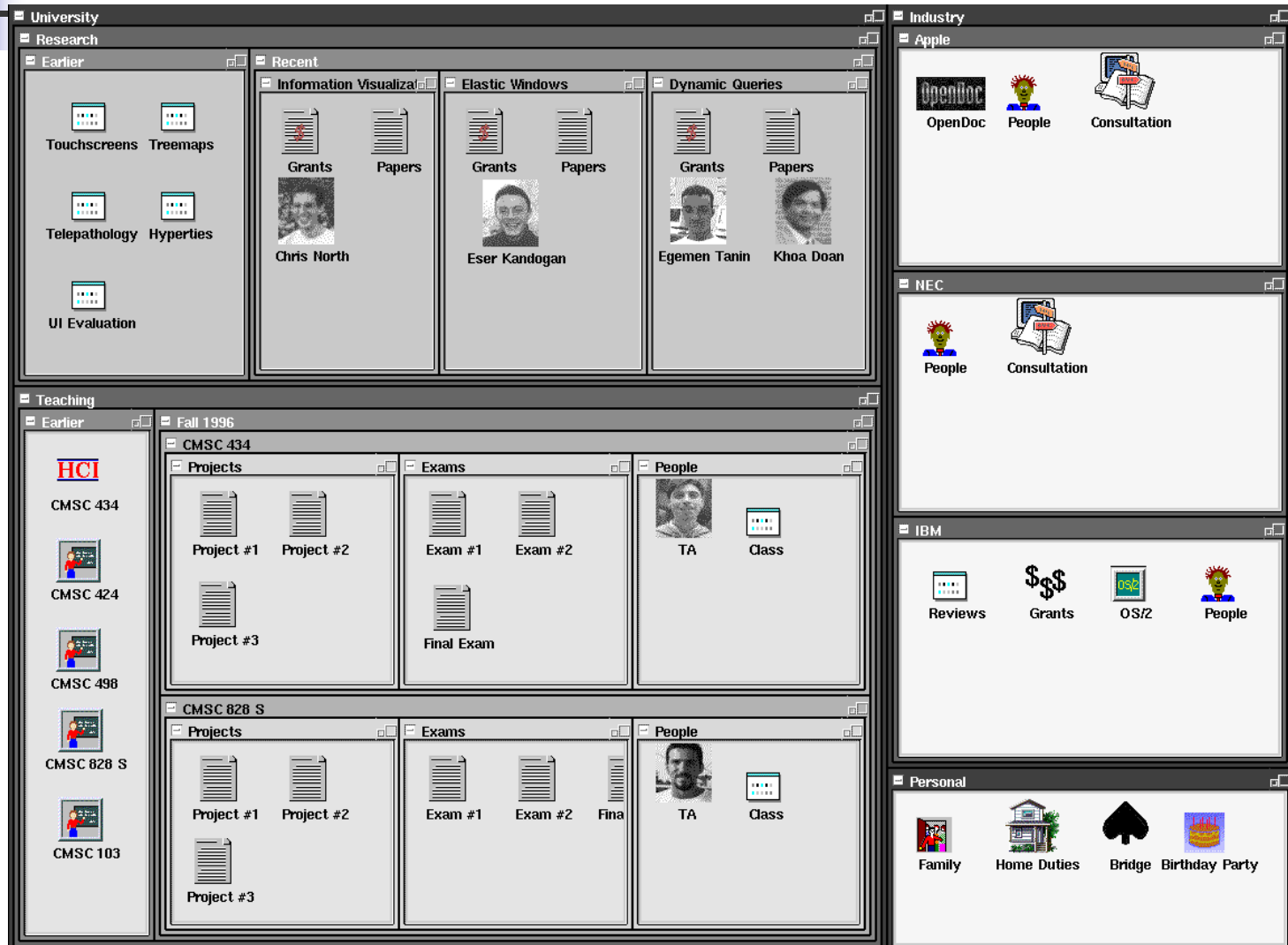
(require 'adaptive-wrap)
(eval-after-load "adaptive-wrap" (lambda ()
(add-hook 'prog-mode-hook
'adaptive-wrap-prefix-mode)))

(add-hook 'log-4j-mode-hook
'turn-on-auto-revert-tail-mode)

U:(Unix)--- init.el Bot of 9.3k (324,2) Hg-*** failed to import extension ftp: No module named ftp^J17
drwxrwxrwx 1 TrustedInstaller TrustedInstaller 0 2009-07-14 diagnostics
drwxrwxrwx 1 TrustedInstaller TrustedInstaller 24576 2012-01-12 ehome
drwxrwxrwx 1 TrustedInstaller TrustedInstaller 4096 2010-11-21 en-US
-rwxrwxrwx 2 TrustedInstaller TrustedInstaller 2871808 2011-02-25 explorer.exe
-rwxrwxrwx 2 TrustedInstaller TrustedInstaller 15360 2009-07-13 @vupdate.exe
-rwxrwxrwx 2 TrustedInstaller TrustedInstaller 16896 2009-07-13 hh.exe
-rw-rw-rw- 1 majcw Domain Users 71875 2012-11-16 iis7.log
drwxrwxrwx 1 TrustedInstaller TrustedInstaller 327680 07-30 12:10 inf
-rw-rw-rw- 2 TrustedInstaller TrustedInstaller 43131 2009-07-13 mib.bin
-rw-rw-rw- 1 SYSTEM SYSTEM 1405 2009-06-10 msdfmap.ini
drwxrwxrwx 4 TrustedInstaller TrustedInstaller 193536 2009-07-13 notepad.exe
-rw-rw-rw- 1 Administrators Domain Users 14 2014-01-15 outlook_data.dat
drwxrwxrwx 1 Administrators Domain Users 0 2013-09-11 pss
-rwxrwxrwx 2 TrustedInstaller TrustedInstaller 398336 2009-07-13 rgedit.exe
drwxrwxrwx 1 TrustedInstaller TrustedInstaller 0 2014-03-02 rescache
drwxrwxrwx 1 TrustedInstaller TrustedInstaller 0 2009-07-14 schemas
drwxrwxrwx 1 TrustedInstaller TrustedInstaller 0 2010-11-21 security
drwxrwxrwx 1 TrustedInstaller TrustedInstaller 4096 2011-09-08 servicing
-rw-rw-rw- 1 SYSTEM SYSTEM 50286 10-13 15:28 setupact.log
-rw-rw-rw- 1 SYSTEM SYSTEM 0 2009-07-14 setuperr.log
drwxrwxrwx 2 TrustedInstaller TrustedInstaller 67072 2012-02-11 splwow64.exe
drwxrwxrwx 1 TrustedInstaller TrustedInstaller 0 2009-07-13 system
-rw-rw-rw- 1 SYSTEM SYSTEM 219 2009-06-10 system.ini
drwxrwxrwx 1 Administrators Administrators 0 2009-07-13 tracing
-rw-rw-rw- 2 TrustedInstaller TrustedInstaller 94784 2009-06-10 twain.dll
drwxrwxrwx 1 TrustedInstaller TrustedInstaller 0 2009-07-14 twain_32

U:%%- Windows 67% of 8.2k (74,70) (Dired by name co. v1 Wrap) 12:28PM 0.12
-(Unix)--- setup-hooks.el Top of 2.2k (22,0) Hg-*** fa
```

Multiple Window Design: Tiled Windows.

