Golden Rules of User Experience Design

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Golden Rules of User Experience Design

Presentation goals

learn about the rules,

but more importantly –

appreciate their history

understand the **"why"** (rationale) behind the rules

Golden Rules

"Universal" and "timeless" design principles

apply to all software and web design, regardless of OS, device, browser, media, industry, users, tasks, etc.

Jacob Nielsen (1990)

"The **principles** are so basic that even futuristic dialogue designs such as 3-D interfaces with DataGlove input devices, gesture recognition, and live video images will always have to take them into account as long as they are based on the basic paradigm of dialogues and user commands."

Luke Wroblewski (2009)

"**Design principles** are the guiding light for any software application. They define and communicate key characteristics of the product to a wide variety of stakeholders, including clients, colleagues, and team members. Design principles articulate the fundamental goals that all decisions can be measured against and thereby keep the pieces of a project moving toward an integrated whole."

Golden Rules

Outline

History

Purpose

Psychology & HCI

Golden rules

- User in control
- Reduce users' memory load
- Make the experience consistent

Guidelines & checklists

Golden Rules

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Golden Rules History

W. J. Hansen (1971)

"User Engineering Principles for Interactive Systems"
AFIPS FJCC Vol. 39

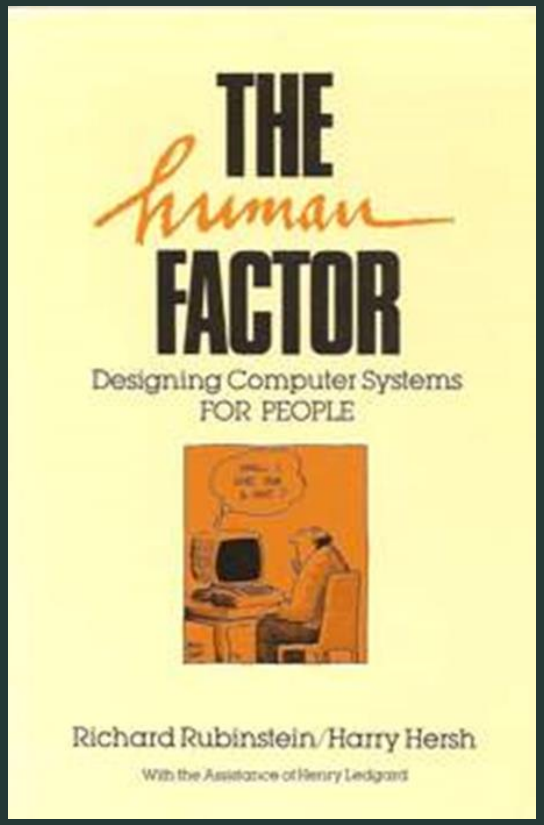
Hansen's principles:

1. Know the user
2. Minimize memorization
3. Optimize operations
4. Engineer for errors

Golden Rules History

Rubinstein & Hersh (1984)

The Human Factor



Longest list, with 93 design principles:

1. Designers make myths – users make conceptual models

. . .

. . .

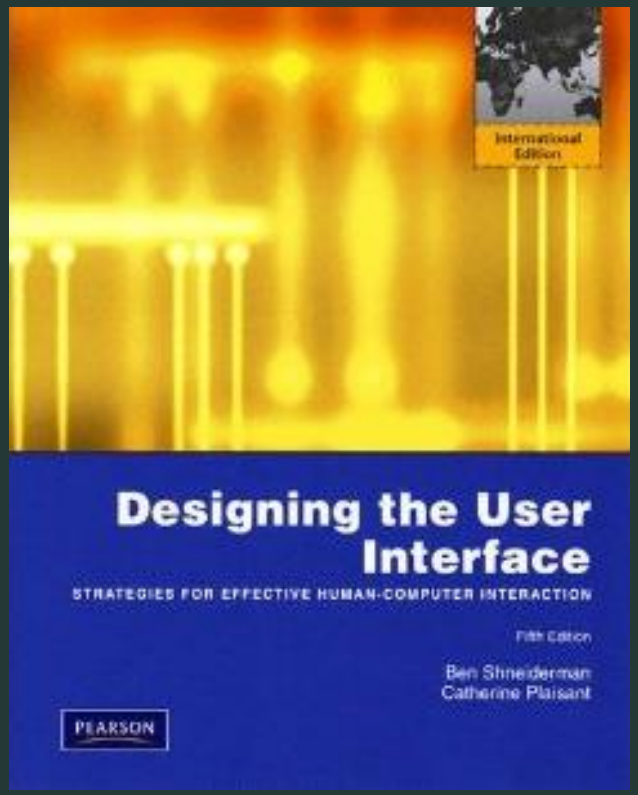
. . .

93. Videotape real users

Golden Rules History

Ben Shneiderman (1987)

Designing the User Interface
(1st edition, now 5th edition)



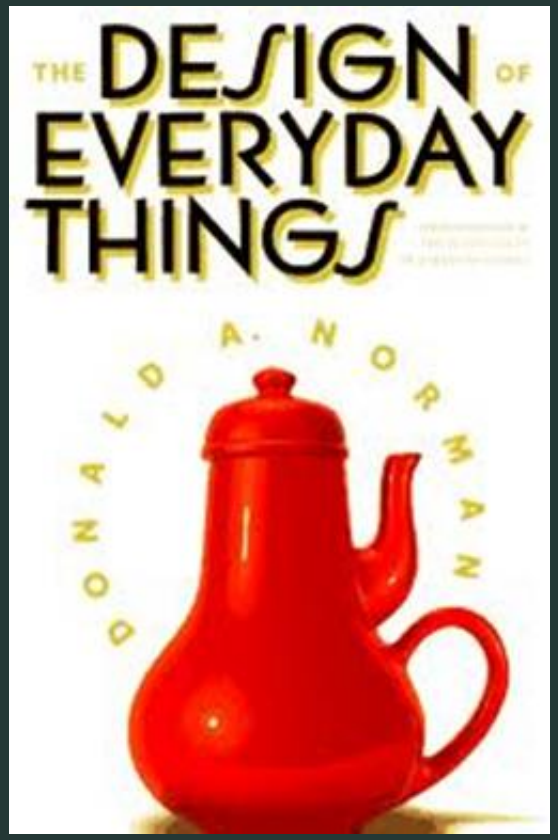
Defined the term
"Universal Usability"

1. Strive for consistency
2. Enable shortcuts
3. Informative feedback
4. Design to yield closure
5. Simple error handling
6. Easy reversal of actions
7. User in control
8. Reduce short-term memory load

Golden Rules History

Don Norman (1988)

The Design of Everyday Things



Six design principles:

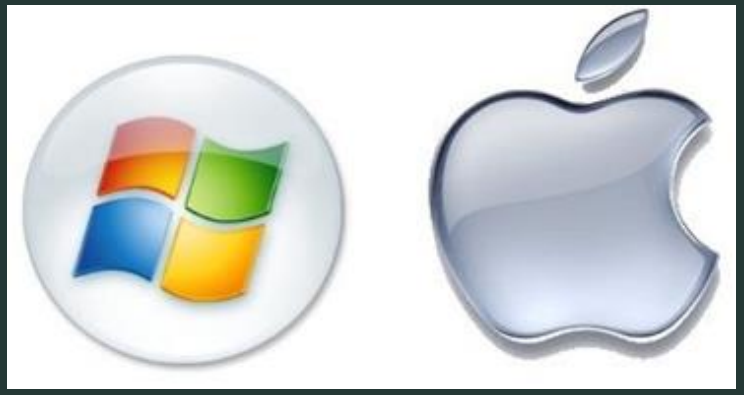
1. Visibility
2. Feedback
3. Constraints
4. Mapping
5. Consistency
6. **Affordance**

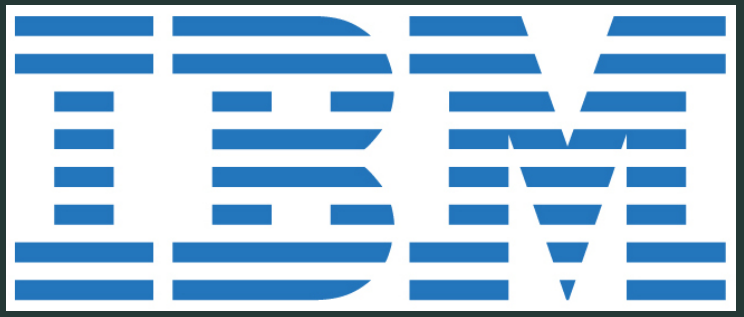
PULL
PULL

PUSH
PUSH

Golden Rules History

1990's – Golden Era of Mac and PC Software Design





Apple Human Interface Guidelines (Apple, 1992)

Object-Oriented Interface Design: IBM Common User Access Guidelines (IBM, 1992)

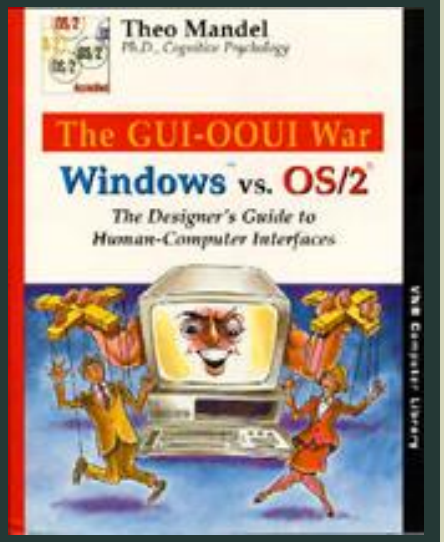
OSF/Motif Style Guide (Open Software Foundation, 1992)

Windows Interface Guidelines for Software Design (Microsoft, 1995)

Golden Rules History

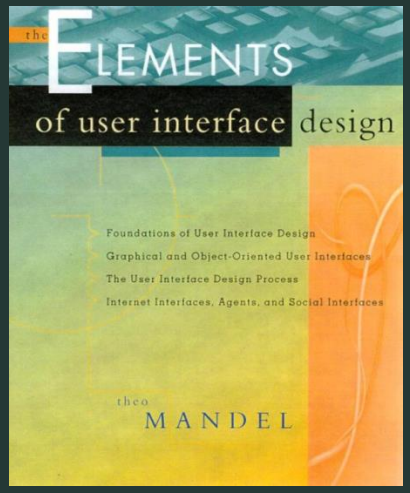
Mandel (1994)

Windows vs. OS\2: The GUI-OOUI War
(Golden rules chapter)



