User Interface Design

Lecture 8
GUI

Output Design

- What is the purpose of the output?
- Who wants the information, why it is it needed, and how will it be used?
- What specific information will be included?
- Will the output be printed, viewed on-screen, or both? What type of device will the output go to?

Output Design

- Types of Output
  - Internet-based information delivery
  - E-mail
  - Audio – audio output
  - Automated systems
    - Faxback systems
  - Specialized Forms of Output
    - Output from one system often becomes input into another system
  - etc.

Printed and Screen Output

- Reports
  - Exception reports
  - Summary reports

OVERTIME REPORT
WEEK ENDING DATE: 6/24/05

PAGE 1

STORE NUMBER	POSITION	EMPLOYEE NAME	OVERTIME HOURS
8	Asst Mgr	Davenport, Kim	5.0
	Manager	Ramirez, Rudy	8.5
		STORE 8 TOTALS:	13.5
11	Manager	Gadzinski, Barbara	10.0
	Clerk	Stites, Carol	12.0
	Asst Mgr	Thompson, Mary Kay	1.5
		STORE 11 TOTALS:	23.5
17	Clerk	De Martini, Jennifer	8.4
	Clerk	Rittenbery, Sandra	11.0
		STORE 17 TOTALS:	19.4
		GRAND TOTAL:	56.4

Printed and Screen Output

- Report Design Principles
  - Printed reports must be attractive, professional, and easy to read
  - Report headers and footers
  - Page headers and footers
  - Column heading alignment
  - Column spacing

Printed and Screen Output

- Report Design Principles
  - Field order
    - Fields should be displayed and grouped in a logical order
  - Grouping detail lines
    - It is meaningful to arrange detail lines in groups
    - Group header
    - Group footer

Printed and Screen Output

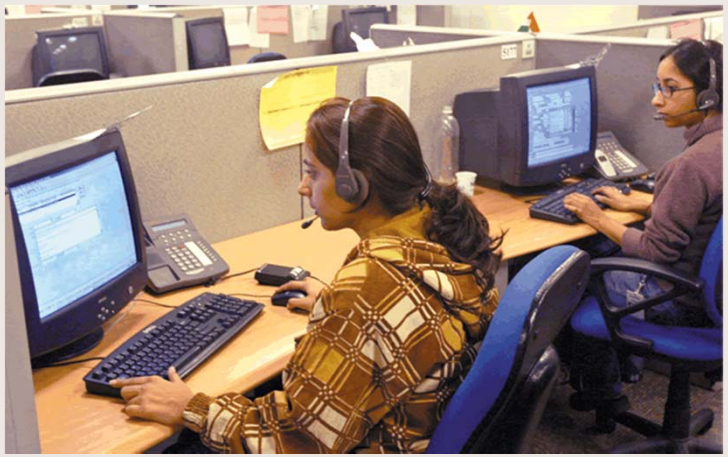
- Report Design Issues
  - Too much detail is on the page, forcing users to search for the information they need
  - Good design standards produce reports that are uniform and consistent
  - When a system produces multiple reports, each report should share common design elements

Printed and Screen Output

- Designing Character-Based Reports
  - Character-based reports
  - Printer spacing chart
- Printing Volume and Time Requirements
  - Length calculations
  - Time calculations
    - Ppm (pages per minute)
    - Line printers

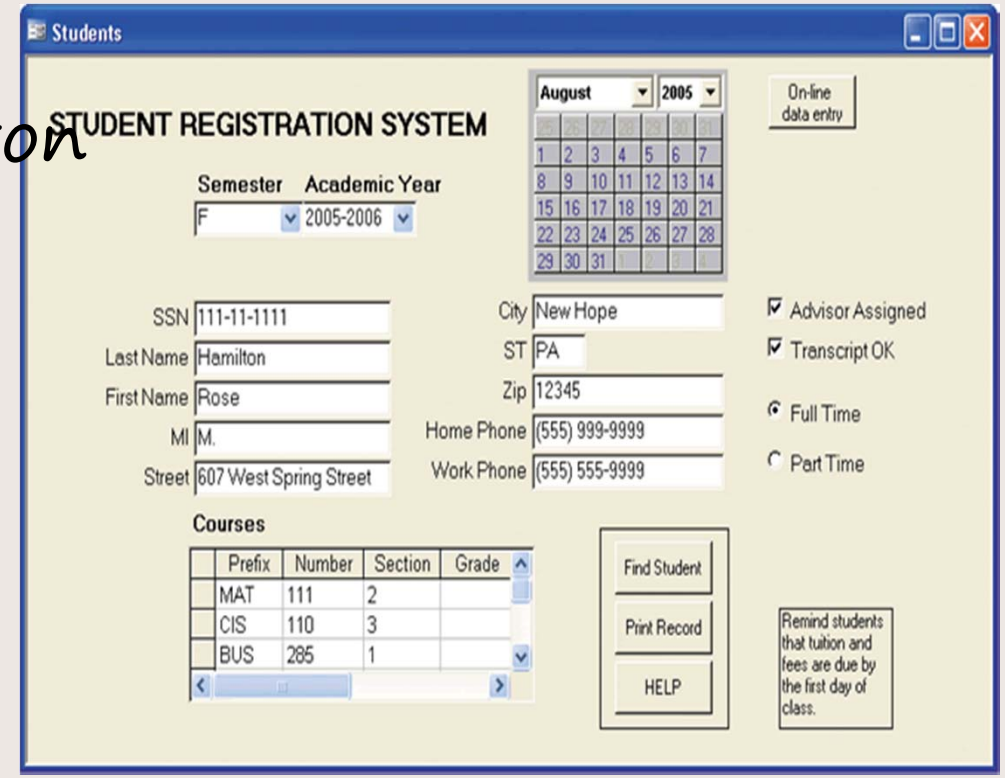
Printed and Screen Output

- Output Control and Security
  - Output must be accurate, complete, current, and secure
  - Output security



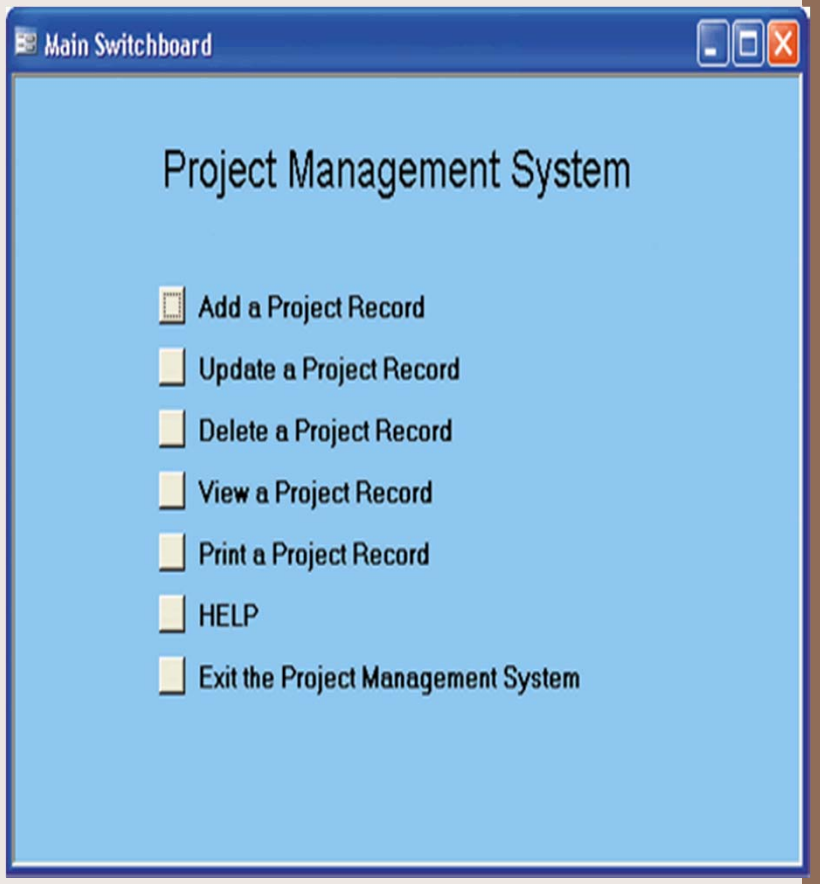
User Interface Design

- User Interface Controls
  - Menu bar
  - Toolbar
  - Command button
  - Dialog box
  - Text box
  - Toggle button