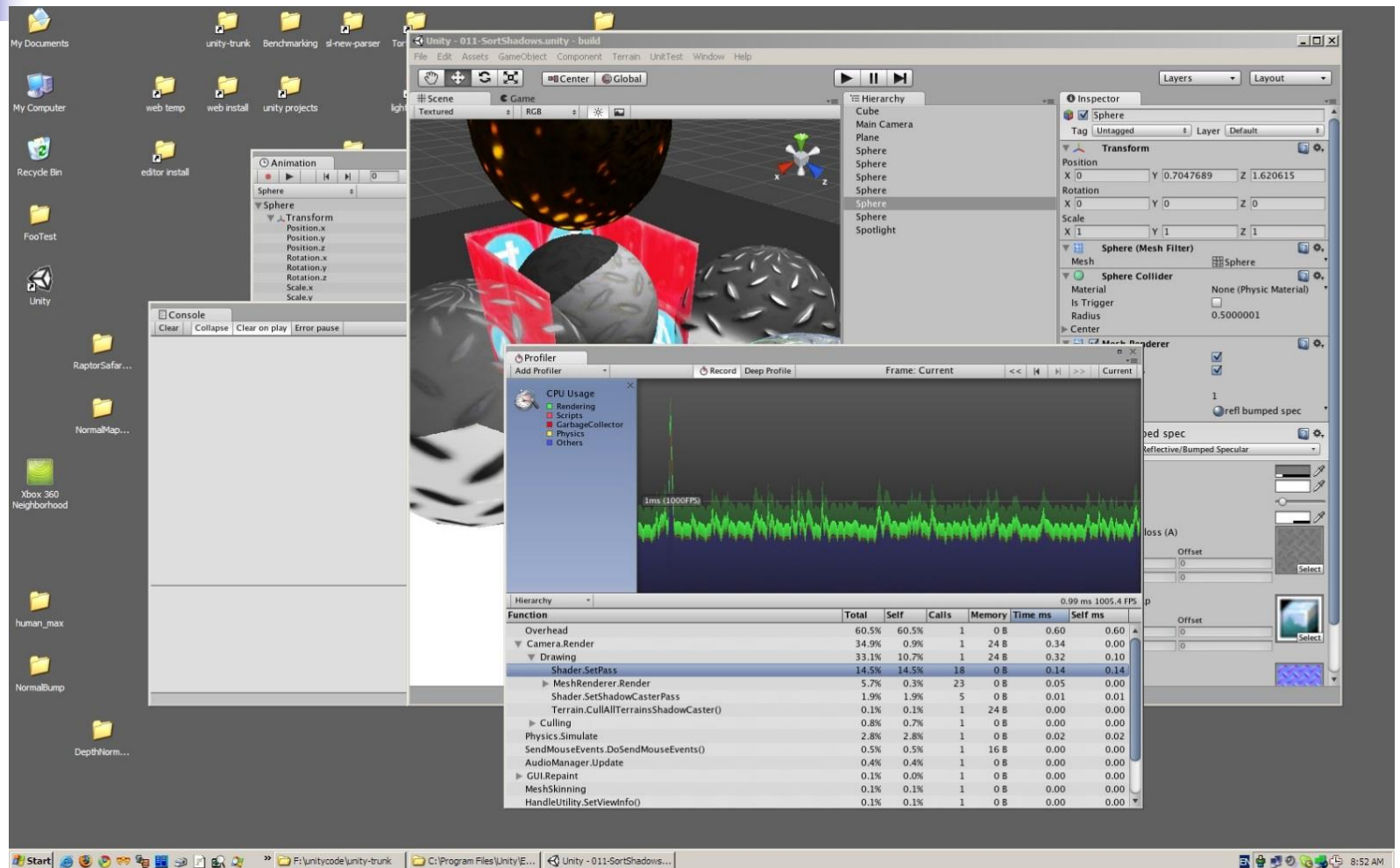




Multiple Window Design: Overlapped Windows.

- Allows windows to be partially overlapped in arbitrary ways.
- No restriction on position and size of windows.
- Also refer to as 2½-D programming.
- May obscure relevant material and increase housekeeping load.

Multiple Window Design: Overlapped Windows.