Mandel (1997)

The Elements of User Interface Design
(Golden rules chapter)

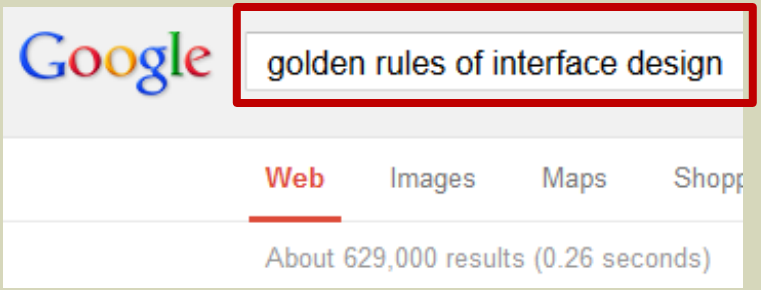


Overview & discussion of golden rules in the 90's

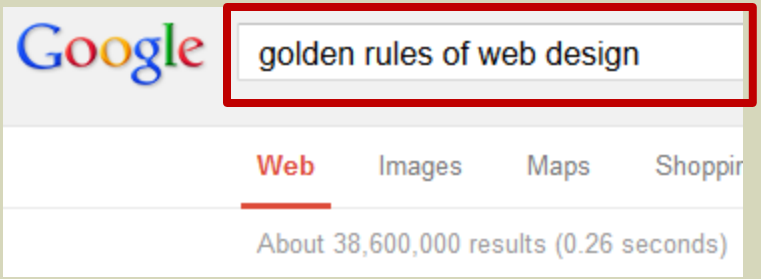
Groundwork for this presentation

Golden Rules History

Looking for references to golden rules today?



> 600,000 results



> 38.5 million results

Golden Rules

History

Purpose

Psychology & HCI

Golden rules

- Place users in control
- Reduce users' memory load
- Make the experience consistent

Guidelines & checklists

Purpose of golden rules

Purpose of golden rules

Your users feel the pain when you break the rules **(poor design)**

People have basic life expectations and also expectations about the software and websites they use **(users' mental models)**

Purpose of golden rules

"Before you buy software, make sure it believes in the same things you do. Whether you realize it or not, software comes with a **set of beliefs built in.** Before you choose software, make sure **it shares yours**."

PeopleSoft Advertisement (1996)

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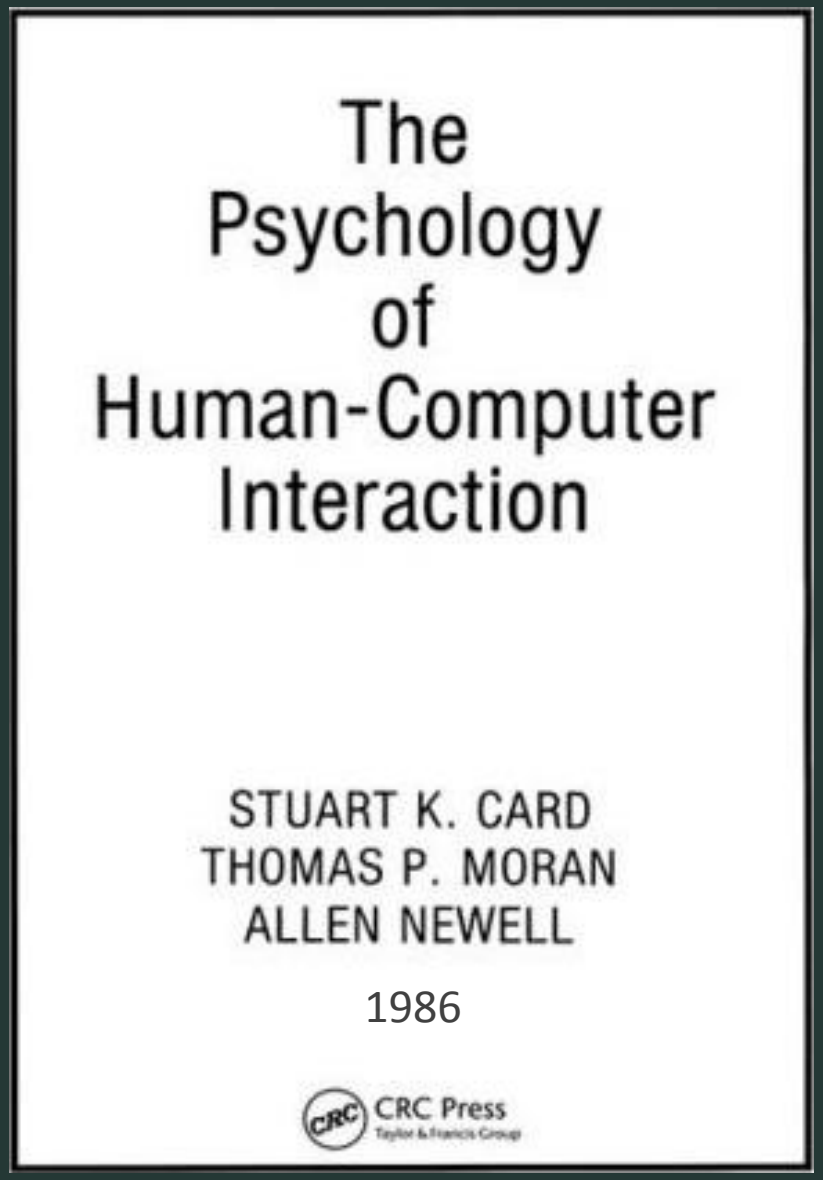
Psychology & HCI



Design principles are grounded in psychology and HCI:

- cognition
- memory
- perception
- attention
- learning
- social psychology
- etc.

Psychology & HCI

Jeff Sauro

5 HCI laws for UX design (2013)

measuringusability.com

Miller's law of STM

Fitts' law

Hick-Hyman law

Power law of practice

Pareto principle

Zipf law

Psychology & HCI

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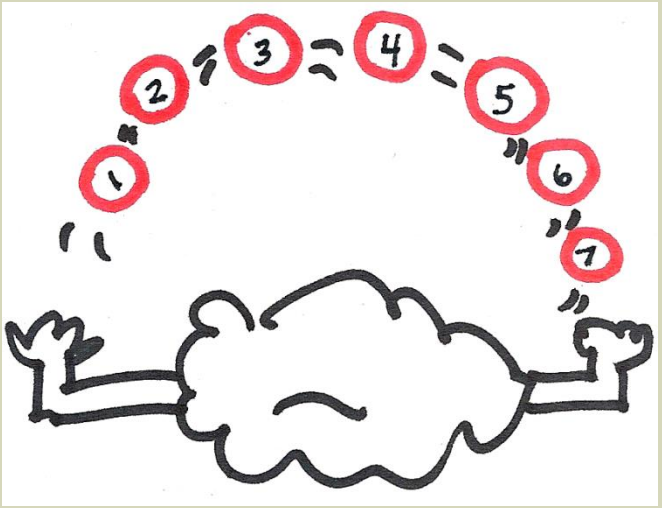
Magic Number 7+/- 2

Most people can hold approximately seven pieces of information in short term memory at once. For example, most people can remember a random 7-digit phone number.

More information can be stored by chunking information into meaningful groups. Also, to hold information in memory, you must focus on rehearsing it.

Often misused in UX design!!!



Psychology & HCI

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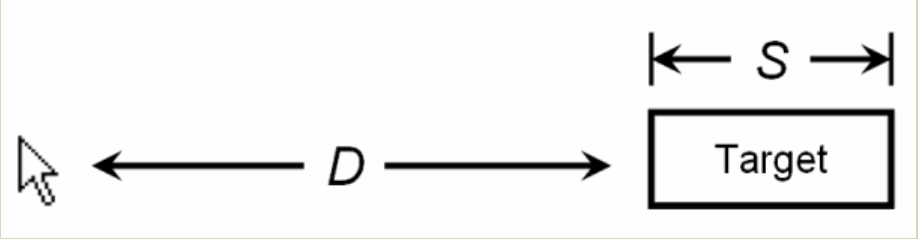
Rule of Target Size

Mathematically predicts how long it will take to "acquire" a target based on its distance and size.

It takes users longer to point to links and buttons on a screen if the objects are smaller in size or farther away from the home position. This also causes more selection errors.

The size of a button should be proportional to its expected frequency of use.



Psychology & HCI

Miller's law of STM

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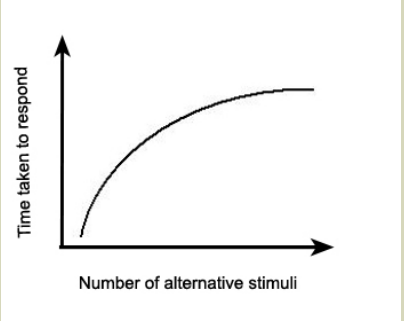
Rule of Large Menus

Time it takes to make a decision based on the number of choices available.

People subdivide a total collection of choices into categories, eliminating about half the remaining choices at each step, rather than considering each and every choice one-by-one (takes linear time).

Example – to find a given word in a randomly ordered word list (menu), scanning each word in the list is required, consuming linear time, so Hick's law does not apply. However, if the list is alphabetical and the user knows the name of the command, he or she may be able to use a subdividing strategy that works in logarithmic time.



Psychology & HCI

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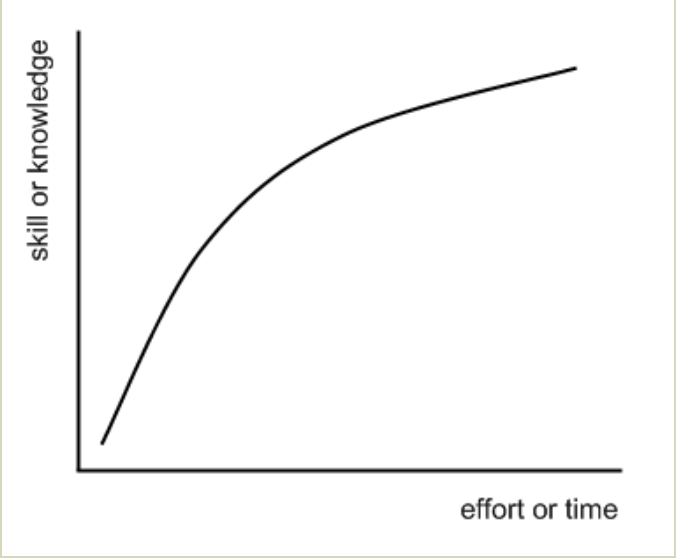
Zipf law

Famous "Learning Curve"

Time to complete a task decreases linearly with the number of practice trials taken when both are expressed as logarithms.