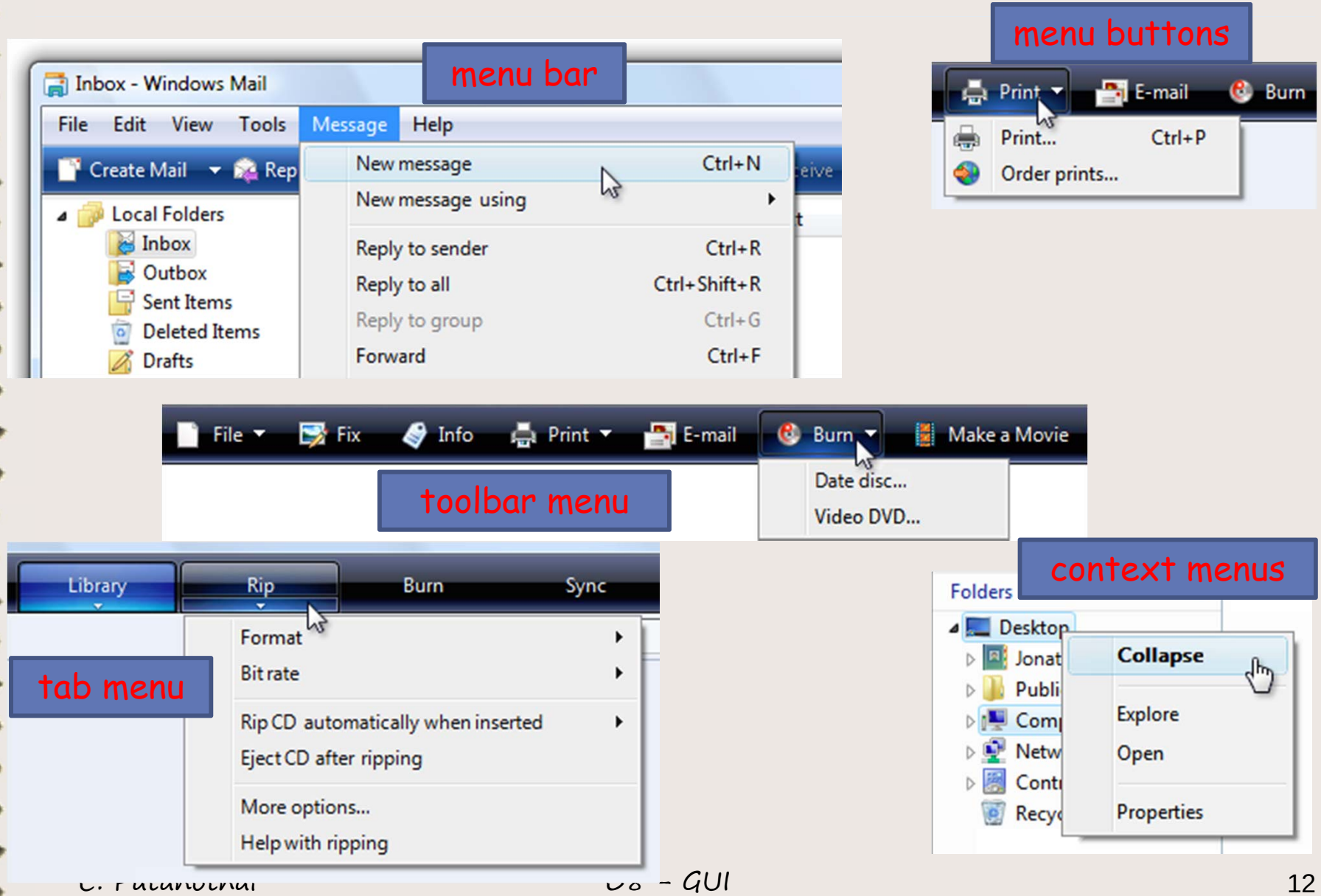


User Interface Design

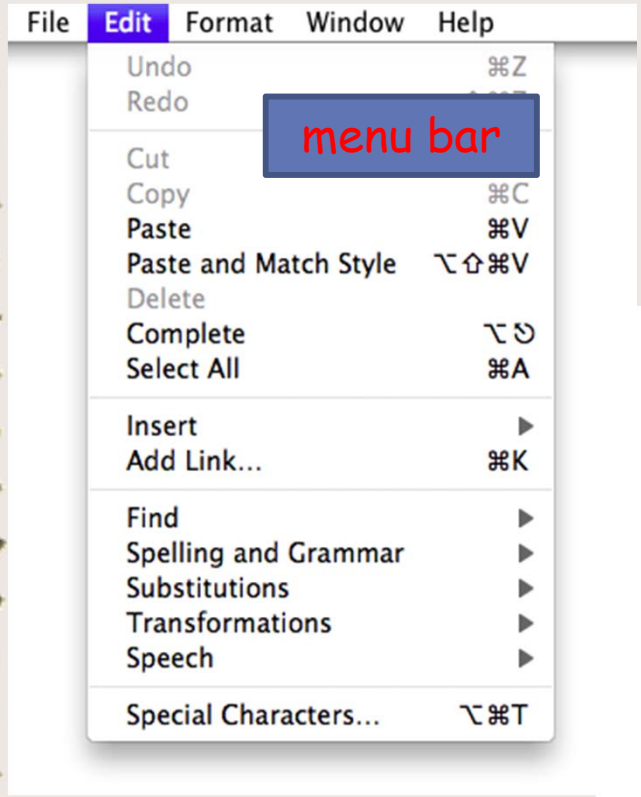
- User Interface Controls
  - List box – scroll bar
  - Drop-down list box
  - Option button, or radio button
  - Check box
  - Calendar control

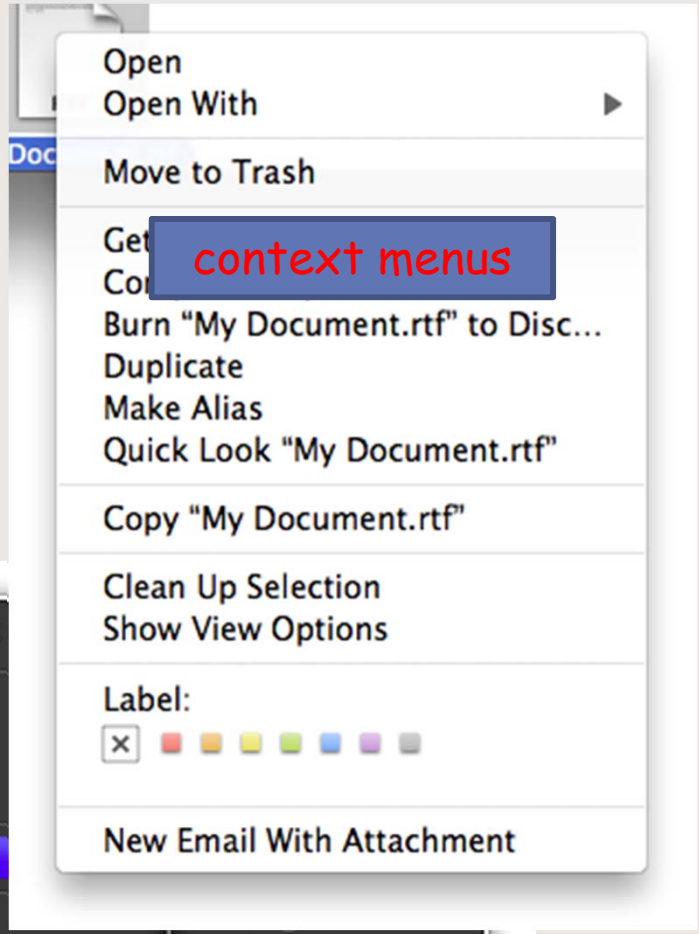


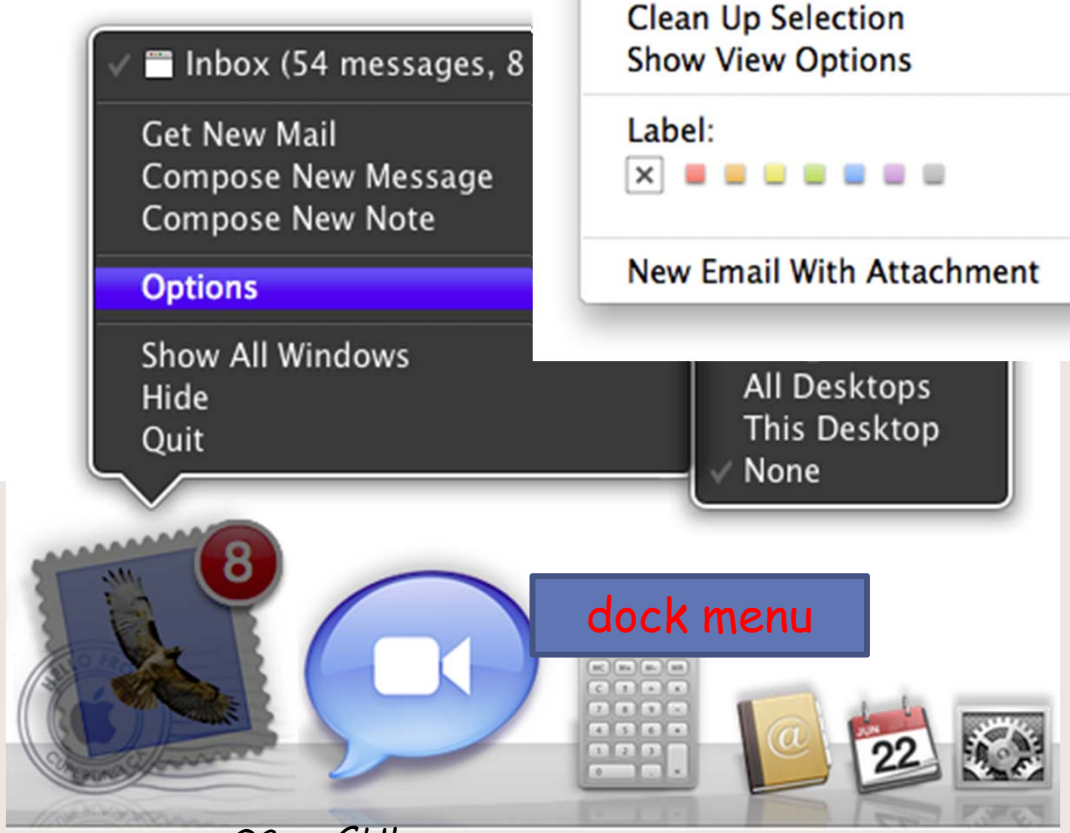
Menu


menu bar
Inbox - Windows Mail
File Edit View Tools Message Help
Create Mail
Rep
Local Folders
Inbox
Outbox
Sent Items
Deleted Items
Drafts
New message Ctrl+N
New message using
Reply to sender Ctrl+R
Reply to all Ctrl+Shift+R
Reply to group Ctrl+G
Forward Ctrl+F
menu buttons
Print
E-mail
Burn
Print... Ctrl+P
Order prints...
File
Fix
Info
Print
E-mail
Burn
Make a Movie
Date disc...
Video DVD...
toolbar menu
Library
Rip
Burn
Sync
Format
Bit rate
Rip CD automatically when inserted
Eject CD after ripping
More options...
Help with ripping
tab menu
context menus
Folders
Desktop
Collapse
Explore
Open
Properties

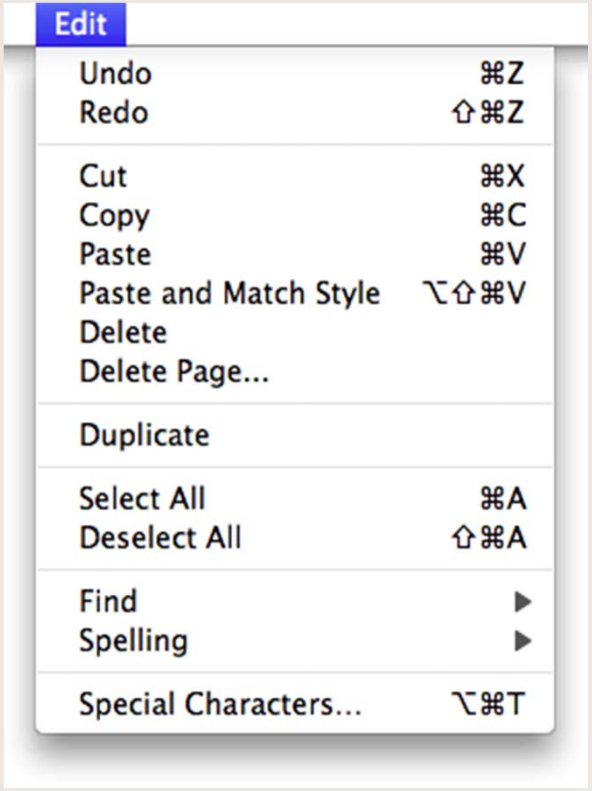
Menu

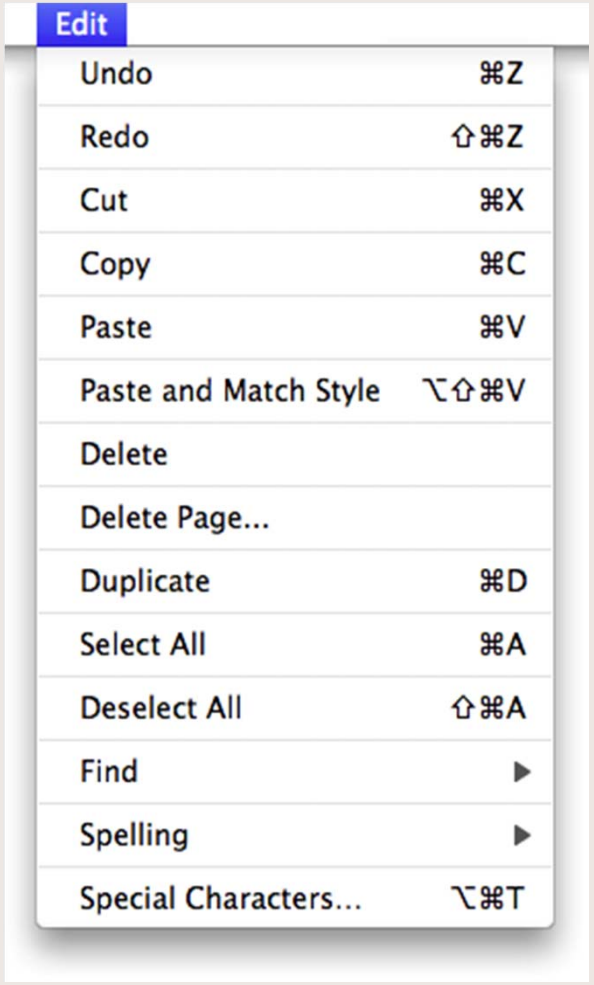

File
Edit
Format
Window
Help
Undo ⌘Z
Redo
Cut
Copy ⌘C
Paste ⌘V
Paste and Match Style ⌥⇧⌘V
Delete
Complete ⌥
Select All ⌘A
Insert
Add Link... ⌘K
Find
Spelling and Grammar
Substitutions
Transformations
Speech
Special Characters... ⌥⌘T
menu bar