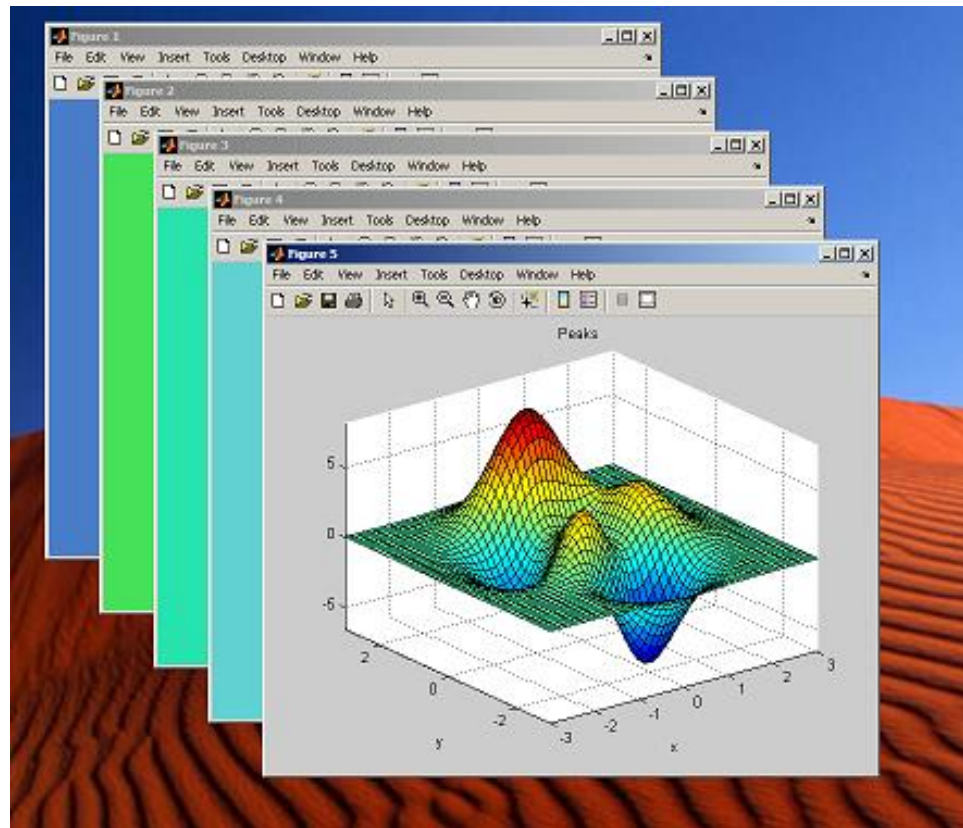




Multiple Window Design: Cascaded Windows

- Adopt the familiar deck-of-cards metaphor.
- Position windows from upper left down to lower right.
- All window titles are visible at the same time.

Multiple Window Design: Cascaded Windows





Coordination by Tightly-Coupled Windows

- Synchronized scrolling
- Hierarchical browsing
- Secondary windows
 - Dialog boxes
 - Property sheets
 - Message boxes
 - Pop-up windows
- Multiple document interface (MDI)



Synchronized Scrolling

- Scroll bar of different windows are tightly coupled to each other.
- Action on one scroll bar causes the other to move in a similar way.
- Useful for comparing two versions of a program or document.

Synchronized Scrolling

The screenshot displays a text editor interface with two windows side-by-side, demonstrating synchronized scrolling. The left window, titled 'psm_copy.txt', and the right window, titled 'psm.txt', both contain a grid of numbers. The grid consists of 65 rows and 20 columns. The numbers are integers ranging from -4 to 4. A red horizontal line is drawn across the 30th row in the right window, and the left window's content has scrolled to align with this row. The status bar at the bottom of the editor shows 'Normal text file', 'length: 28045 lines: 158', 'Ln: 1 Col: 1 Sel: 0 | 0', 'Dos\Windows', 'UTF-8 w/o BOM', and 'INS'. A 'Nav Bar' is visible on the right side of the editor, showing a vertical scrollbar and a red line indicating the current position.

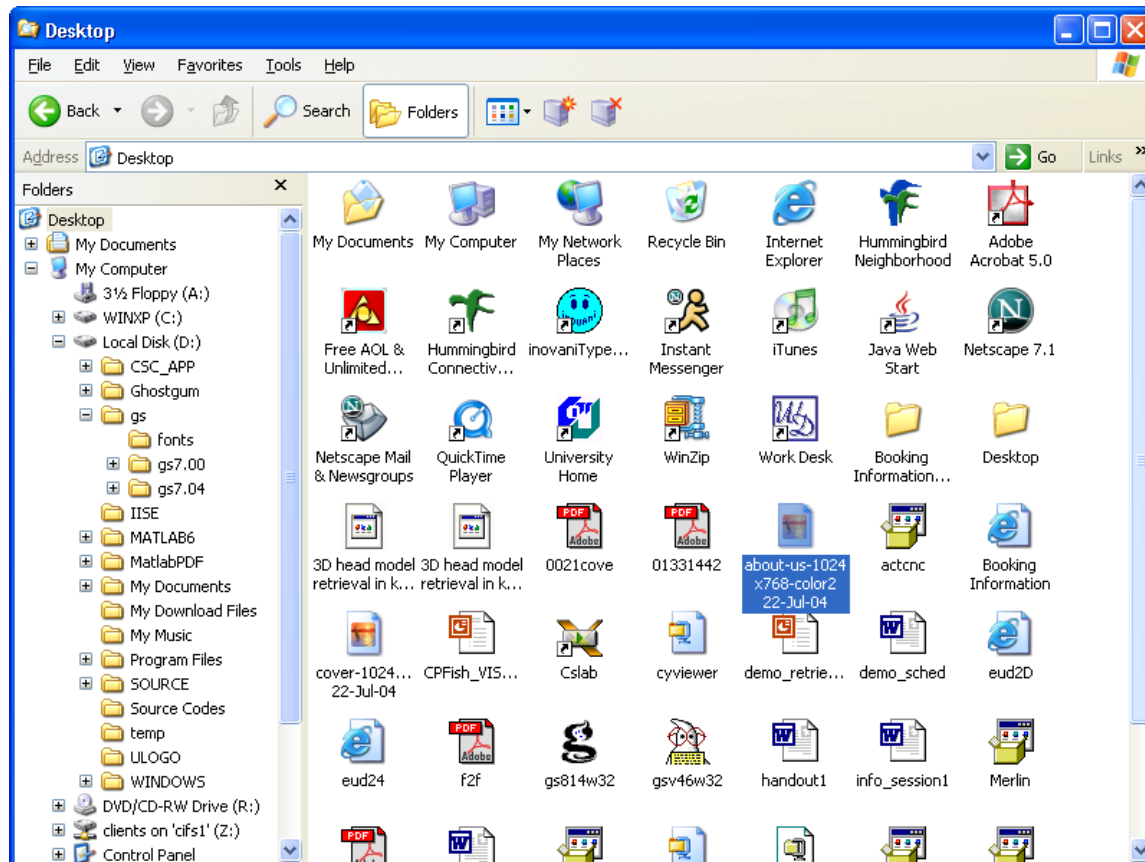
Line	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11	Col 12	Col 13	Col 14	Col 15	Col 16	Col 17	Col 18	Col 19	Col 20			
16	13	A	4	-1	-2	-2	0	-1	-1	0	-2	-1	-1	-1	-2	-1	1	0	-3	-2	0	0	
17	14	G	0	-2	0	-1	-3	-2	-2	6	-2	-4	-4	-2	-3	-2	0	-2	-3	-3	-3	0	
18	15	S	1	-1	1	0	-1	0	0	0	-1	-2	-2	0	-1	-2	-1	4	1	-3	-2	-2	0
19	16	Y	-2	-2	-2	-3	-2	-1	-2	-3	2	-1	-1	-2	-1	3	-3	-2	-2	2	7	-1	0
20	17	P	-1	-2	-2	-1	-3	-1	-1	-2	-2	-3	-3	-1	-2	-4	7	-1	-1	-4	-3	-2	0
21	18	K	-1	2	0	-1	-3	1	1	-2	-1	-3	-2	5	-1	-3	-1	0	-1	-3	-2	-2	0
22	19	V	0	-3	-3	-3	-1	-2	-2	-3	-3	3	1	-2	1	-1	-2	-2	0	-3	-1	4	0
23	20	N	-2	0	6	1	-3	0	0	0	1	-3	0	0	-2	-3	-2	1	0	4	-2	-3	0
24	21	P	-1	-2	-2	-1	-3	-1	-1	-2	-2	-3	-3	-1	-2	-4	7	-1	-1	-4	-3	-2	0
25	22	T	0	-1	0	-1	-1	-1	-1	-2	-2	-1	-1	-1	-2	-1	1	5	-2	-2	0	0	0
26	23	P	-1	-2	-2	-1	-3	-1	-1	-2	-2	-3	-3	-1	-2	-4	7	-1	-1	-4	-3	-2	0
27	24	T	0	-1	0	-1	-1	-1	-1	-2	-2	-1	-1	-1	-2	-1	1	5	-2	-2	0	0	0
28	25	W	-3	-3	-4	-4	-2	-2	-3	-3	-2	-3	-2	-3	-1	1	4	-3	-2	11	2	-3	0