If you know nothing about a topic, you can learn 50% of the information quickly. But when you have 50% less to learn, it takes more time to learn that final 50%.



Psychology & HCI

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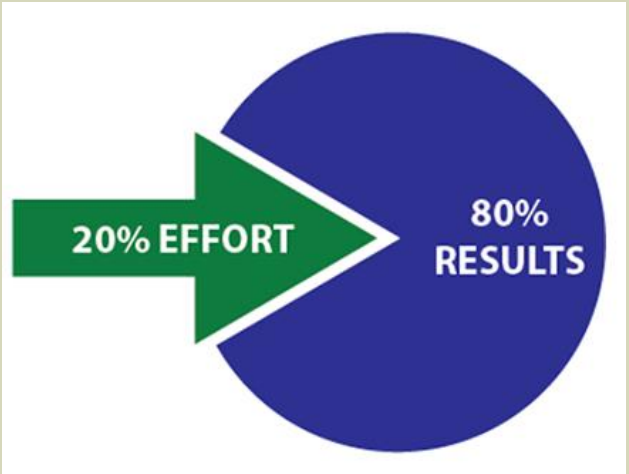
80/20 Rule

In 1906, the Italian economist observed that wealth was unequally distributed in Italy – 80% of land and wealth was owned by 20% of people.

Examples:
Microsoft noted that by fixing the top 20% of reported bugs, 80% of errors would be eliminated.

Also, 80% of Microsoft Office users typically only use 20% of the product functionality.



Psychology & HCI

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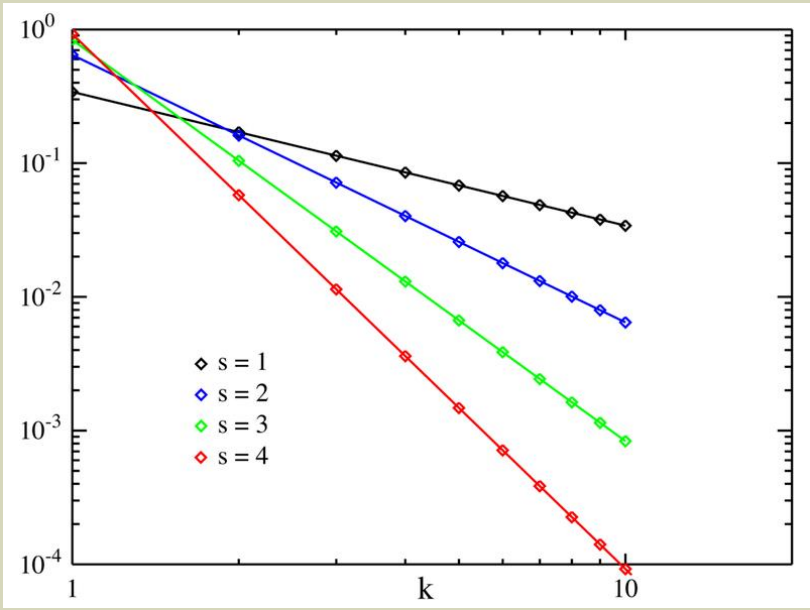
Rule of Ranking Frequency

American linguist found the most frequent word will occur approximately twice as often as the second most frequent word, three times as often as the third most frequent word, and so on.

Also applies to many other rankings (population, income, corp. size, etc.)



Golden Rules

History

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Golden rules

- Place users in control
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Guidelines & checklists

Golden rules – 3 major categories

Place users in control (10)

Reduce users' memory load (9)

Make the experience consistent (5)

Golden Rules

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- **– Place users in control**
- – Reduce users' memory load
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Guidelines & checklists

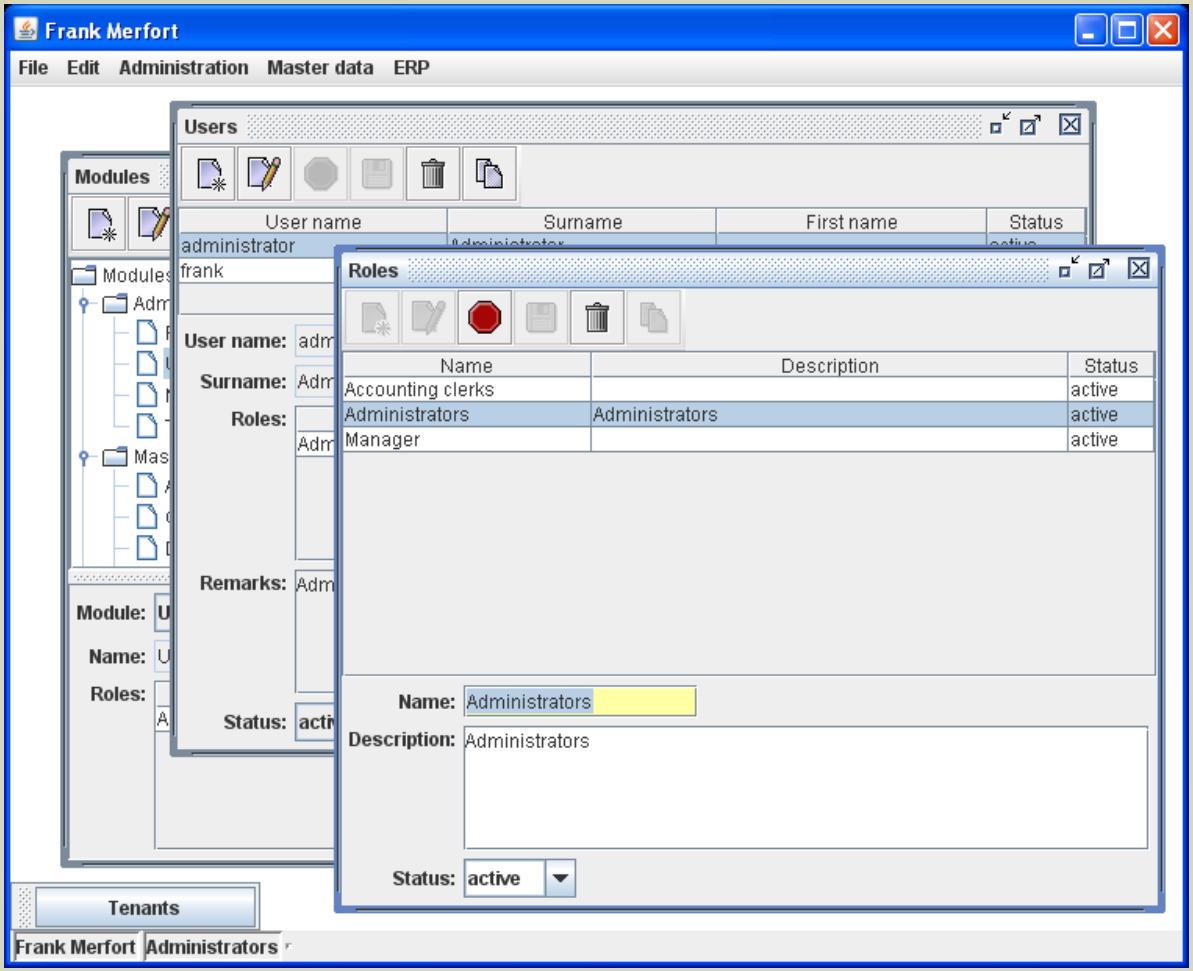
Users in control

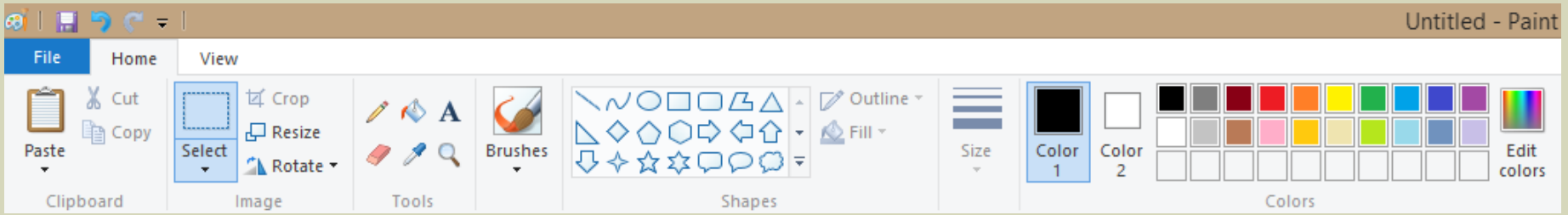
Most of the time, users would rather be in control
(**drive a car**)
than be a passenger
(**be on a plane**)

However, being in control may require a certain amount of skill and knowledge

Sometimes it is better to be a passenger (novice users, complex tasks, etc.)

Use modes judiciously (Modeless)





Use appropriate interaction techniques (Flexible)

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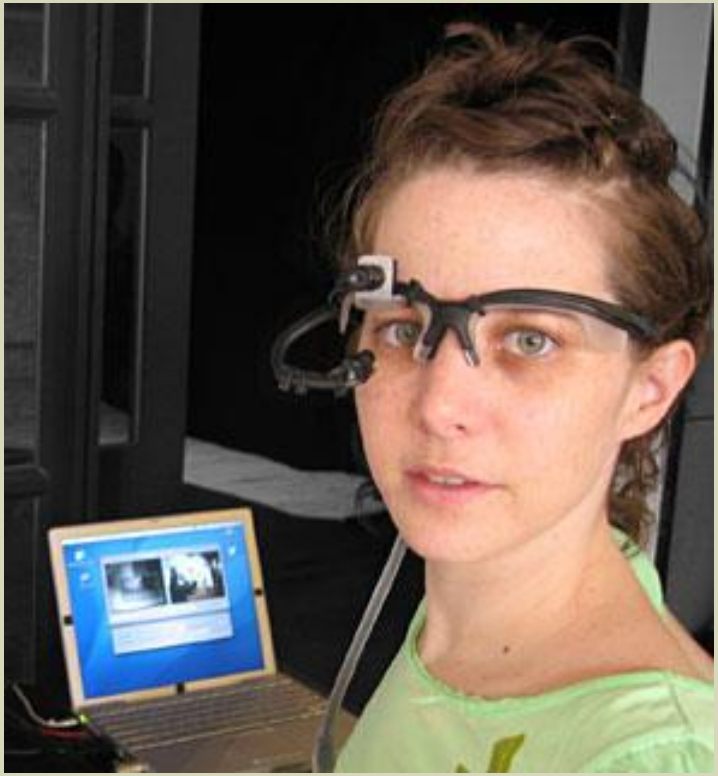
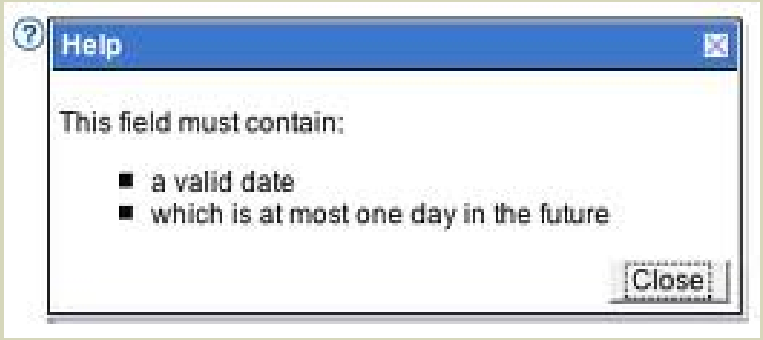