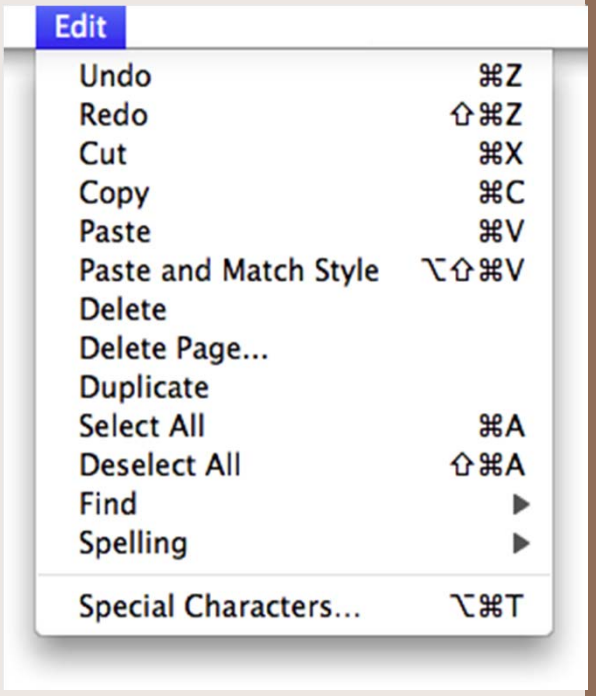

Open
Open With
Move to Trash
Burn "My Document.rtf" to Disc...
Duplicate
Make Alias
Quick Look "My Document.rtf"
Copy "My Document.rtf"
Clean Up Selection
Show View Options
Label:
New Email With Attachment
context menus


Inbox (54 messages, 8
Get New Mail
Compose New Message
Compose New Note
Options
Show All Windows
Hide
Quit
All Desktops
This Desktop
None
dock menu

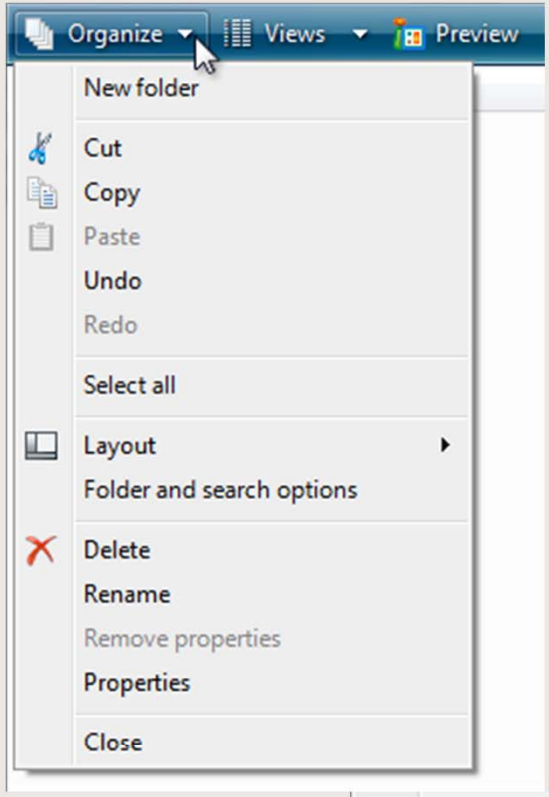
Menu: grouping

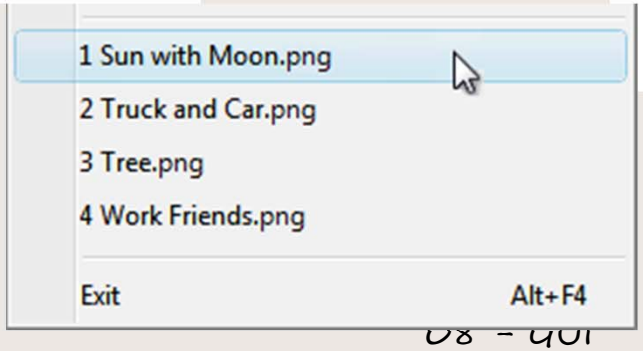


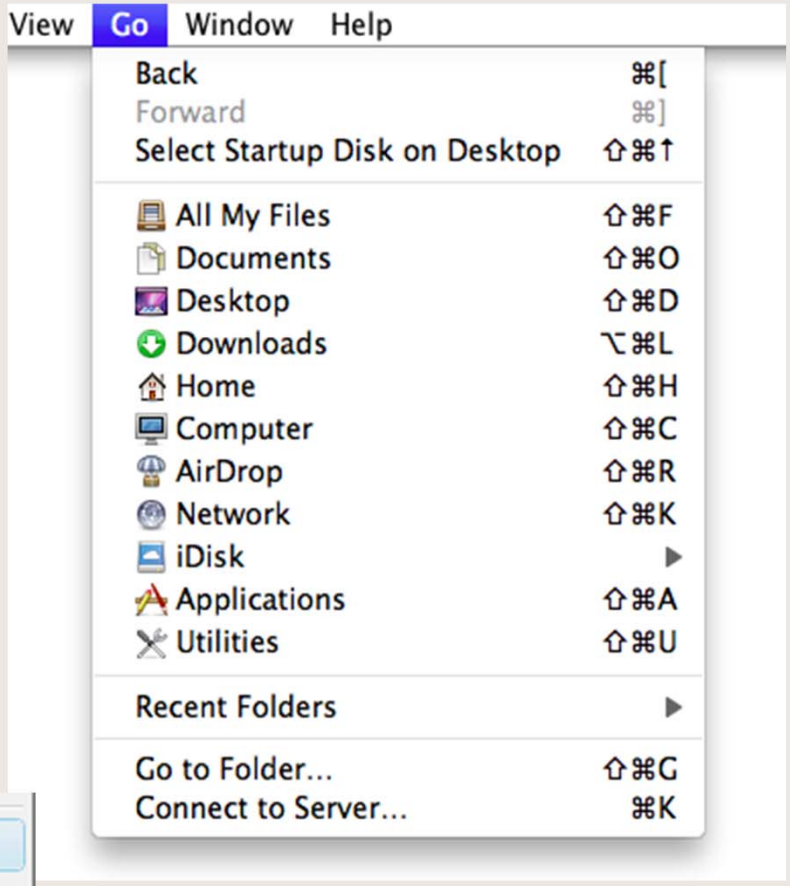




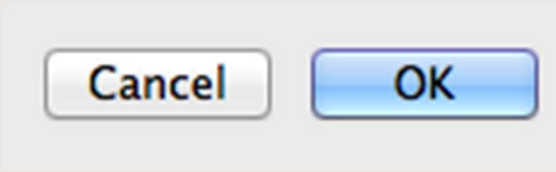
Menu: icons & shortcut





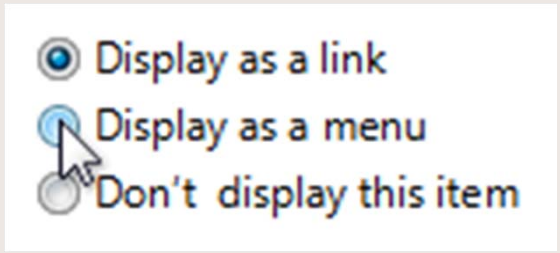


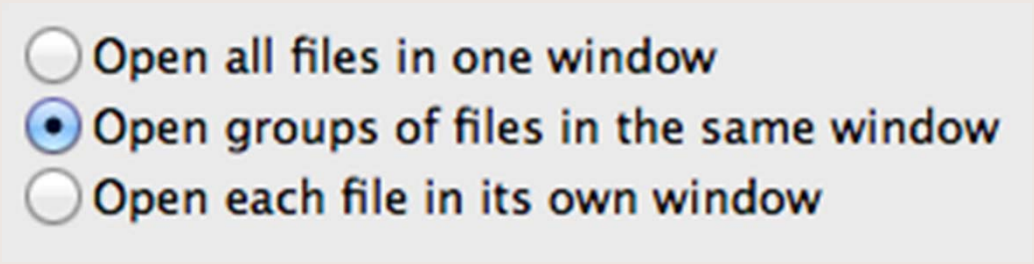
Buttons

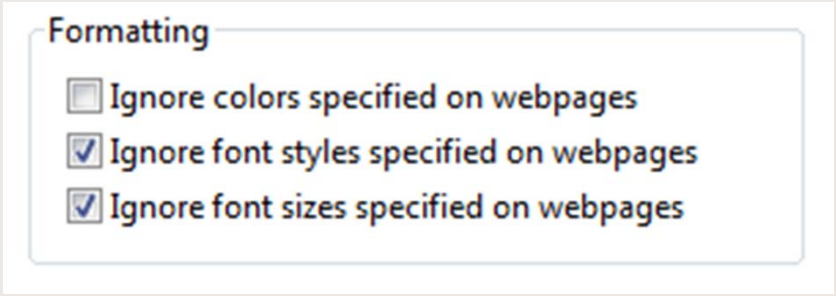


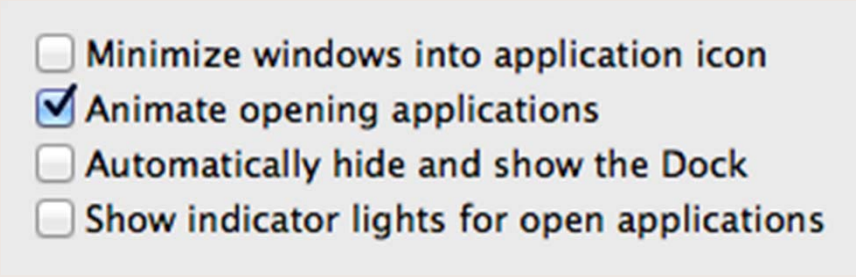
- enough space between buttons
- user verb
- if open another window, use ellipsis (…)
- avoid text + graphic in button
- don't use buttons to set state
- prefer specific buttons over generic

Selections

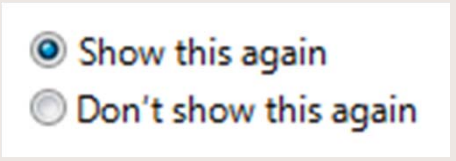

Display as a link
Display as a menu
Don't display this item

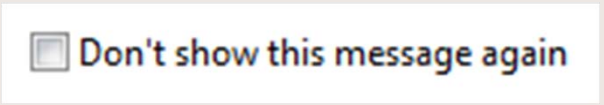

Open all files in one window
Open groups of files in the same window
Open each file in its own window

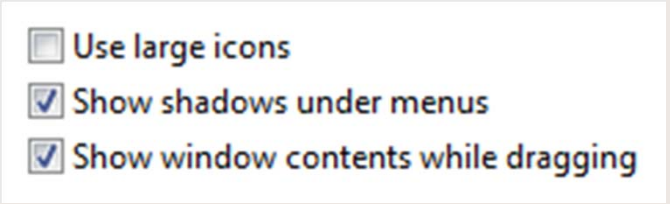

Formatting
Ignore colors specified on webpages
Ignore font styles specified on webpages
Ignore font sizes specified on webpages

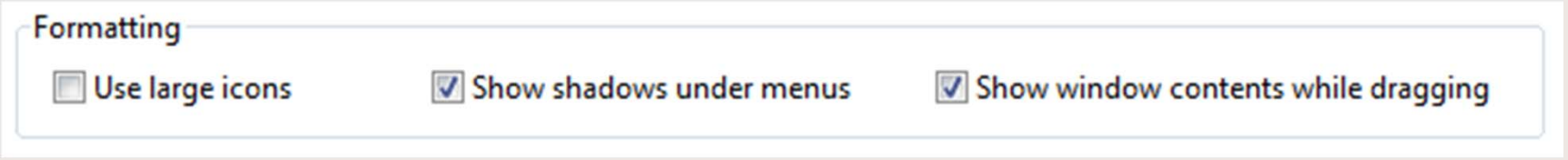

Minimize windows into application icon
Animate opening applications
Automatically hide and show the Dock
Show indicator lights for open applications