29	26	V	0	-3	-3	-3	-1	-2	-2	-3	-3	3	1	-2	1	-1	-2	-2	0	-3	-1	4	0
30	27	R	-1	5	0	-2	-3	1	0	-2	0	-3	-2	-1	-3	-2	-1	-1	-1	-3	-2	-3	0
31	28	A	4	-1	-2	-2	0	-1	-1	0	-2	-1	-1	-1	-2	-1	1	0	-3	-2	0	0	0
32	29	I	-1	-3	-3	-3	-1	-3	-4	-3	4	2	-3	1	0	-3	-2	-1	-3	-1	3	0	0
33	TEST for difference comparison																						
34	30	P	-1	-2	-2	-1	-3	-1	-1	-2	-2	-3	-3	-1	-2	-4	7	-1	-1	-4	-3	-2	0
35	31	F	-2	-3	-3	-4	-2	-3	-3	-1	0	0	-3	0	6	-4	-2	-2	1	3	-1	0	0
36	32	E	-1	0	0	2	-4	2	5	-2	0	-3	3	1	-2	-3	-1	0	-1	-3	-2	-2	0
37	33	V	0	-3	-3	-3	-1	-2	-2	-3	-3	3	1	-2	1	-1	-2	-2	0	-3	-1	4	0
38	34	S	1	-1	1	0	-1	0	0	-1	-2	-2	0	-1	-2	-1	4	1	-3	-2	-2	0	0
39	35	V	0	-3	-3	-3	-1	-2	-2	-3	-3	3	1	-2	1	-1	-2	-2	0	-3	-1	4	0
40	36	Q	-1	1	0	0	-3	5	2	-2	0	-3	-2	1	0	-3	-1	0	-1	-2	-1	-2	0
41	37	S	1	-1	1	0	-1	0	0	-1	-2	-2	0	-1	-2	-1	4	1	-3	-2	-2	0	0
42	38	G	0	-2	0	-1	-3	-2	-2	6	-2	-4	-4	-2	-3	-2	0	-2	-3	-3	-3	0	0
43	39	I	-1	-3	-3	-3	-1	-3	-4	-3	4	2	-3	1	0	-3	-2	-1	-3	-1	3	0	0
44	40	A	4	-1	-2	-2	0	-1	-1	0	-2	-1	-1	-1	-2	-1	1	0	-3	-2	0	0	0
45	41	F	-2	-3	-3	-4	-2	-3	-3	-1	0	0	-3	0	6	-4	-2	-2	1	3	-1	0	0
46	42	K	-1	2	0	-1	-3	1	1	-2	-1	-3	-2	5	-1	-3	-1	0	-1	-3	-2	-2	0
47	43	V	0	-3	-3	-3	-1	-2	-2	-3	-3	3	1	-2	1	-1	-2	-2	0	-3	-1	4	0
48	44	P	-1	-2	-2	-1	-3	-1	-1	-2	-2	-3	-3	-1	-2	-4	7	-1	-1	-4	-3	-2	0
49	45	V	0	-3	-3	-3	-1	-2	-2	-3	-3	3	1	-2	1	-1	-2	-2	0	-3	-1	4	0
50	46	G	0	-2	0	-1	-3	-2	-2	6	-2	-4	-4	-2	-3	-2	0	-2	-3	-3	-3	0	0
51	47	S	1	-1	1	0	-1	0	0	-1	-2	-2	0	-1	-2	-1	4	1	-3	-2	-2	0	0
52	48	L	-1	-2	-3	-4	-1	-2	-3	-4	-3	2	4	-2	2	0	-3	-2	-1	-2	-1	1	0
53	49	F	-2	-3	-3	-4	-2	-3	-3	-3	-1	0	0	-3	0	6	-4	-2	-2	1	3	-1	0
54	50	S	1	-1	1	0	-1	0	0	-1	-2	-2	0	-1	-2	-1	4	1	-3	-2	-2	0	0
55	51	A	4	-1	-2	-2	0	-1	-1	0	-2	-1	-1	-1	-2	-1	1	0	-3	-2	0	0	0
56	52	N	-2	0	6	1	-3	0	0	0	1	-3	0	0	-2	-3	-2	1	0	-4	-2	-3	0
57	53	F	-2	-3	-3	-4	-2	-3	-3	-3	-1	0	0	-3	0	6	-4	-2	-2	1	3	-1	0
58	54	R	-1	5	0	-2	-3	1	0	-2	0	-3	-2	-1	-3	-2	-1	-1	-3	-2	-3	0	0
59	55	T	0	-1	0	-1	-1	-1	-1	-2	-2	-1	-1	-1	-1	-2	-1	1	5	-2	-2	0	0
60	56	D	-2	-2	-1	6	-3	0	2	-1	-1	-3	-4	-1	-3	-4	-1	0	-1	-4	-3	-3	0
61	57	S	1	-1	1	0	-1	0	0	-1	-2	-2	0	-1	-2	-1	4	1	-3	-2	-2	0	0
62	58	F	-2	-3	-3	-4	-2	-3	-3	-1	0	0	-3	0	6	-4	-2	-2	1	3	-1	0	0
63	59	T	0	-1	0	-1	-1	-1	-1	-2	-2	-1	-1	-1	-2	-1	1	5	-2	-2	0	0	0
64	60	S	1	-1	1	0	-1	0	0	-1	-2	-2	0	-1	-2	-1	4	1	-3	-2	-2	0	0
65	61	V	0	-3	-3	-3	-1	-2	-2	-3	-3	3	1	-2	1	-1	-2	-2	0	-3	-1	4	0



Hierarchical Browsing

- Usually used in split windows.
- One display shows the hierarchical structure of a set of files or documents.
- Clicking on any nodes of the structure will lead to the display of the corresponding document/file in another display.