Allow users to change focus (Interruptible)

Display descriptive information (Helpful)



Registration

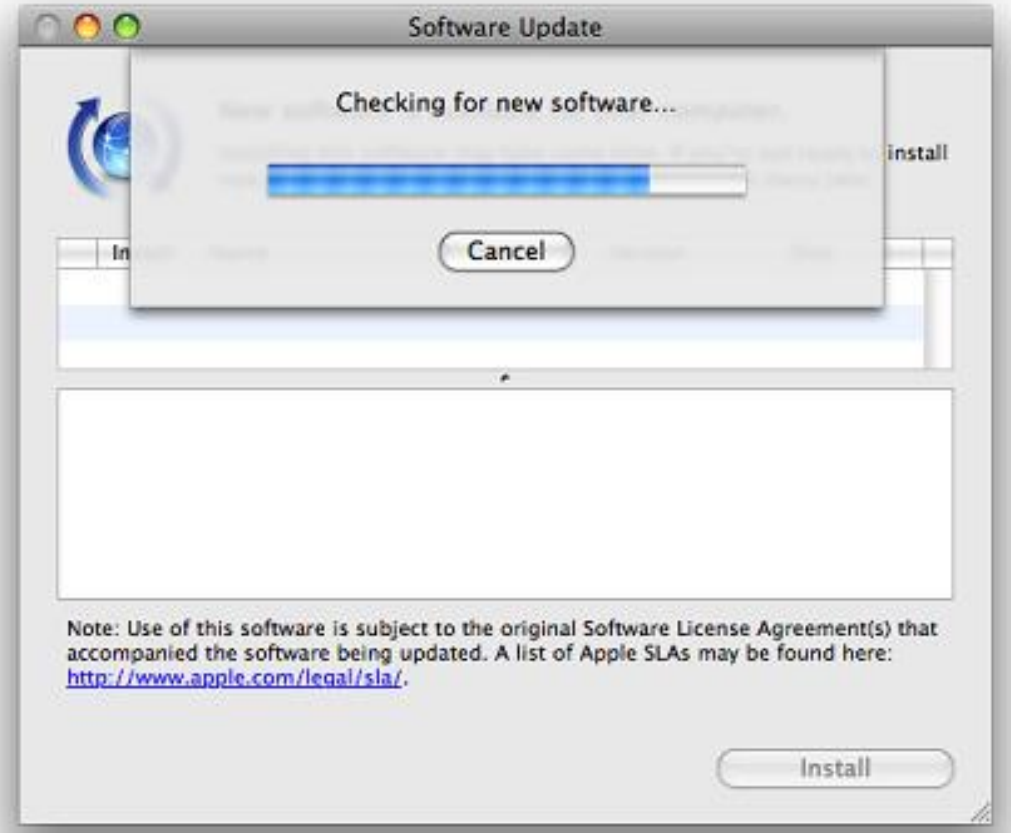
Create your account to edit pages on this site.

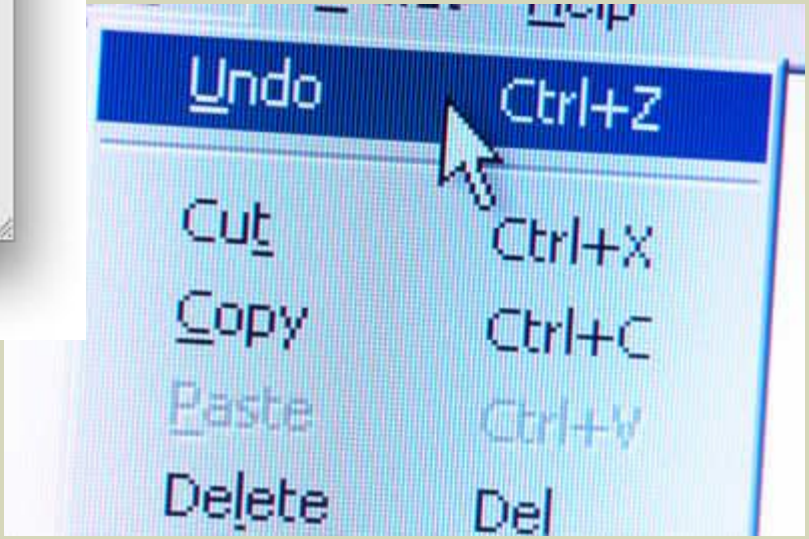
Fields marked * are required

* First name	Aaa	
* Last name	Bbb	
* Wiki name	AaaBbb	This Wiki name is already in use Your name as displayed online. This must be a unique Wiki name .
* Email address	admin	Please enter a valid email address Your email address will be kept confidential.
* Your password	•••••••	
* Confirm password		Please confirm your password

Register

Provide immediate and reversible actions, and feedback (Forgiving)





Provide meaningful paths and exits (Navigable)

Christopher Alexander (UC Berkeley)

famous architect, noted for his design theories and for more than 200 building projects around the world.

Alexander is the father of "pattern language" (1977)
www.patternlanguage.com

"**Users** know more about the architecture they need than any architect could."

Provide meaningful paths and exits (Navigable)

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Provide meaningful paths and exits (Navigable)