Using patterns

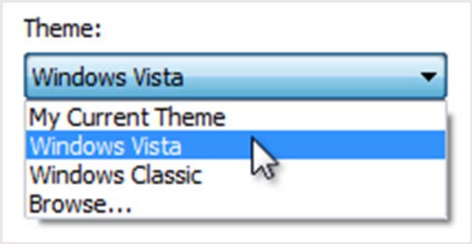


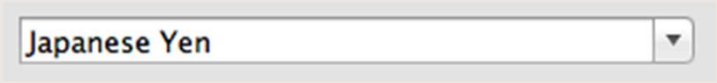


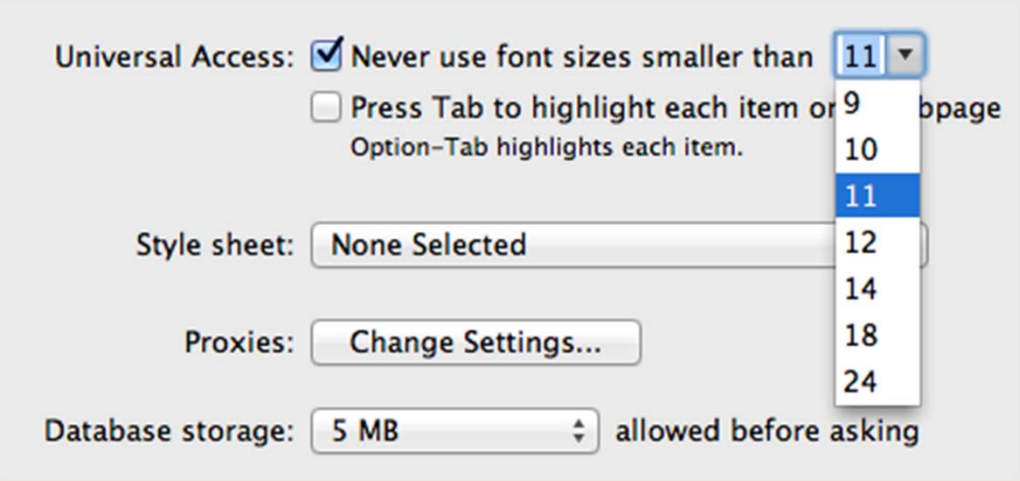




Drop-down list & Combo box

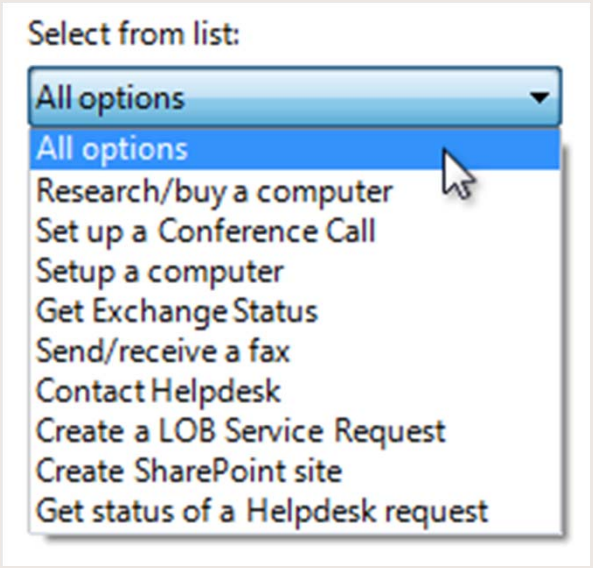


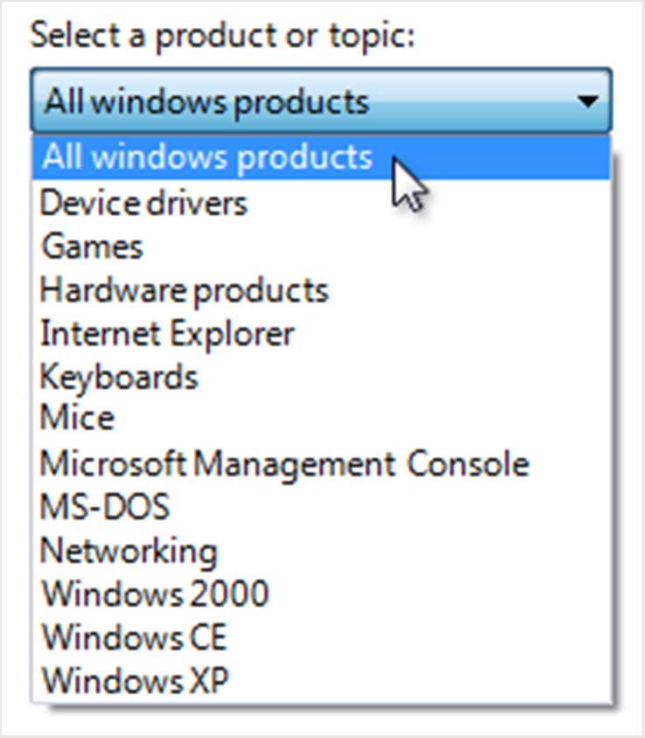




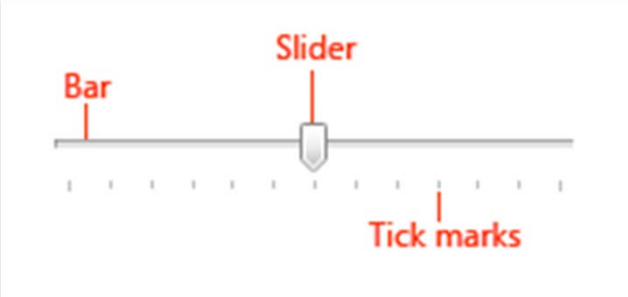
Usage

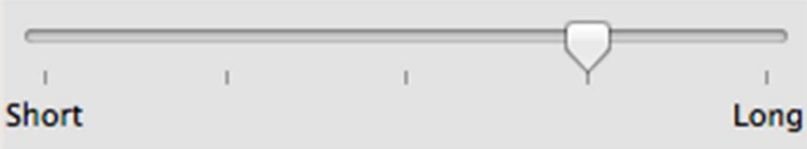
Alignment:
Right
Left
Center
Right

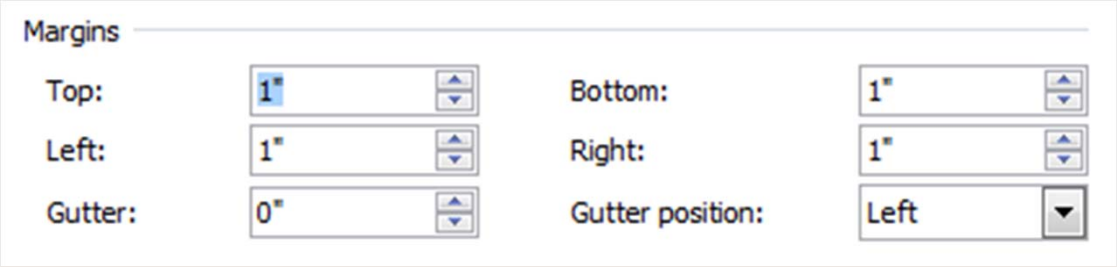

Select from list:
All options
All options
Research/buy a computer
Set up a Conference Call
Setup a computer
Get Exchange Status
Send/receive a fax
Contact Helpdesk
Create a LOB Service Request
Create SharePoint site
Get status of a Helpdesk request


Select a product or topic:
All windows products
All windows products
Device drivers
Games
Hardware products
Internet Explorer
Keyboards
Mice
Microsoft Management Console
MS-DOS
Networking
Windows 2000
Windows CE
Windows XP