Hierarchical Browsing (cont'd)



Hierarchical Browsing (cont'd)

The screenshot displays a hierarchical browsing interface with a central list of email messages and several preview windows on the right. The interface is divided into three main sections: a left sidebar, a central message list, and a right preview area.

Left Sidebar: Contains a "Grants" icon and a portrait of "Chris North".

Central Message List: A scrollable list of email messages with the following content:

- kandogan: IRB (Jun, 12 1996 09:45:29)
- kandogan: A lot of frames examples... (Jun, 10 1996 19:59:31)
- north@cs.UMD.EDU: irb # (Jun, 4 1996 15:47:13)
- north@cs.UMD.EDU: Re: Check this out! (May, 30 1996 16:51:13)
- north@cs.UMD.EDU: Check this out! (May, 23 1996 13:05:56)
- north@cs.UMD.EDU: msf (May, 23 1996 13:54:46)
- north@cs.UMD.EDU: Re: resume thing (May, 23 1996 04:10:14)
- north@cs.UMD.EDU: Re: resume thing (May, 22 1996 14:55:50)
- north@cs.UMD.EDU: Re: How about this ? (May, 21 1996 16:23:38)
- kandogan: Re: How about this ? (May, 21 1996 16:33:54)
- kandogan: Those references (May, 20 1996 14:45:48)
- kandogan: How about this ? (May, 18 1996 10:09:34)
- north@cs.UMD.EDU: suggestion (May, 17 1996 17:09:01)
- kandogan: proposal ? (May, 17 1996 09:07:31)
- north@cs.UMD.EDU: Re: your mail (May, 16 1996 18:26:45)
- north@cs.UMD.EDU: references.tex (May, 16 1996 18:49:55)
- north@cs.UMD.EDU: new summary... (May, 16 1996 23:19:38)
- north@cs.UMD.EDU: Re: Proposal (May, 13 1996 10:08:44)
- north@cs.UMD.EDU: Re: Proposal (May, 13 1996 10:01:07)
- kandogan: Re: Proposal (May, 13 1996 10:05:36)
- north@cs.UMD.EDU: Proposal (May, 13 1996 02:57:07)
- north@cs.UMD.EDU: proposal stuff (May, 13 1996 02:56:39)
- kandogan: Re: proposal stuff (May, 13 1996 08:59:23)
- north@cs.UMD.EDU: prop (May, 12 1996 00:54:13)
- kandogan: Re: prop (May, 12 1996 08:46:17)
- kandogan: Re: proposal update.. (May, 10 1996 09:03:23)
- north@cs.UMD.EDU: proposal update.. (May, 10 1996 01:11:07)
- north@cs.UMD.EDU: Re: Proposal (May, 7 1996 19:19:55)
- north@cs.UMD.EDU: Re: proposal (May, 7 1996 19:16:38)
- north@cs.UMD.EDU: Re: Proposal (May, 7 1996 19:12:17)
- north@cs.UMD.EDU: Re: Proposal (May, 7 1996 18:50:02)
- north@cs.UMD.EDU: proposal (May, 7 1996 18:49:45)
- kandogan: Re: proposal (May, 7 1996 18:55:24)
- kandogan: Proposal. (May, 6 1996 11:04:21)
- kandogan: Ben (May, 1 1996 09:18:19)
- north@cs.UMD.EDU: proposal stuff (Apr, 30 1996 01:39:38)
- north@cs.UMD.EDU: abstract? (Apr, 29 1996 18:07:59)