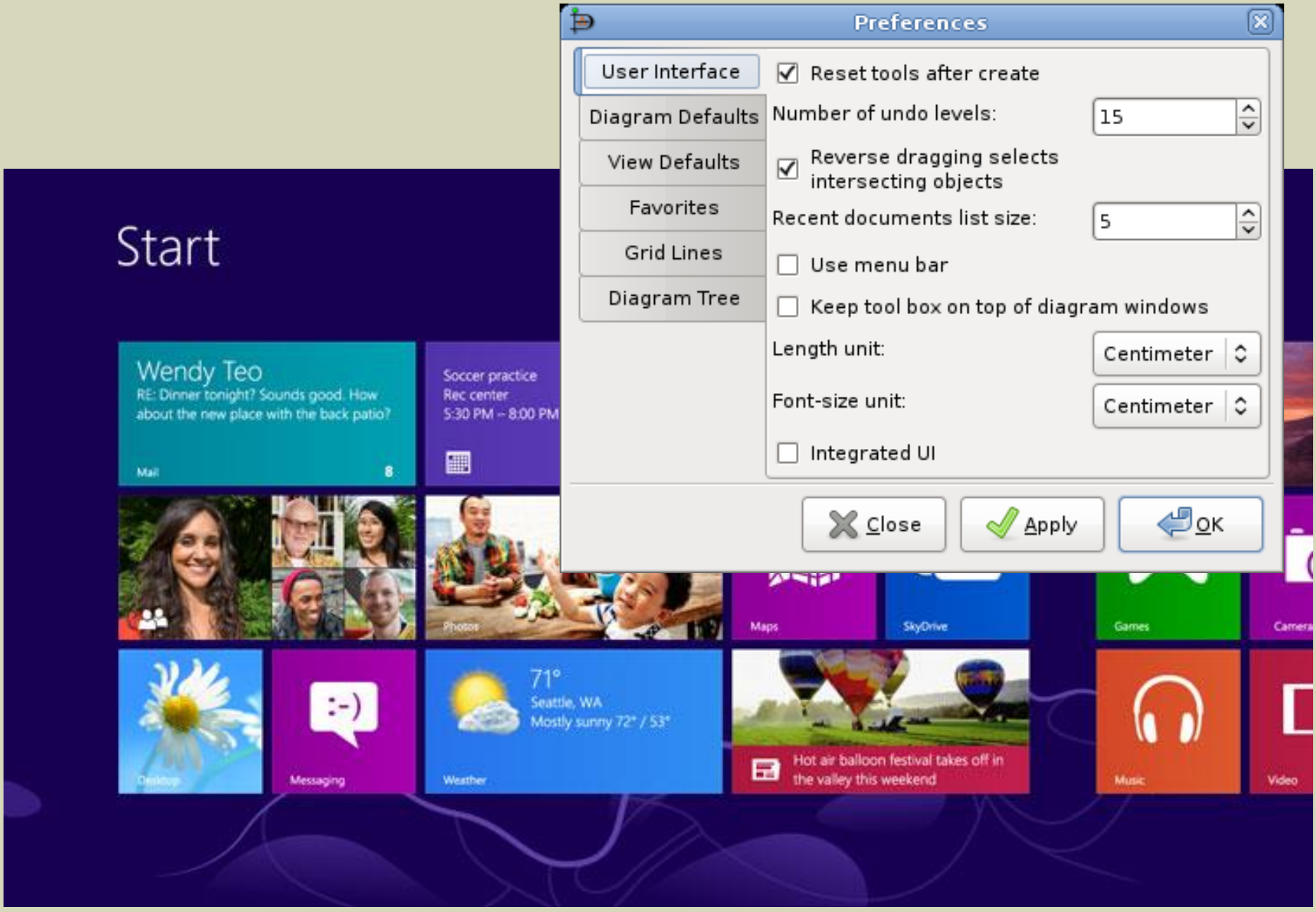
Paths

Exits

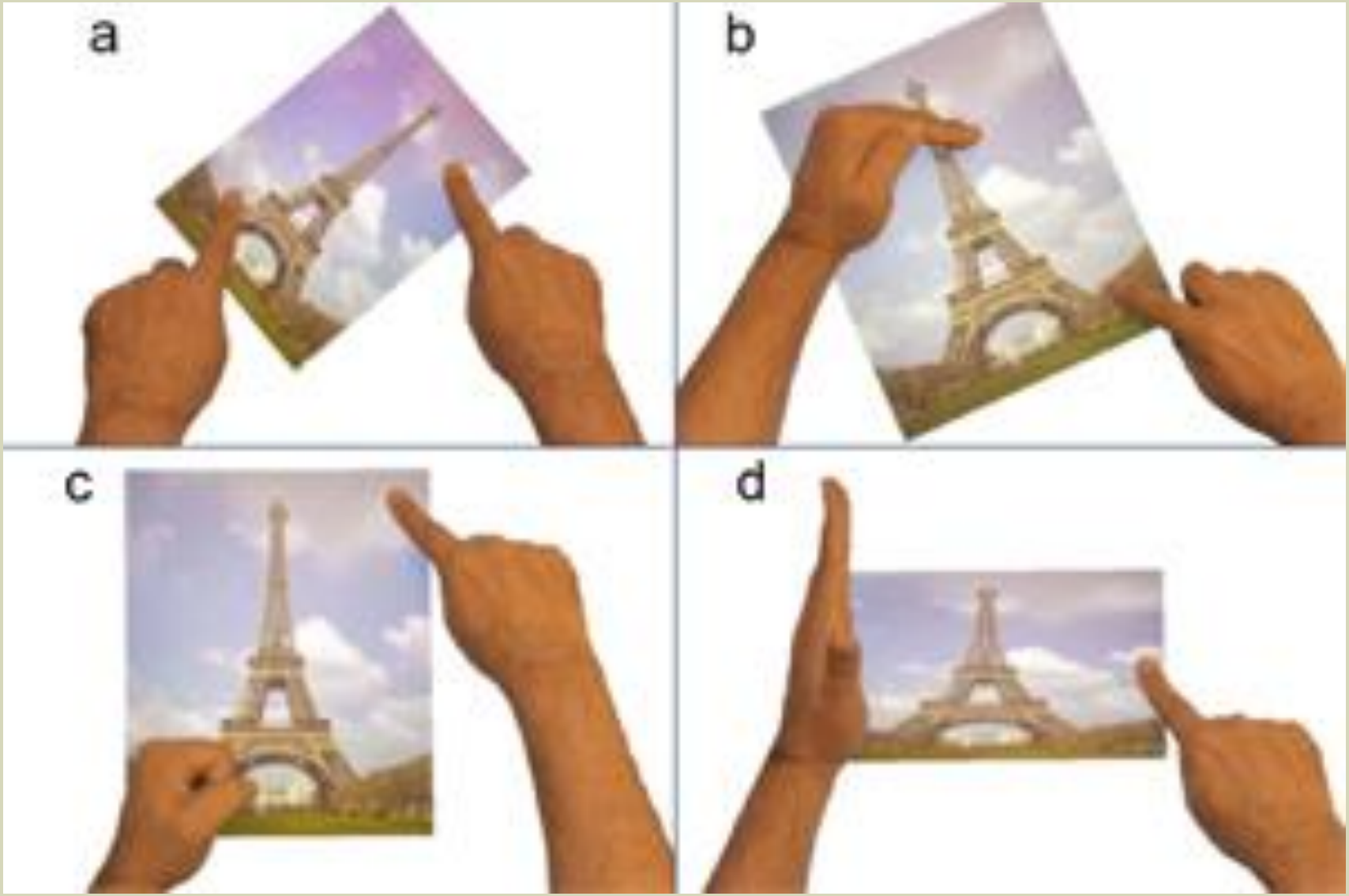
Accommodate different skill levels (Accessible)

Make the interface transparent (Facilitative)

Allow users to customize the interface (Preferences)



Allow objects to be directly manipulated (Interactive)



Golden Rules

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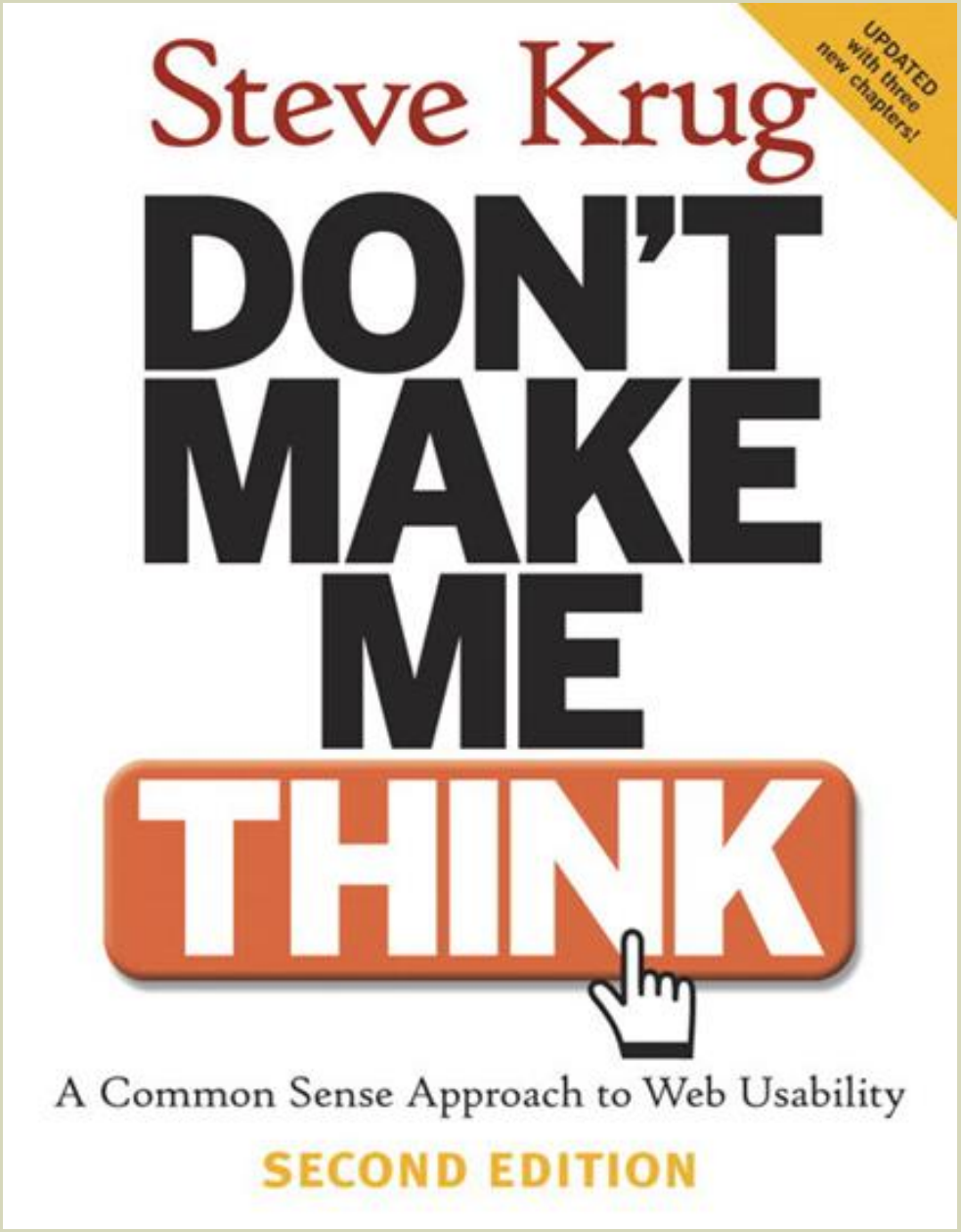
Guidelines & checklists

Reduce users' memory load



Relieve short-term memory (Remember)

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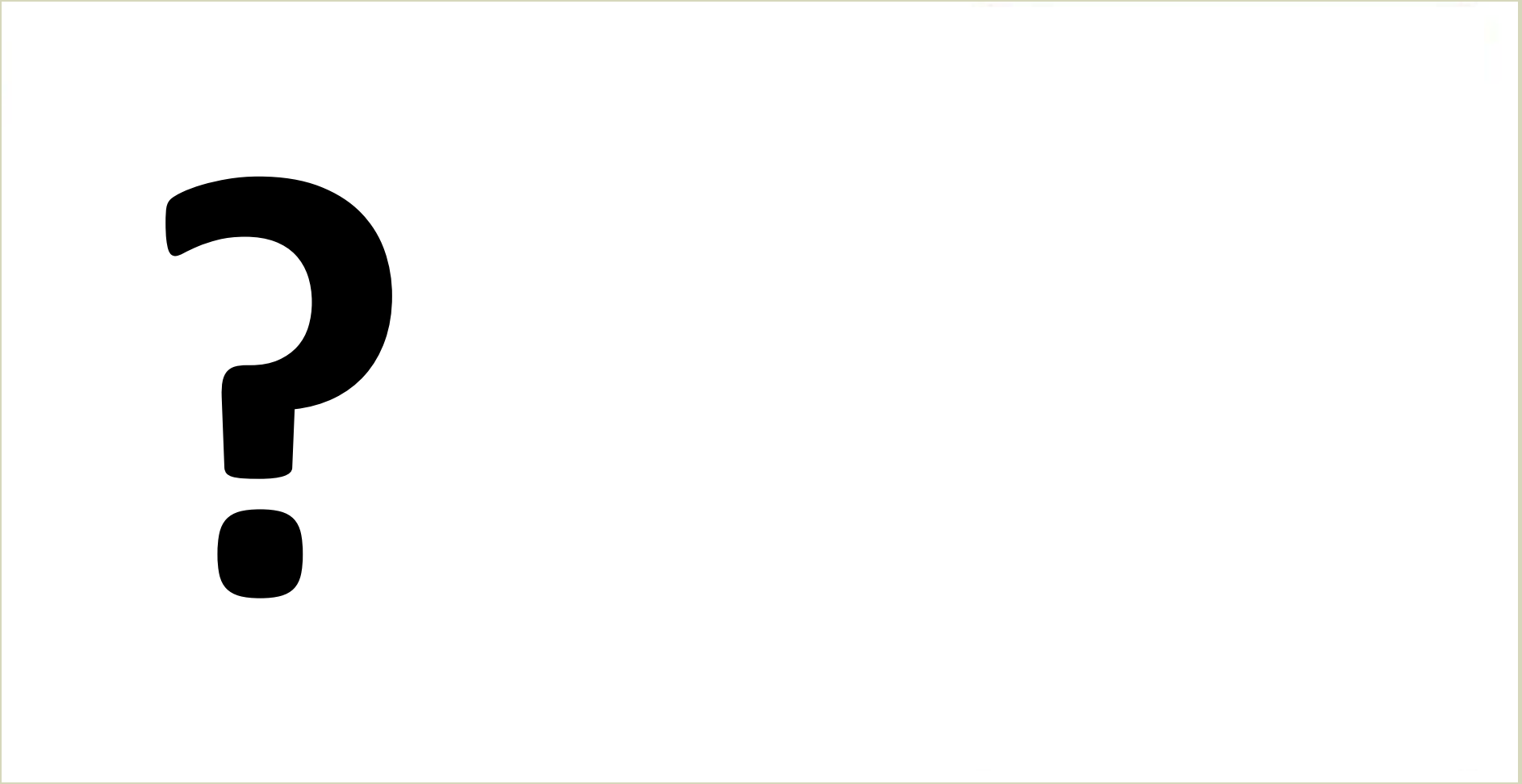