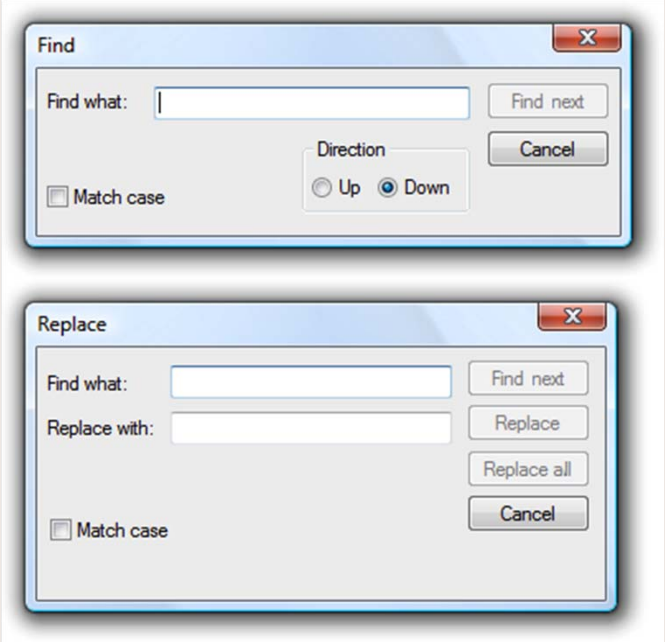
Slider, Stepper/Spinner

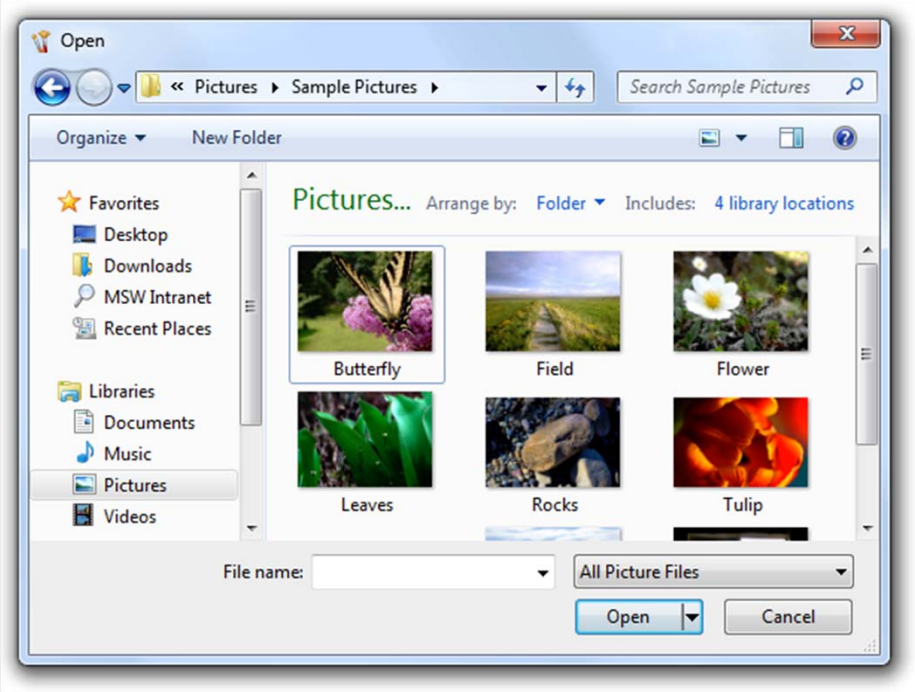


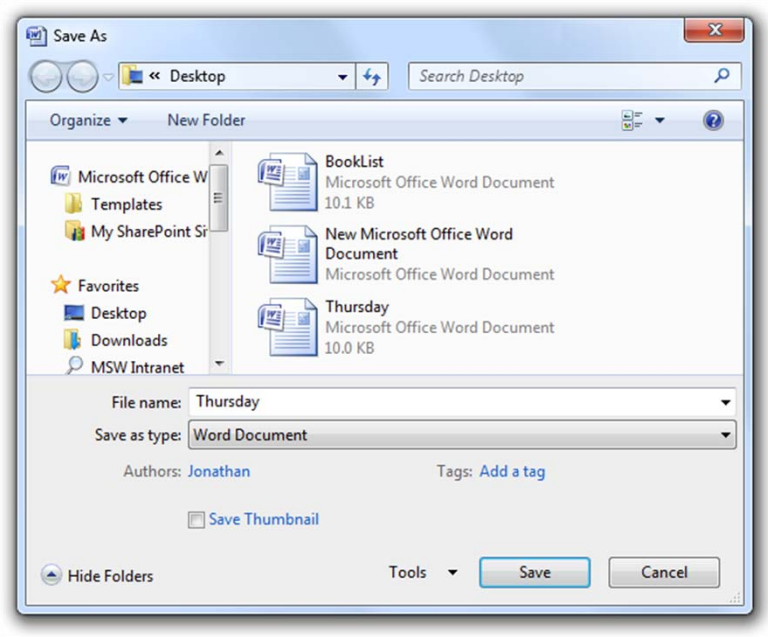




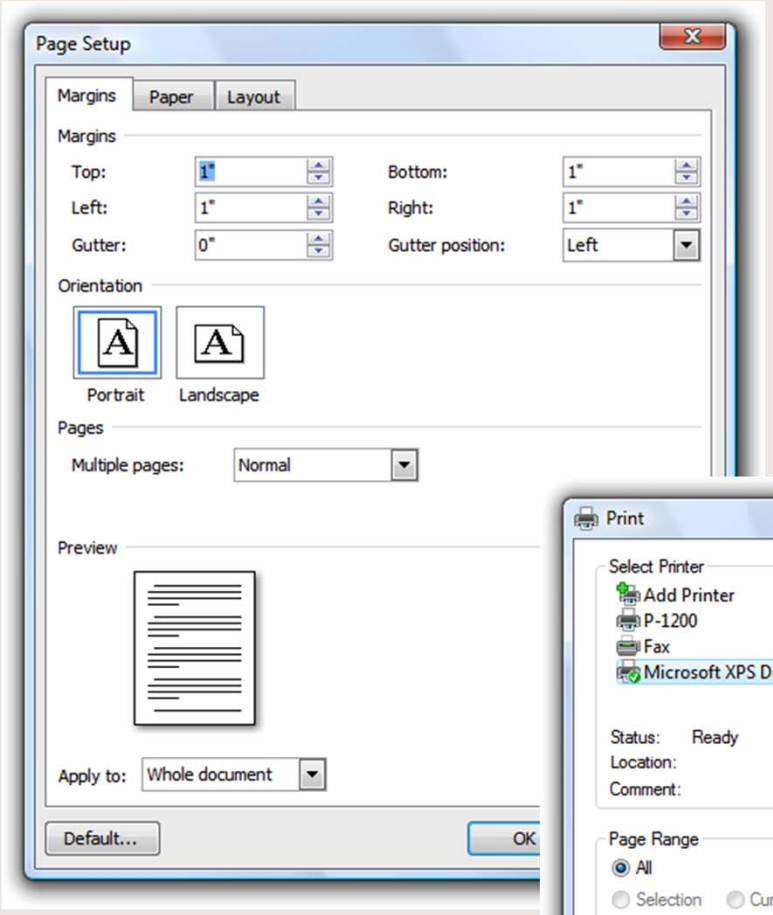
Dialog box

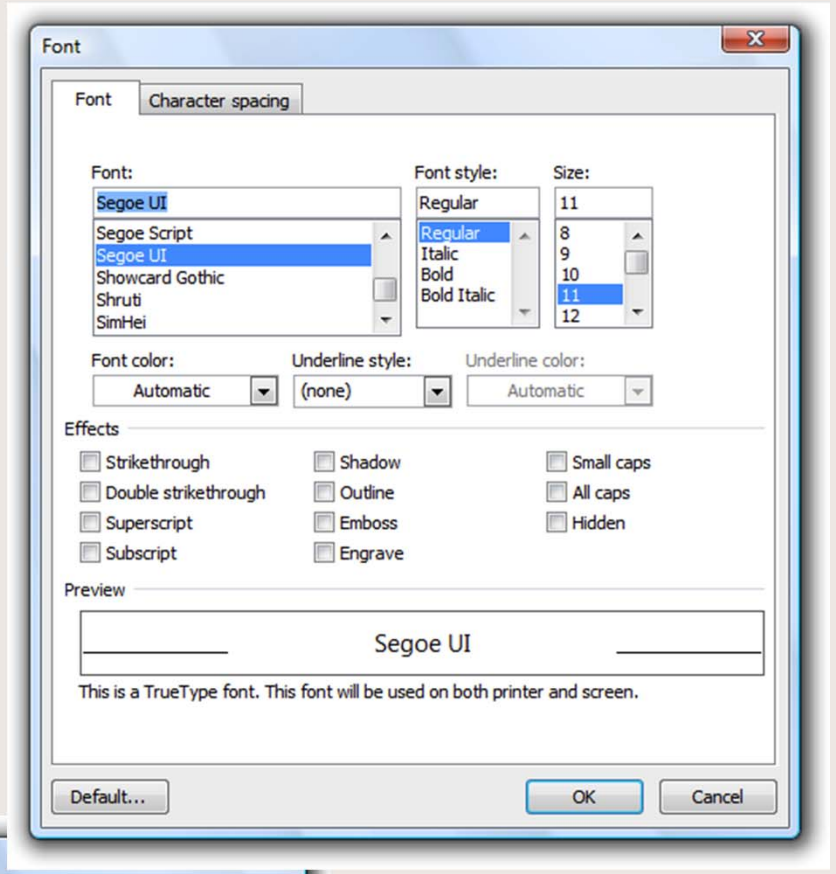

Find
Find what:
Find next
Cancel
Direction
Up
Down
Match case
Replace
Find what:
Replace with:
Find next
Replace
Replace all
Cancel
Match case

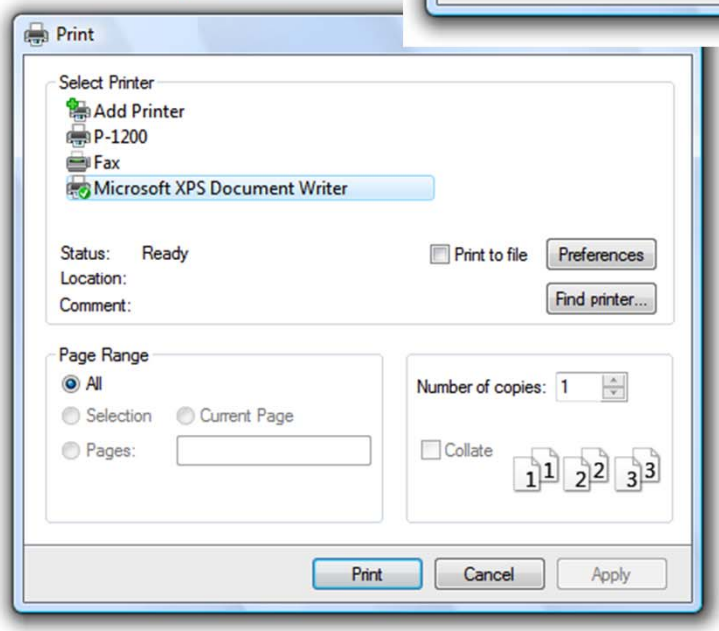

Open
« Pictures ▸ Sample Pictures ▸
Search Sample Pictures
Organize
New Folder
Favorites
Desktop
Downloads
MSW Intranet
Recent Places
Libraries
Documents
Music
Pictures
Videos
Pictures...
Arrange by:
Folder
Includes:
4 library locations
Butterfly
Field
Flower
Leaves
Rocks
Tulip
File name:
All Picture Files
Open
Cancel


Save As
« Desktop
Search Desktop
Organize
New Folder
Microsoft Office W
Templates
My SharePoint Si
Favorites
Desktop
Downloads
MSW Intranet
BookList
Microsoft Office Word Document
10.1 KB
New Microsoft Office Word Document
Microsoft Office Word Document
Thursday
Microsoft Office Word Document
10.0 KB
File name:
Thursday
Save as type:
Word Document
Authors:
Jonathan
Tags:
Add a tag
Save Thumbnail
Hide Folders
Tools
Save
Cancel

Dialog box


Page Setup
Margins
Paper
Layout
Margins
Top:
1"
Bottom:
1"
Left:
1"
Right:
1"
Gutter:
0"
Gutter position:
Left
Orientation
Portrait
Landscape
Pages
Multiple pages:
Normal
Preview
Apply to:
Whole document
Default...
OK

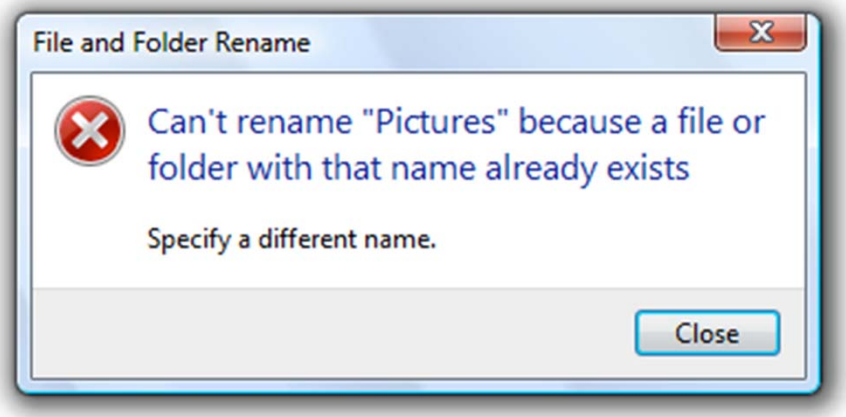

Font
Font
Character spacing
Font:
Segoe UI
Segoe Script
Segoe UI
Showcard Gothic
Shruti
SimHei
Font style:
Regular
Regular
Italic
Bold
Bold Italic
Size:
11
8
9
10
11
12
Font color:
Automatic
Underline style:
(none)
Underline color:
Automatic
Effects
Strikethrough
Double strikethrough
Superscript
Subscript
Shadow
Outline
Emboss
Engrave
Small caps
All caps
Hidden
Preview
Segoe UI
This is a TrueType font. This font will be used on both printer and screen.
Default...
OK
Cancel

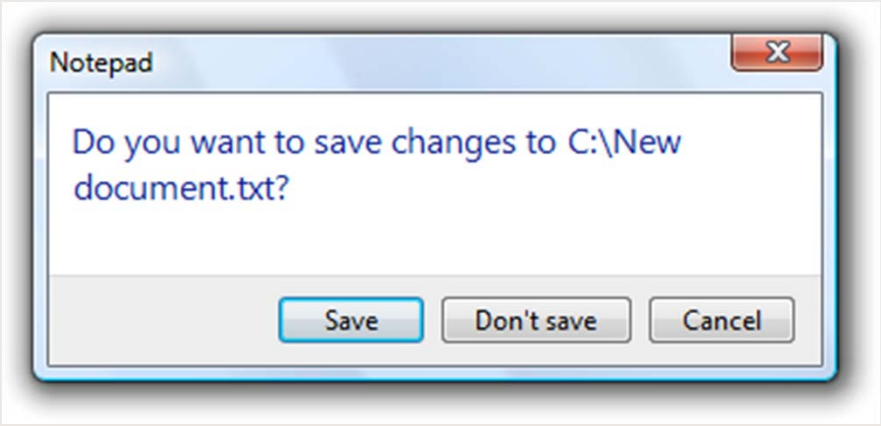

Print
Select Printer
Add Printer
P-1200
Fax
Microsoft XPS Document Writer
Status:
Ready
Location:
Comment:
Print to file
Preferences
Find printer...
Page Range
All
Selection
Current Page
Pages:
Number of copies:
1
Collate
Print
Cancel
Apply