- kandogan: Re: abstract? (Apr, 29 1996 18:56:37)
- north@cs.UMD.EDU: update (Apr, 29 1996 01:00:41)
- kandogan: Re: update (Apr, 29 1996 09:10:38)
- north@cs.UMD.EDU: hmmm (Apr, 24 1996 16:41:31)
- kandogan: Re: hmmm (Apr, 24 1996 20:12:50)
- north@cs.UMD.EDU: proposal next (Apr, 24 1996 04:22:46)
- kandogan: Re: proposal next (Apr, 24 1996 08:53:17)
- kandogan: Proposal (Apr, 21 1996 20:21:29)
- north@cs.UMD.EDU: Re: your mail (Apr, 4 1996 23:54:41)
- north@cs.UMD.EDU: Re: propossal.. (Apr, 1 1996 16:44:09)
- kandogan: Re: propossal.. (Apr, 1 1996 18:30:53)

Right Preview Area: Shows several preview windows for selected messages:

- north@cs.UMD.EDU: Proposal (May, 13 1996 02:57:07)**

```
\documentstyle[12pt]{article}
\pagestyle{empty}
\textheight 8.9 truein
\textwidth 16 cm
\topmargin -1 cm
\oddsidemargin -0.1 cm
\evensidemargin -0.1 cm
\parindent 0.5 cm
\leftmargin 5 cm
```
- kandogan: How about this ? (May, 18 1996 10:09:34)**

This proposal brings together two important aspects of users information management activities: information organization and coordination. We will tackle the challenge of managing large collections of interrelated information by first dealing with each aspect separately and then combining them to provide a unified framework to think about users' needs in the whole process of information management.

We proposed an information abundant interface where users can organize large collections of information on the screen in a way that reflects semantics and exploit this semantics by custom coordination
- north@cs.UMD.EDU: new summary... (May, 16 1996 23:19:38)**

eser- here is the updated summary in 3rd person.
- north@cs.UMD.EDU: references.tex (May, 16 1996 18:49:55)**

```
\documentstyle[12pt]{article}
\pagestyle{empty}
\textheight 8.9 truein
\textwidth 16 cm
\topmargin -1 cm
\oddsidemargin -0.1 cm
```
- kandogan: Re: How about this ? (May, 21 1996 16:33:54)**
 - > Very nice!
 - > This thing is looking awesome.
 - >
 - > One thing: your example in the resume thing in the last paragraph of the Combo section needs to be more specific. The reader should be able to look at the picture and think "yes, i can see how i might perform that action." This is where you need to guess at what the UI will actually look like and how it will work.
 - > So pick a very detailed, yet simple, fact that somebody would want to know about ben. then describe how the user would



Secondary Windows

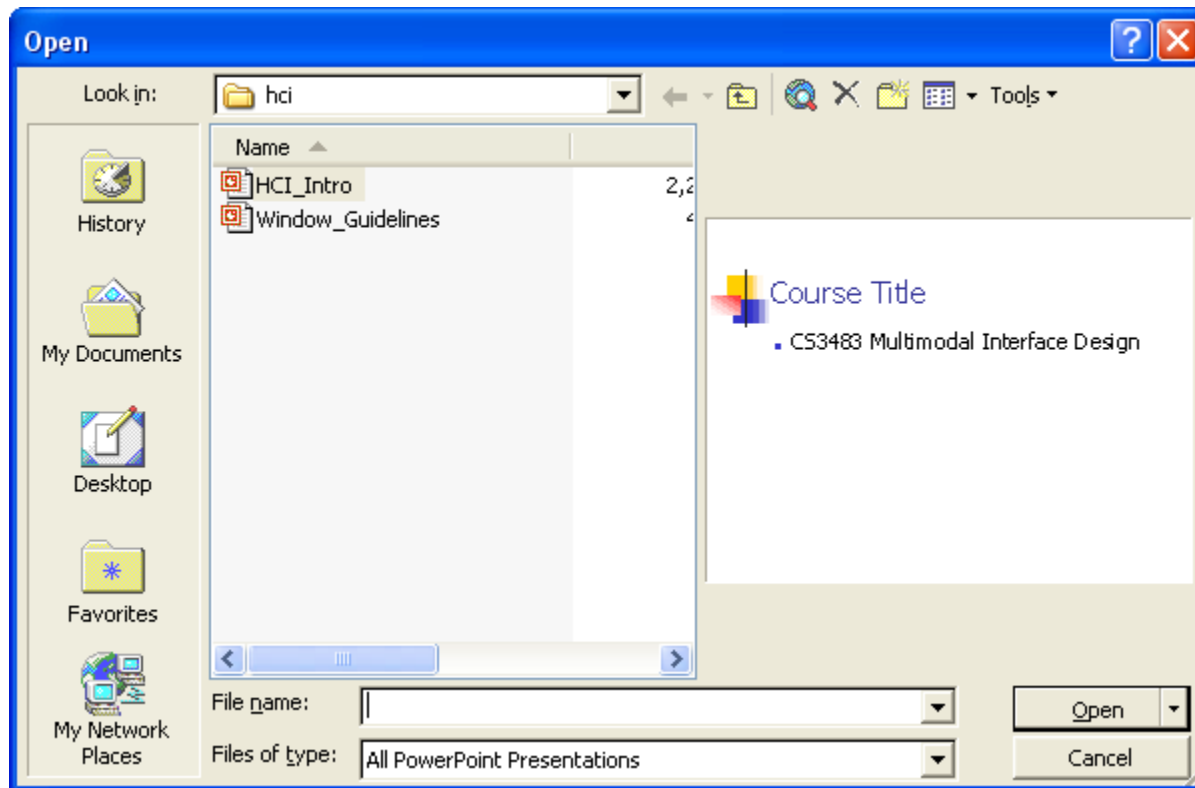
- Useful for supporting a user's activity in the primary window.