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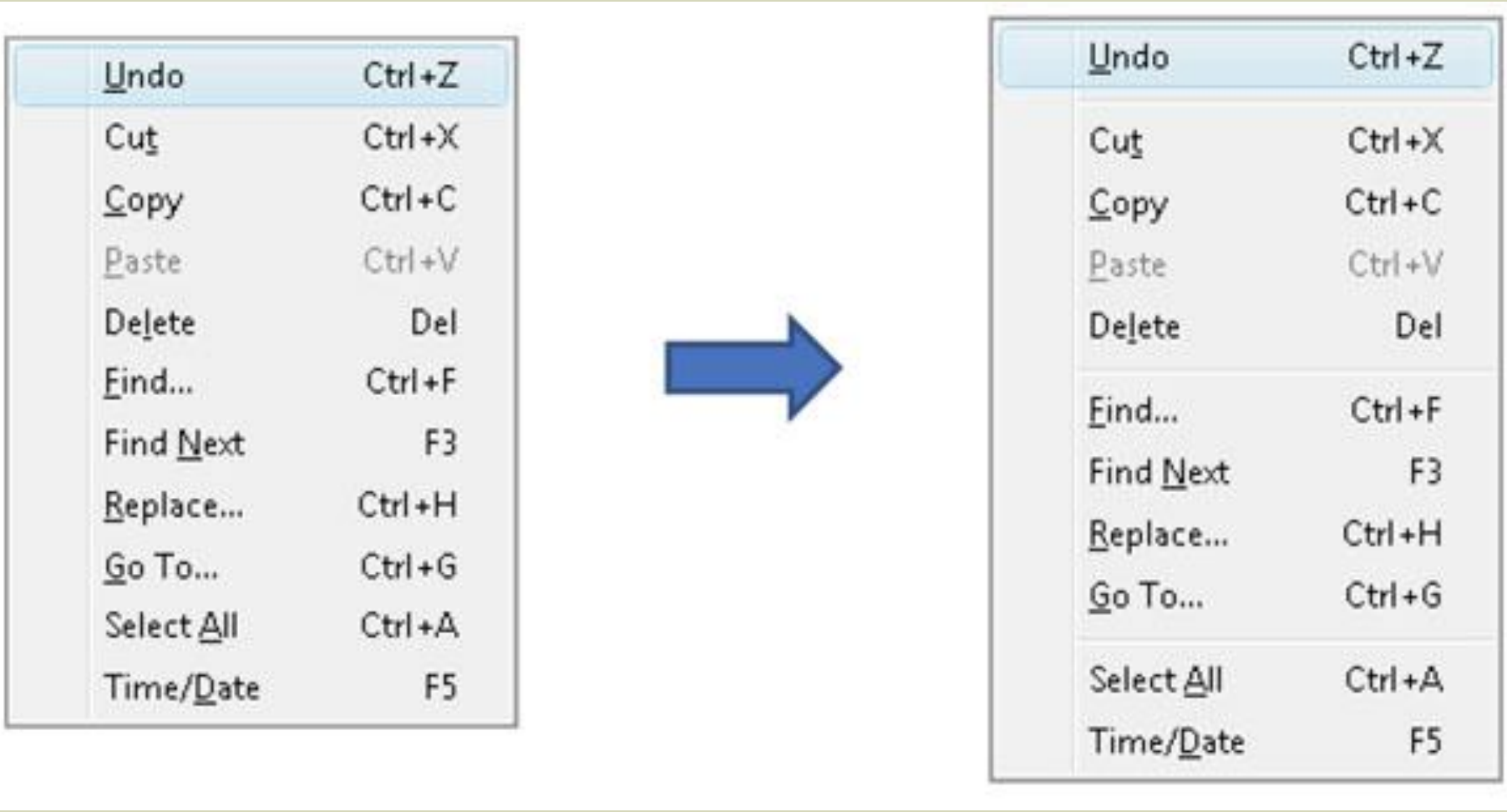
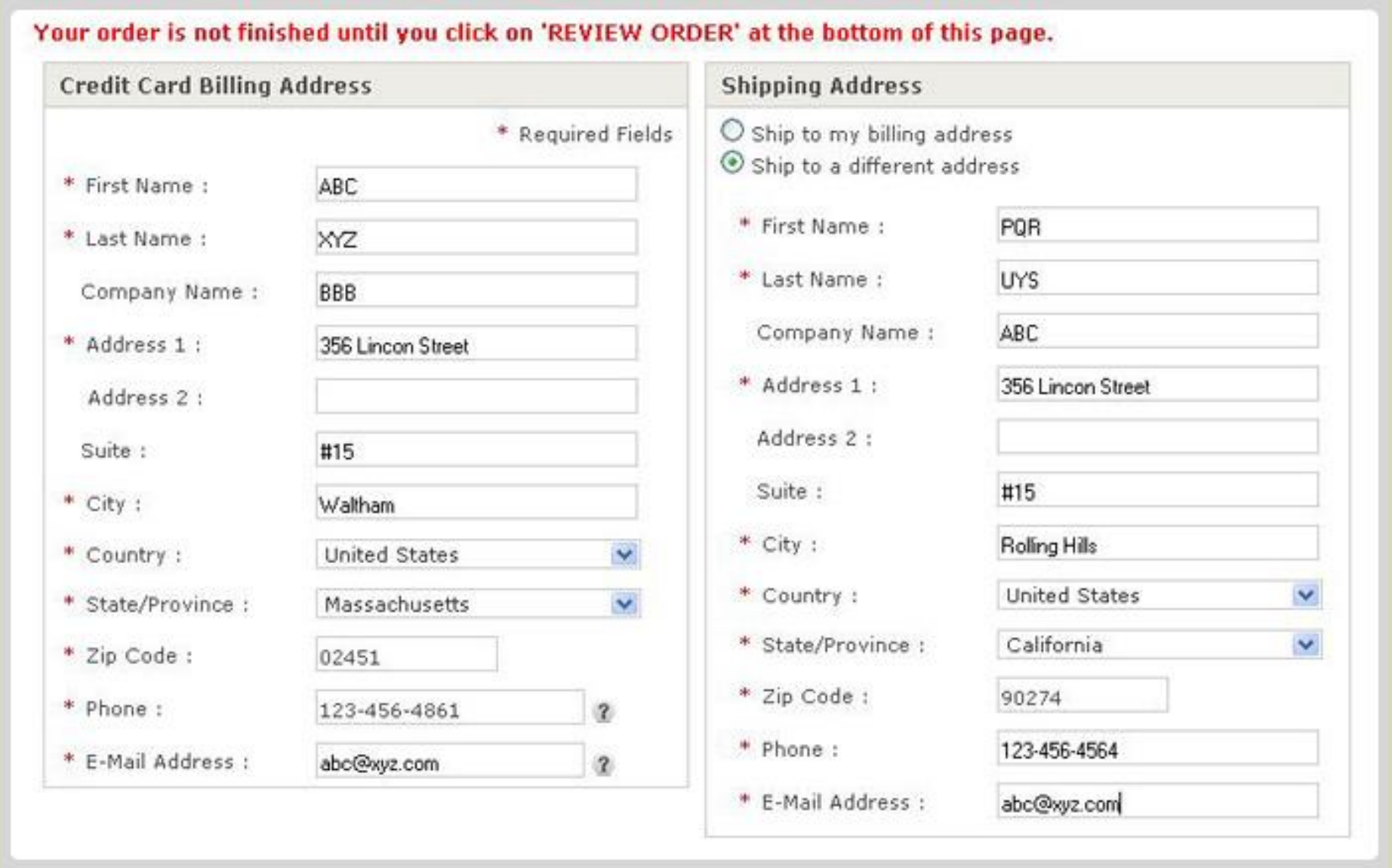


Relieve short-term memory (Remember)

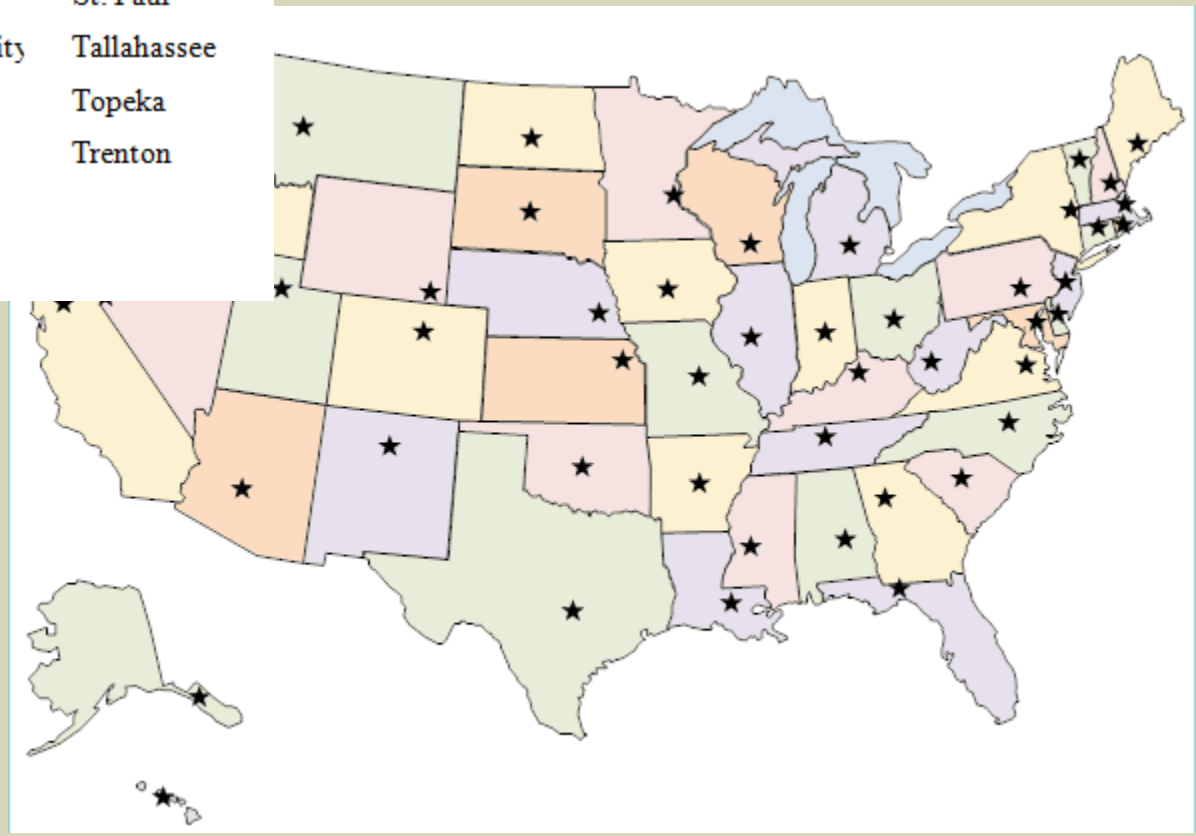


Rely on recognition, not recall (Recognition)