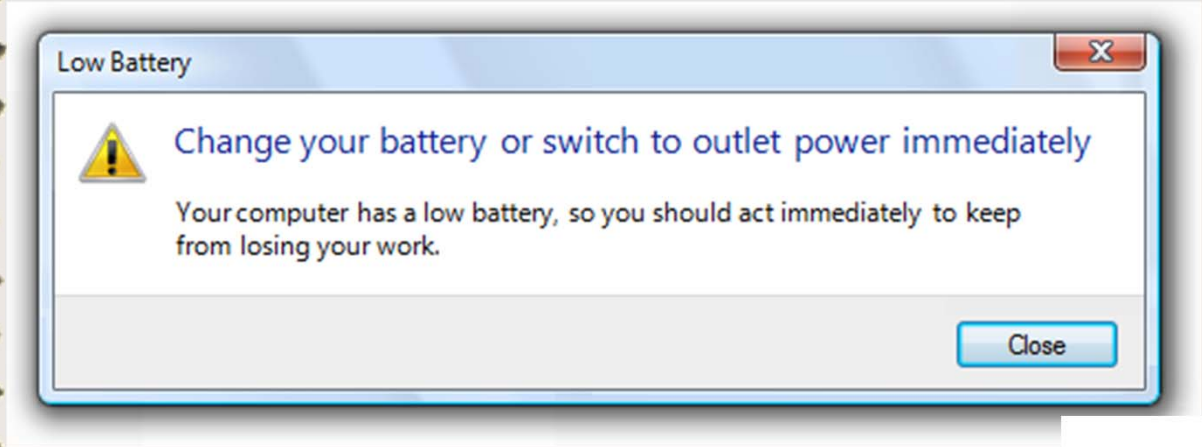
Alerts

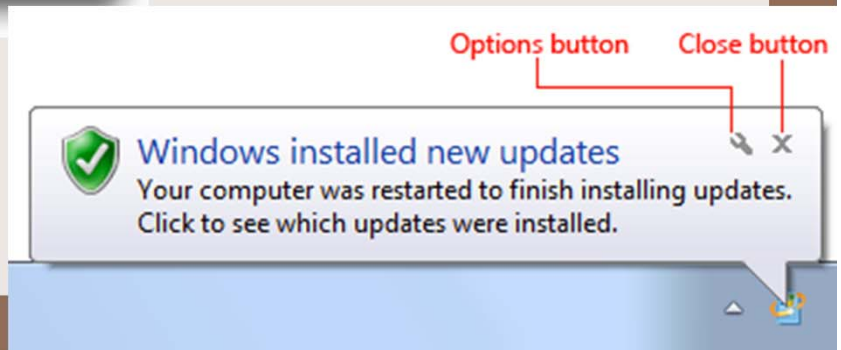
Secure Empty Trash permanently erases the items in the Trash. Are you sure you want to permanently erase them?
If you choose Secure Empty Trash, you can't recover the items unless you've backed them up using Time Machine or another backup program.
Cancel
Secure Empty Trash

Messages:error, warning, confirmation, notification

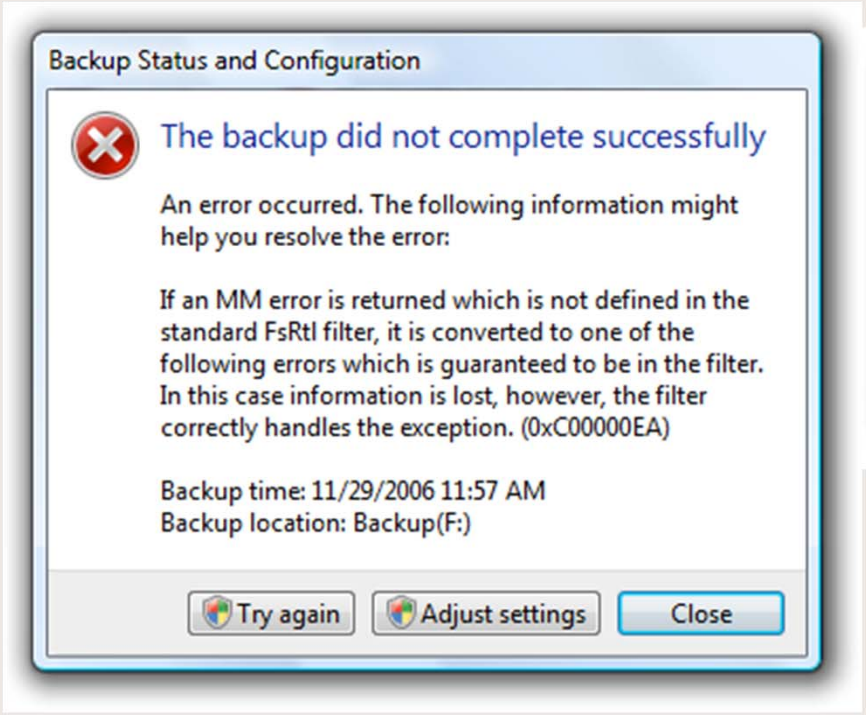


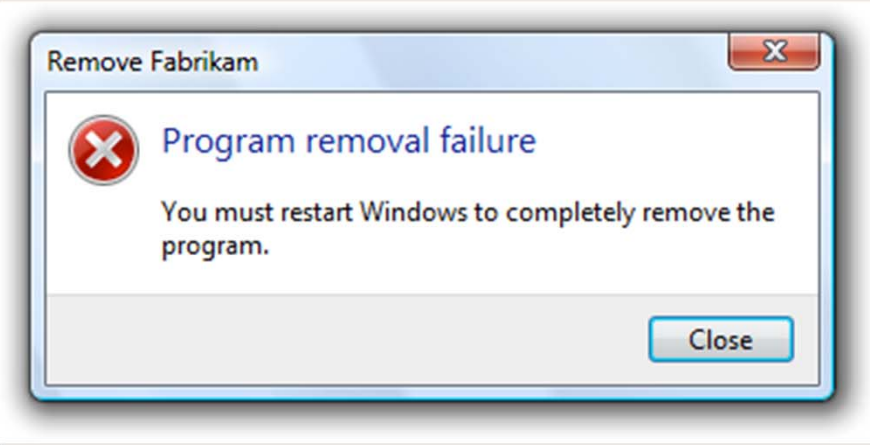


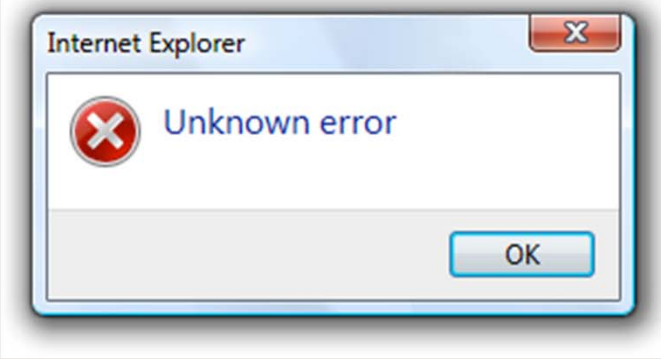




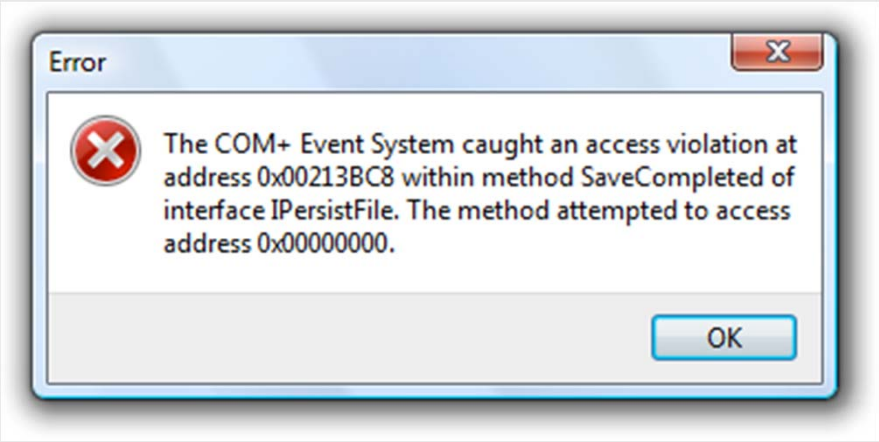
Bad error messages

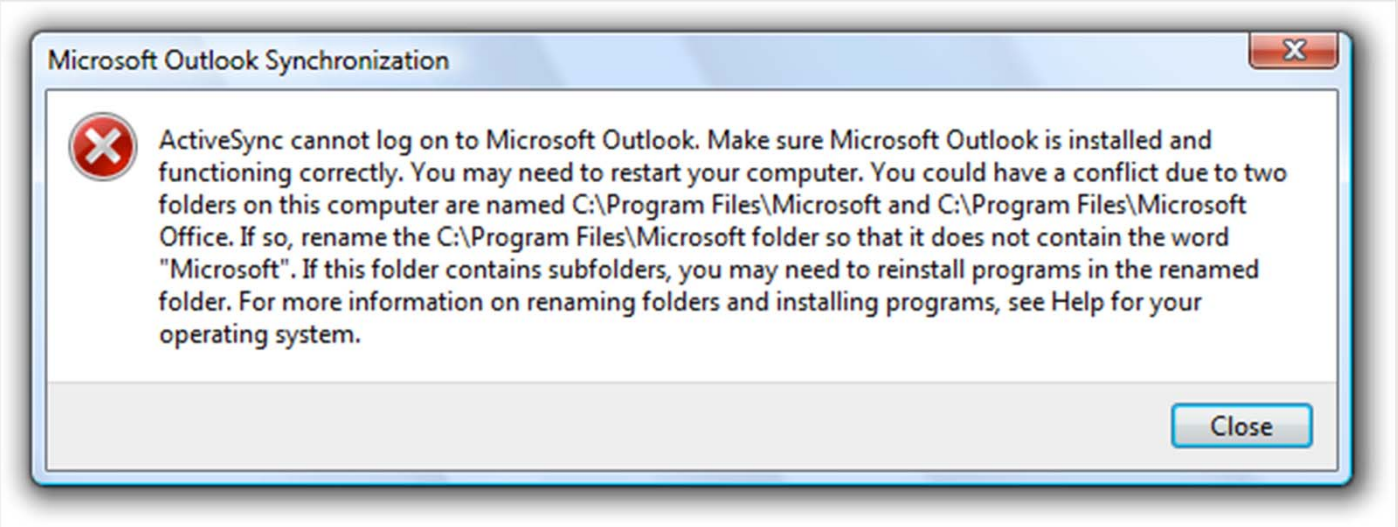






Bad error messages





Good error messages

- A problem, a cause, and a solution
- Relevant.
- Actionable.
- User-centered.
- Brief, clear and specific
- Users shouldn't be blamed or made to feel stupid.
- Rare. Displayed infrequently

More information

- http://msdn.microsoft.com/en-us/library/windows/desktop/aa511440.aspx
- http://developer.apple.com/library/mac/#documentation/UserExperience/Conceptual/AppleHIGuidelines/Intro/Intro.html

Input Design

- The quality of the output is only as good as the quality of the input
  - Garbage in, garbage out (GIGO)
  - Data capture
  - Data entry

Input Design

- Input and Data Entry Methods
  - Batch input
    - Batch
  - Online input
    - Online data entry
    - Source data automation
    - RFID tags or magnetic data strips
    - POS, ATMs