- Size of secondary windows are usually smaller than that of primary window.
- Examples include dialog boxes, property sheets, message boxes and pop-up windows.



Dialog Boxes

- Provides an exchange of information or dialog between users and application.
- Usually used to obtain additional information from user to complete a task.
- Dialog boxes are invoked in most cases as a result of selecting a menu item
 - Define title text of dialog box to be the same as the selected menu item.

Dialog Boxes (cont'd)

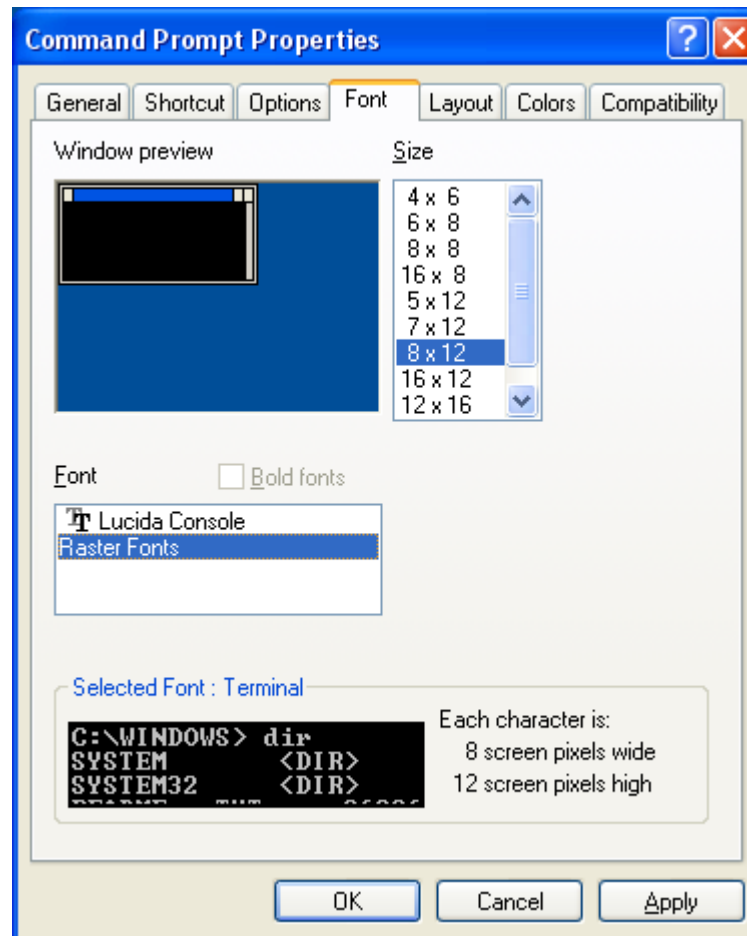




Property Sheets

- A property sheet displays the attributes of an object.
- Use tabbed property pages to group and categorize properties.
- If there are too many categories, use other controls (e.g. a drop-down list) to switch between groups of tabbed pages.

Property Sheets (cont'd)





Message Boxes

- Displays a message about a particular condition.
- Messages should be as specific as possible.
- Instead of just stating the problem, a message box should also describe its possible cause and offer solutions.



Message Boxes (cont'd)

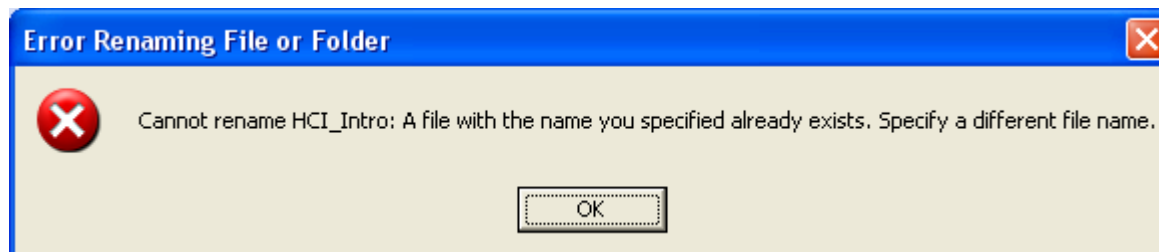
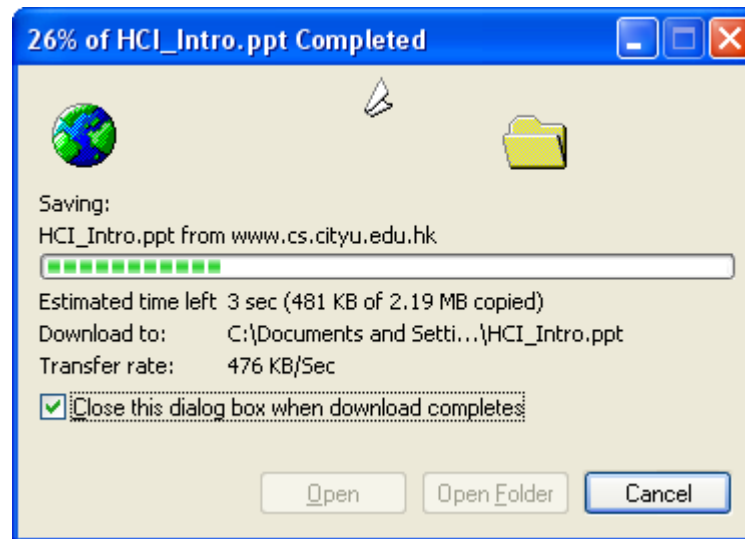
- Three main types of message boxes
 - Information: provides information about the results of a command.