Input Design

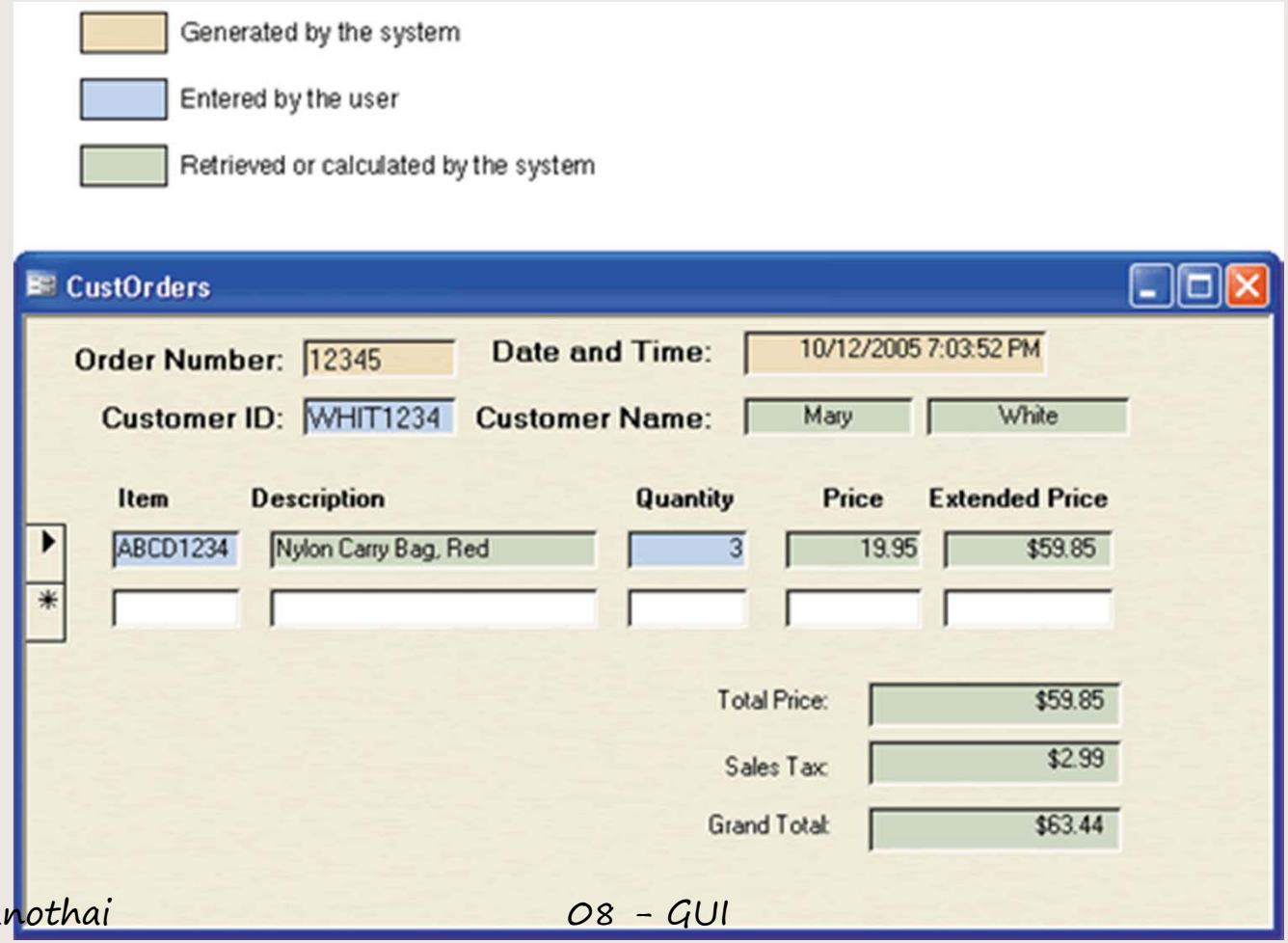
- Input and Data Entry Methods
  - Tradeoffs
    - Unless source data automation is used, manual data entry is slower and more expensive than batch input because it is performed at the time the transaction occurs and often done when computer demand is at its highest
    - The decision to use batch or online input depends on business requirements

Input Design

- Input Volume
  - Guidelines will help reduce input volume
    1. Input necessary data only
    2. Do not input data that the user can retrieve from system files or calculate from other data
    3. Do not input constant data
    4. Use codes

Input Design

- Input Volume



Input Design: Data Entry Guidelines

- Restrict user access to screen locations where data is entered
- Descriptive caption
- Display a sample format
- Require an ending keystroke
- Do not require users to type leading zeroes for numeric fields

Input Design: Data Entry Guidelines

- Do not trailing zeroes for numbers that include decimals
- Default values
- Display a list of acceptable values for fields, and provide meaningful error messages
- Provide a way to leave the data entry screen at any time without entering the current record

Input Design: Data Entry Guidelines

- Allow confirmation
- Provide a means for users to move among fields on the form
- Design the screen form layout to match the layout of the source document
- Allow users to add, change, delete, and view records
- Provide a method to allow users to search for specific information

Input Design

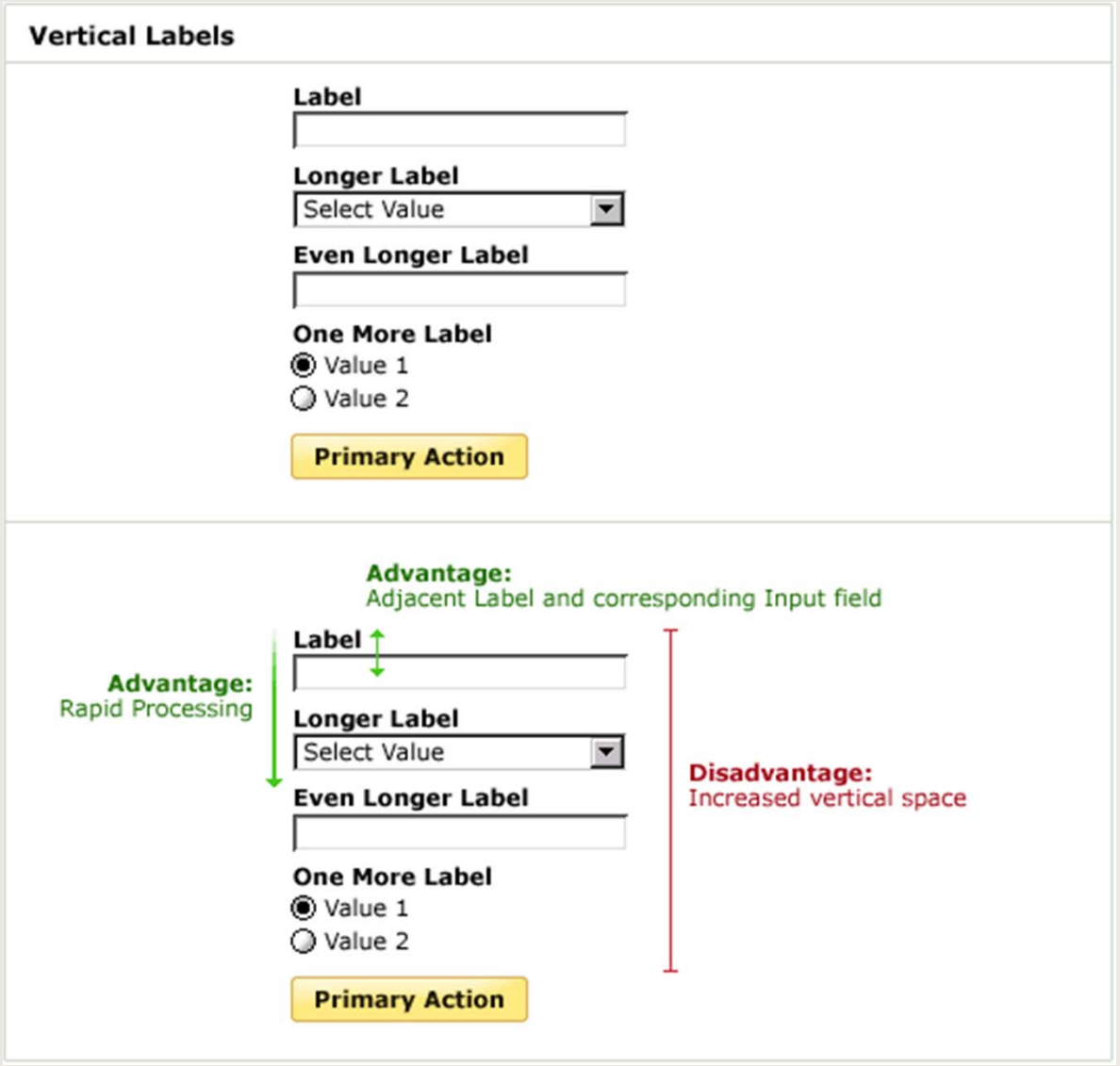
- Input Errors
  - Reducing the number of input errors improves data quality
  - A data validation check improves input quality by testing the data and rejecting any entry that fails to meet specified conditions