 - Warning: alerts user to a condition that requires a decision.
 - Critical: informs the user of a serious problem that requires intervention.



Message Boxes (cont'd)

- Command buttons in message boxes
 - If message requires acknowledgment only, just includes the OK button.
 - If message requires user's decision, include a button for each option.

Message Boxes (cont'd)





Pop-up Windows

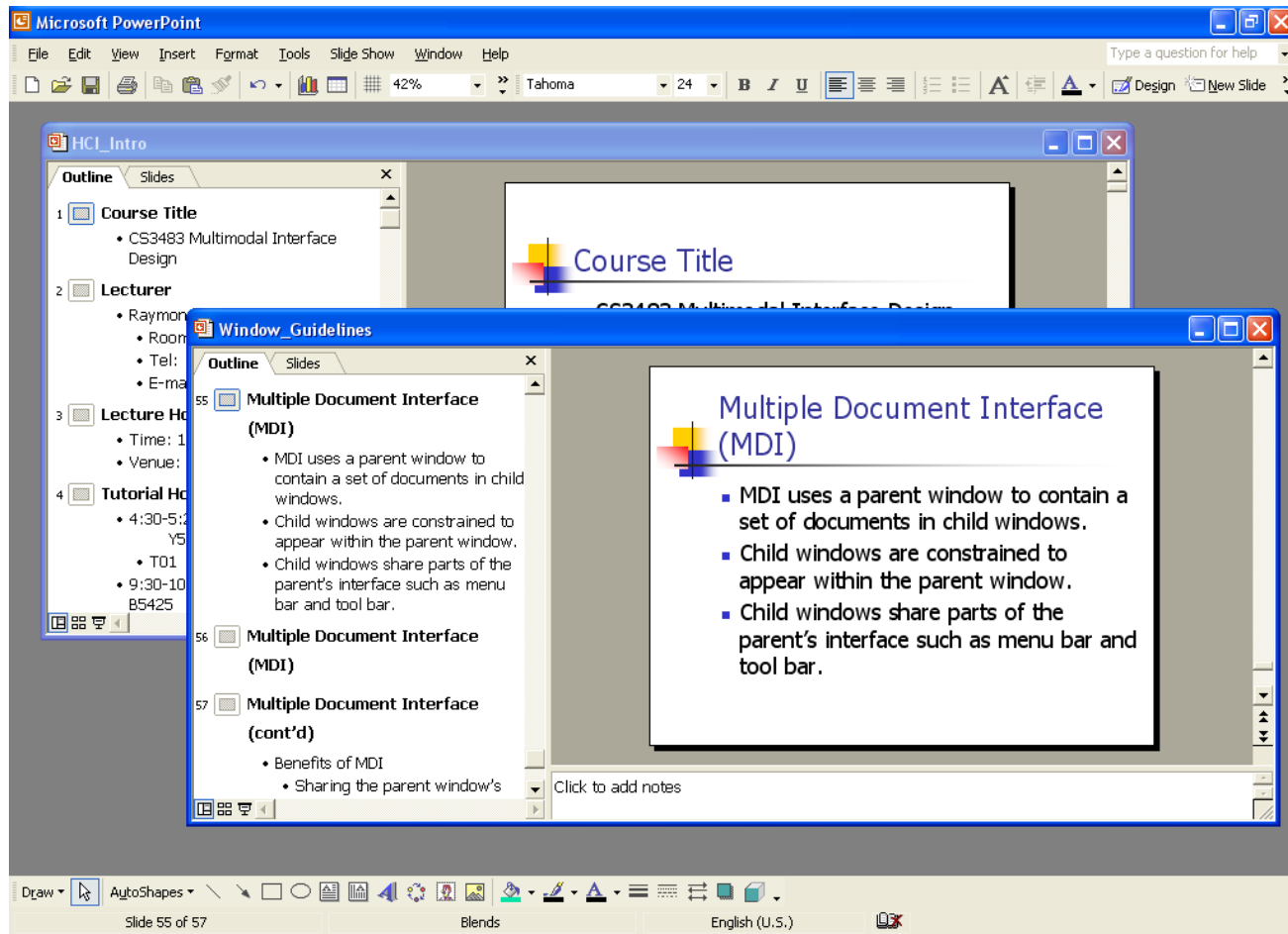
- A secondary window which is activated automatically or by a mouseover.
- Examples
 - Pop-up advertisement windows in certain web sites.
 - Tool tips and balloon tips to provide context-sensitive help information.



Multiple Document Interface (MDI)

- MDI uses a parent window to contain a set of documents in child windows.
- Child windows are constrained to appear within the parent window.
- Child windows share parts of the parent's interface such as menu bar and tool bar.

Multiple Document Interface (MDI)





Multiple Document Interface (cont'd)

- Benefits of MDI
 - Sharing the parent window's interface components make the application space-efficient.
 - Provide logical separation from other application windows.