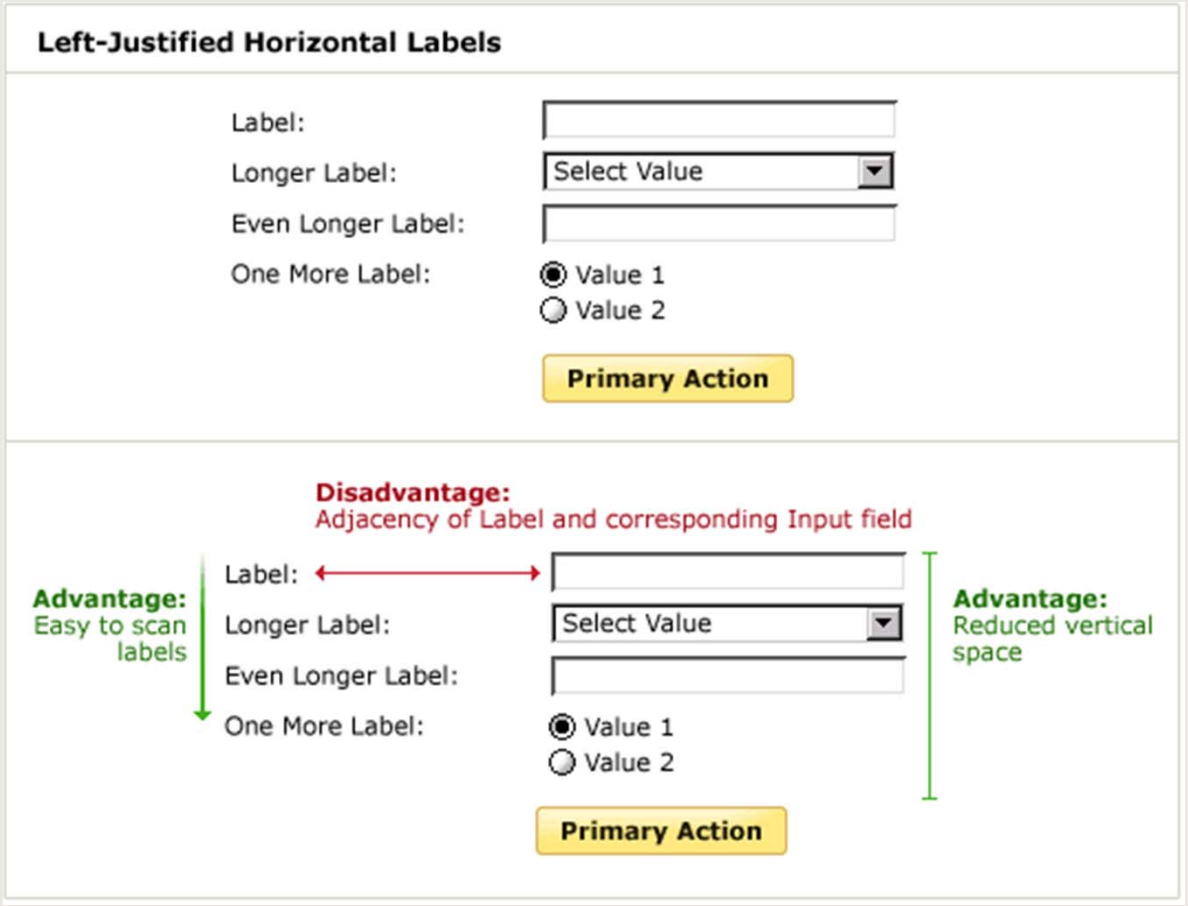
Input Design: Errors checking

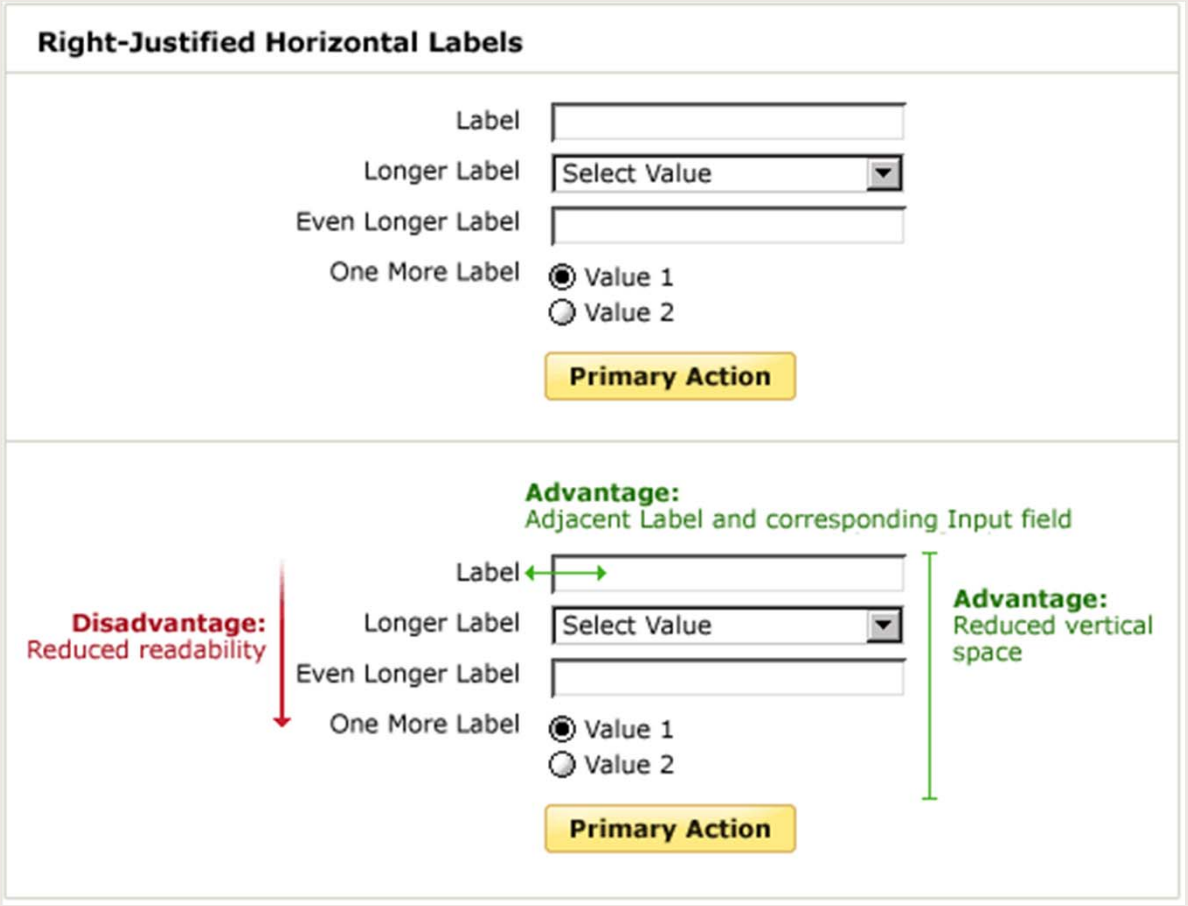
- Sequence check
- Existence check
- Data type check
- Range check – limit check
- Reasonableness check
- Validity check – referential integrity
- Combination check

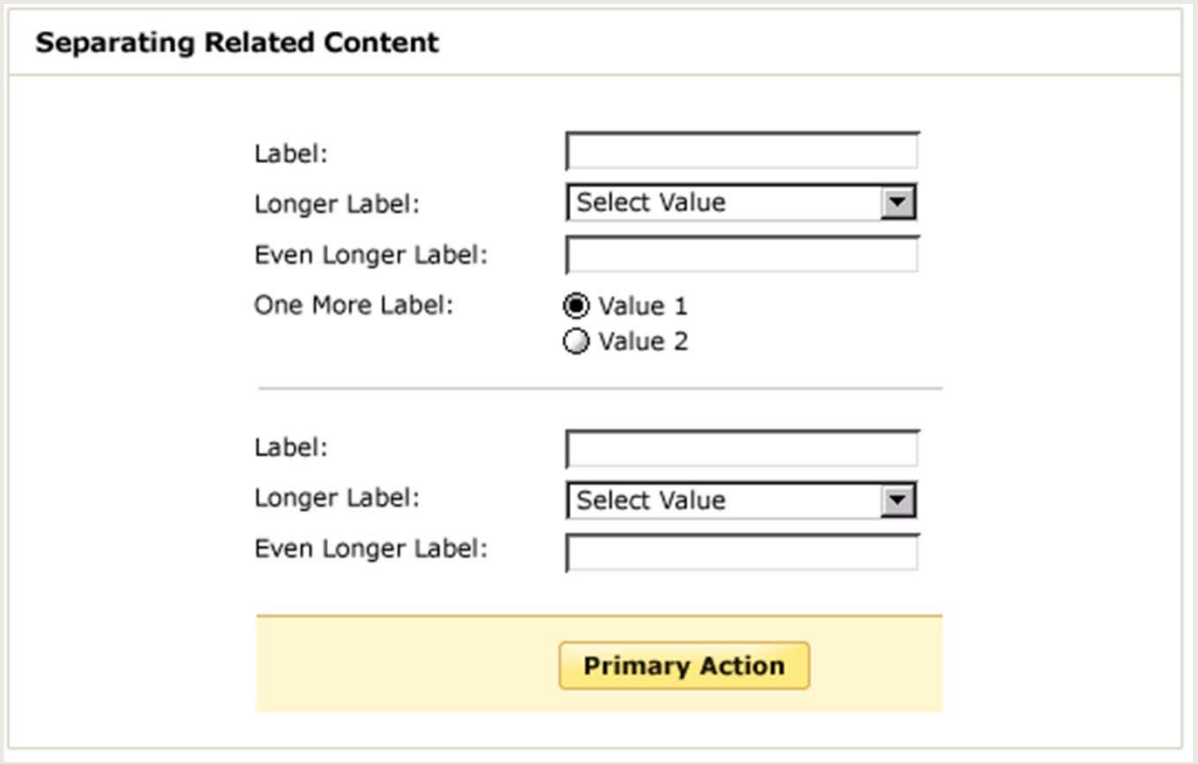
Input Design

- Input Control
  - Every piece of information should be traceable back to the input data
  - Audit trail
  - Data security
  - Records retention policy
  - Encrypted – encryption


Vertical Labels
Label
Longer Label
Select Value
Even Longer Label
One More Label
Value 1
Value 2
Primary Action
Advantage:
Adjacent Label and corresponding Input field
Advantage:
Rapid Processing
Label
Longer Label
Select Value
Even Longer Label
One More Label
Value 1
Value 2
Primary Action
Disadvantage:
Increased vertical space

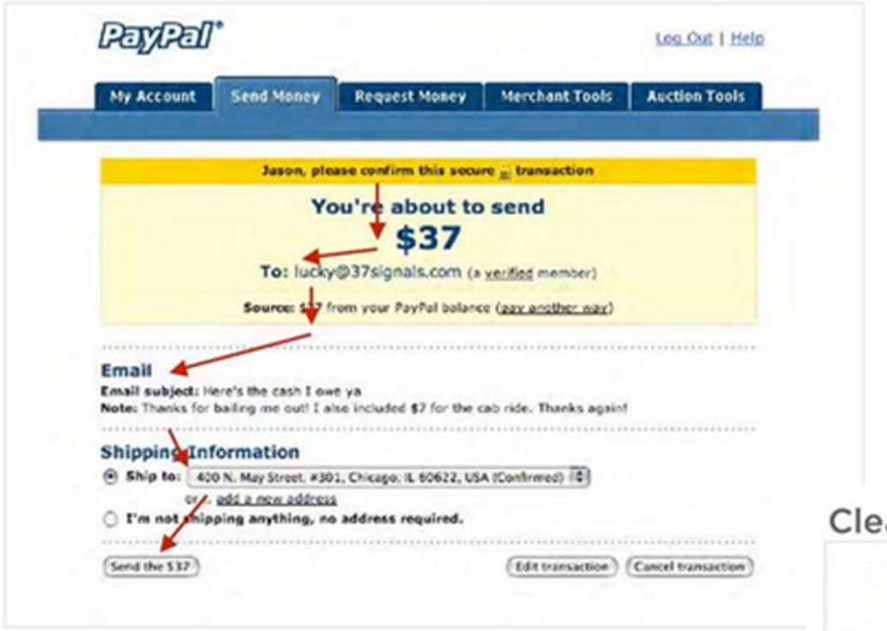

Left-Justified Horizontal Labels
Label:
Longer Label:
Select Value
Even Longer Label:
One More Label:
Value 1
Value 2
Primary Action
Disadvantage:
Adjacency of Label and corresponding Input field
Advantage:
Easy to scan labels
Label:
Longer Label:
Select Value
Even Longer Label:
One More Label:
Value 1
Value 2
Primary Action
Advantage:
Reduced vertical space


Right-Justified Horizontal Labels
Label
Longer Label
Select Value
Even Longer Label
One More Label
Value 1
Value 2
Primary Action
Advantage:
Adjacent Label and corresponding Input field
Disadvantage:
Reduced readability
Label
Longer Label
Select Value
Even Longer Label
One More Label
Value 1
Value 2
Primary Action
Advantage:
Reduced vertical space


Separating Related Content
Label:
Longer Label:
Select Value
Even Longer Label:
One More Label:
Value 1
Value 2
Label:
Longer Label:
Select Value
Even Longer Label:
Primary Action

Primary & Secondary Actions
Primary Action
Secondary Action
Disadvantage:
Potential Errors
Primary Action
Secondary Action
Advantage:
Clear Action
Primary Action
Secondary Action

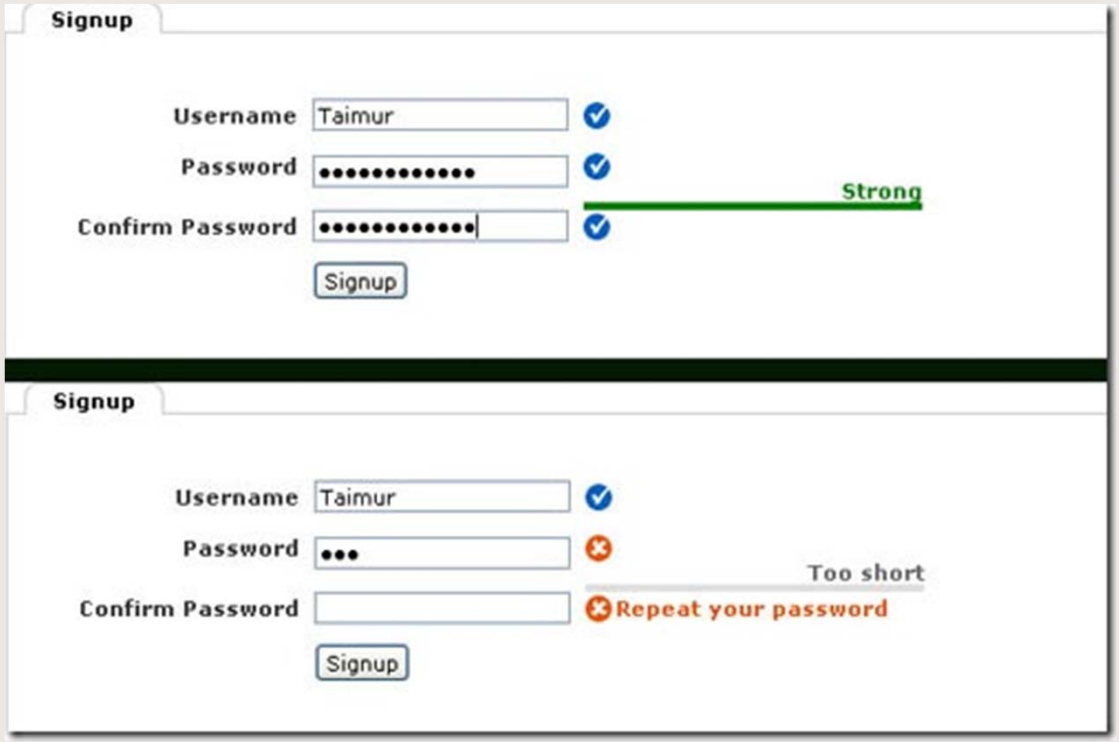
Path to Completion



Clear Path to Completion

Feedback

- Inline validation
  - assistance
- Errors
  - indication & resolution
- Progress
  - indication
- Success
  - verification



Text Engraving **+£7.20** for the first 30 characters, then **+£0.24** per character.

Should auld acquaintance be forgot,
And never brought to

52 characters remaining

-- Please Select a Font --

Preview