Albany	Columbus	Juneau	Raleigh
Annapolis	Concord	Lansing	Richmond
Atlanta	Denver	Lincoln	Sacramento
Augusta	Des Moines	Little Rock	Salem
Austin	Dover	Madison	Salt Lake City
Baton Rouge	Frankfort	Montgomery	Santa Fe
Bismarck	Harrisburg	Montpelier	Springfield
Boise	Hartford	Nashville	St. Paul
Boston	Helena	Oklahoma City	Tallahassee
Carson City	Honolulu	Olympia	Topeka
Charleston	Indianapolis	Phoenix	Trenton
Cheyenne	Jackson	Pierre	
Columbia	Jefferson City	Providence	

Recognition

Recall



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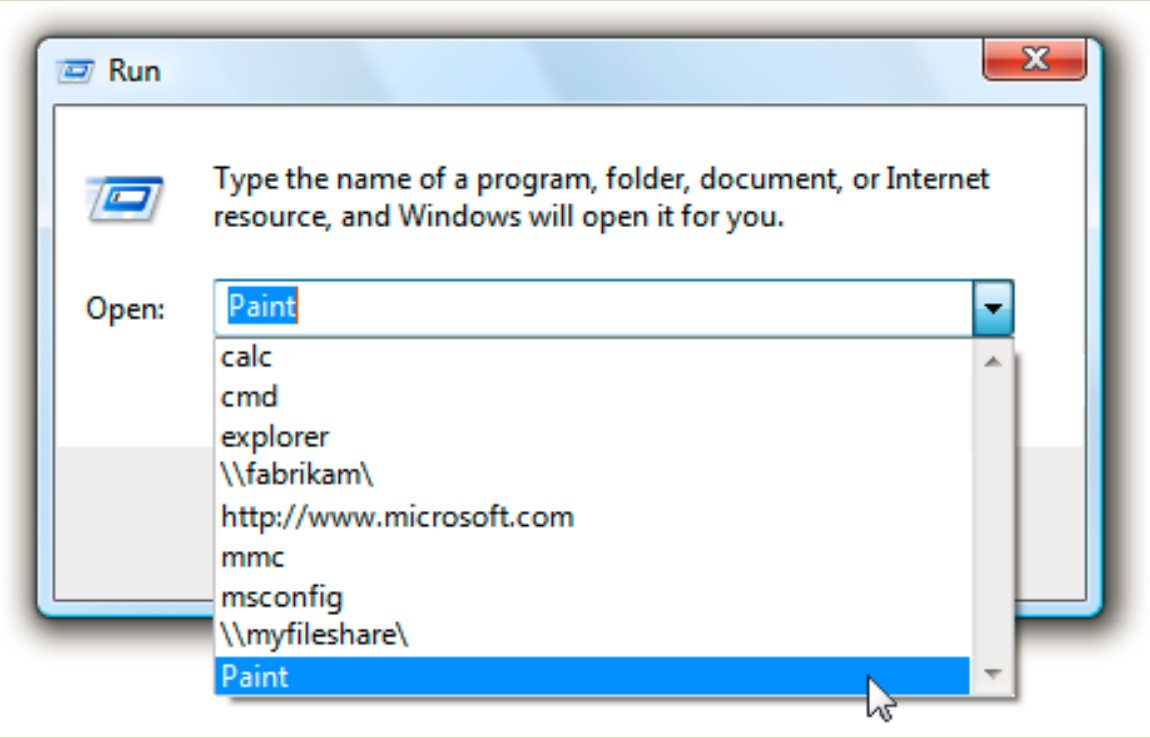
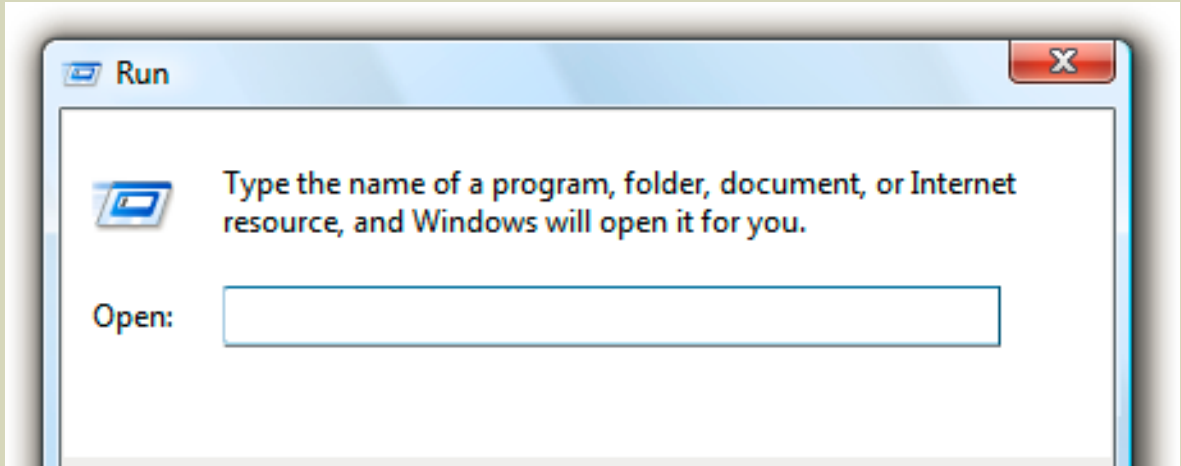


Recognition

Recall



Provide visual cues (Inform)

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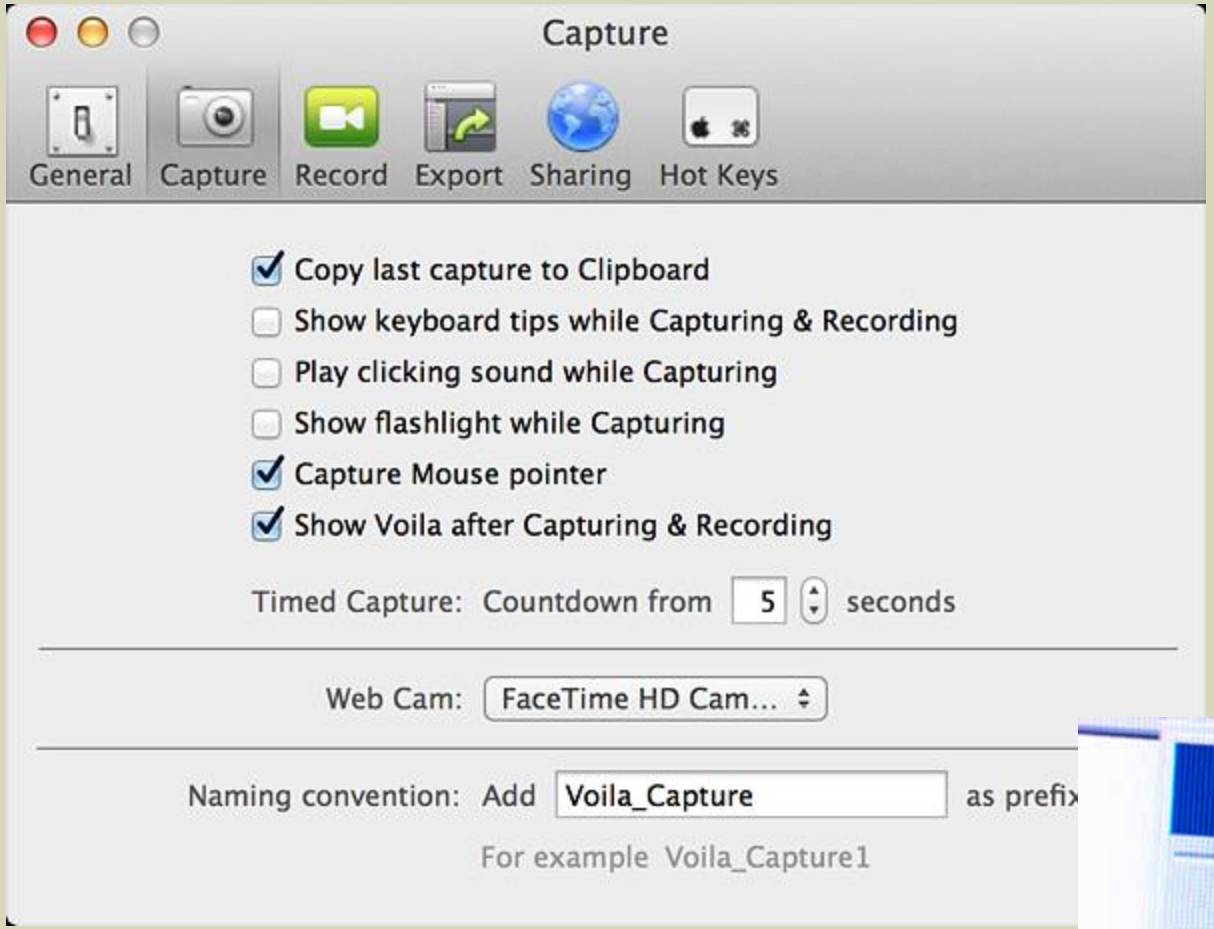
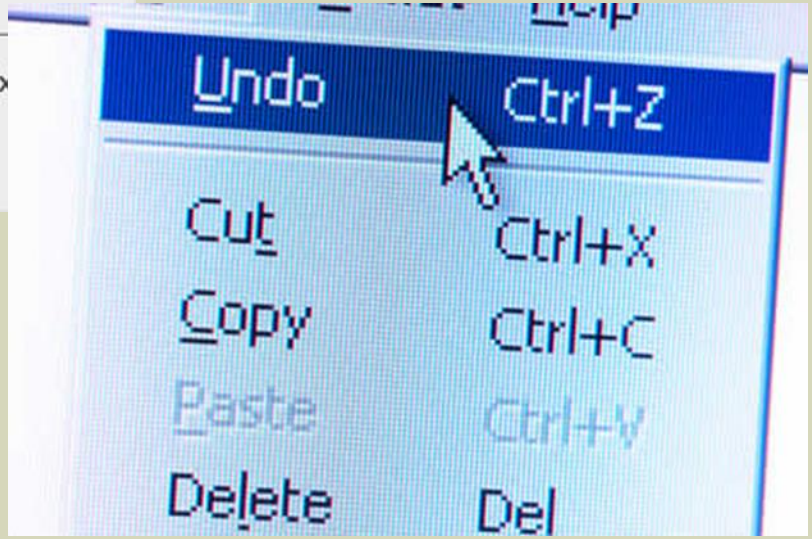
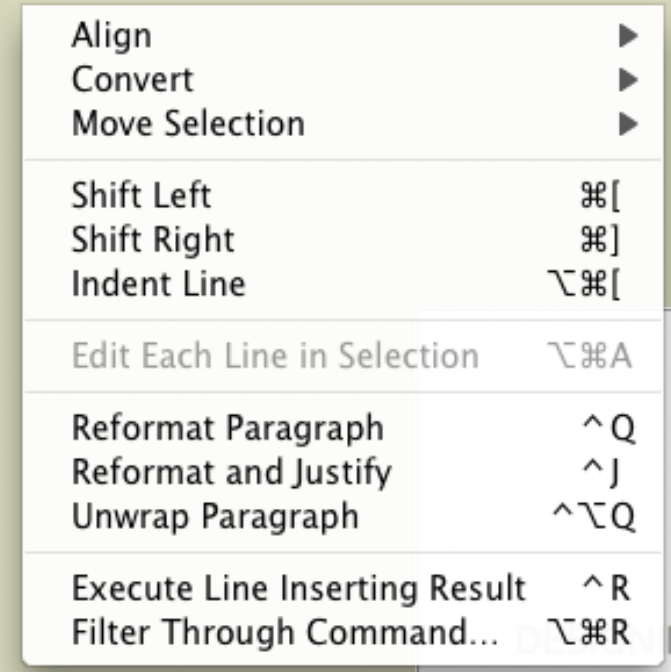
Users should always know four things:

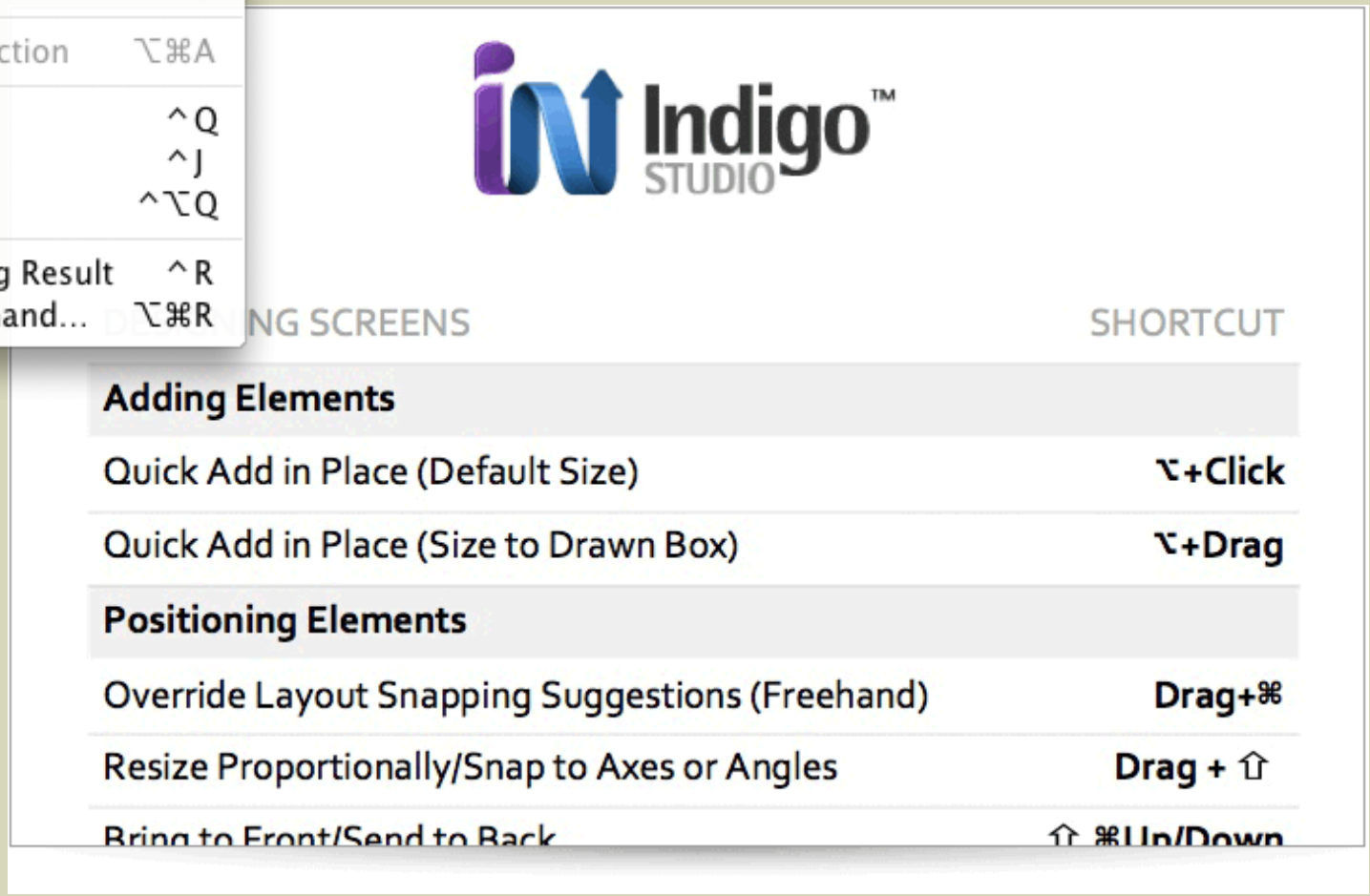
Provide defaults, undo and redo (Forgiving)



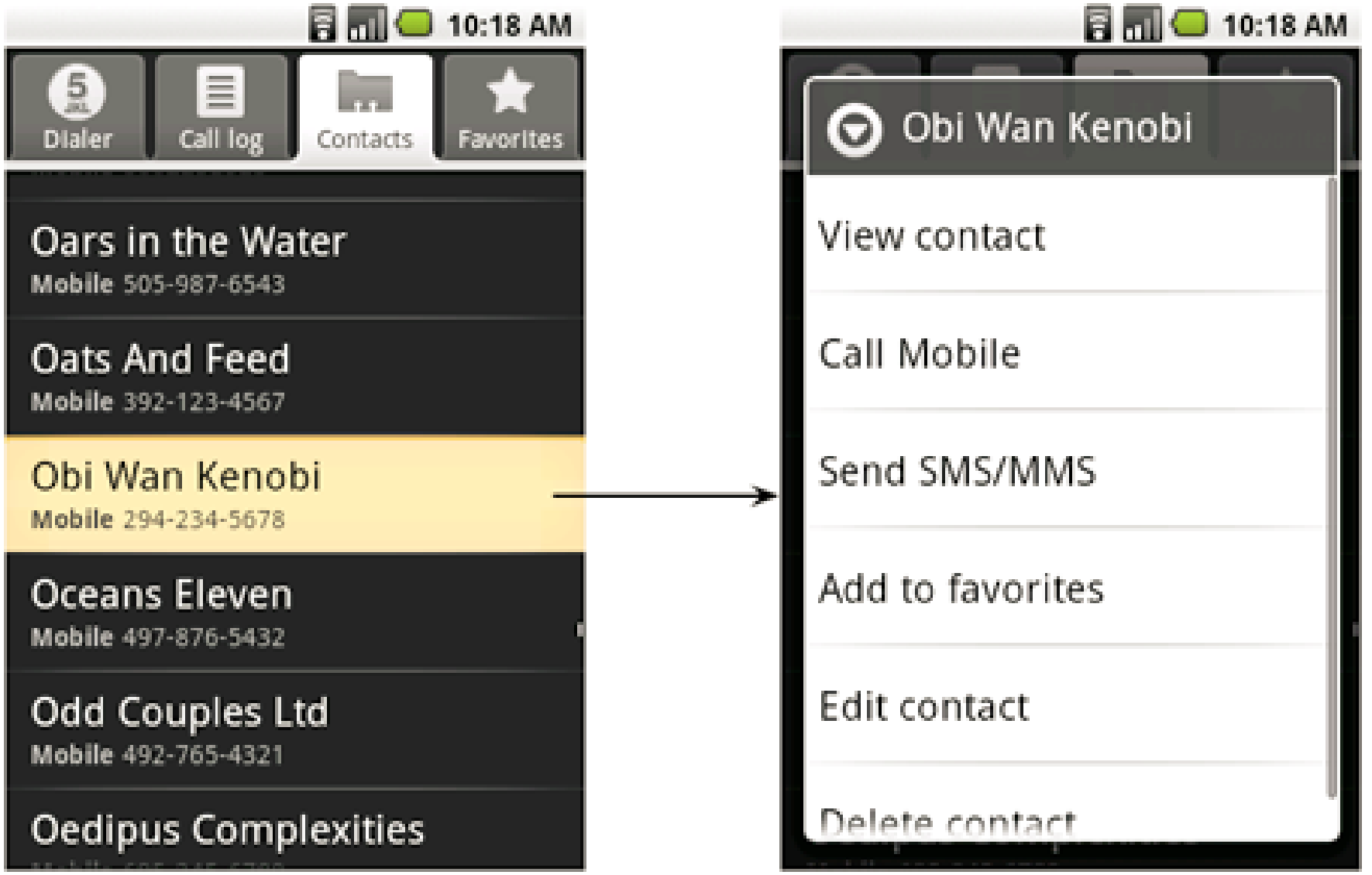


Provide interface shortcuts (Frequency)



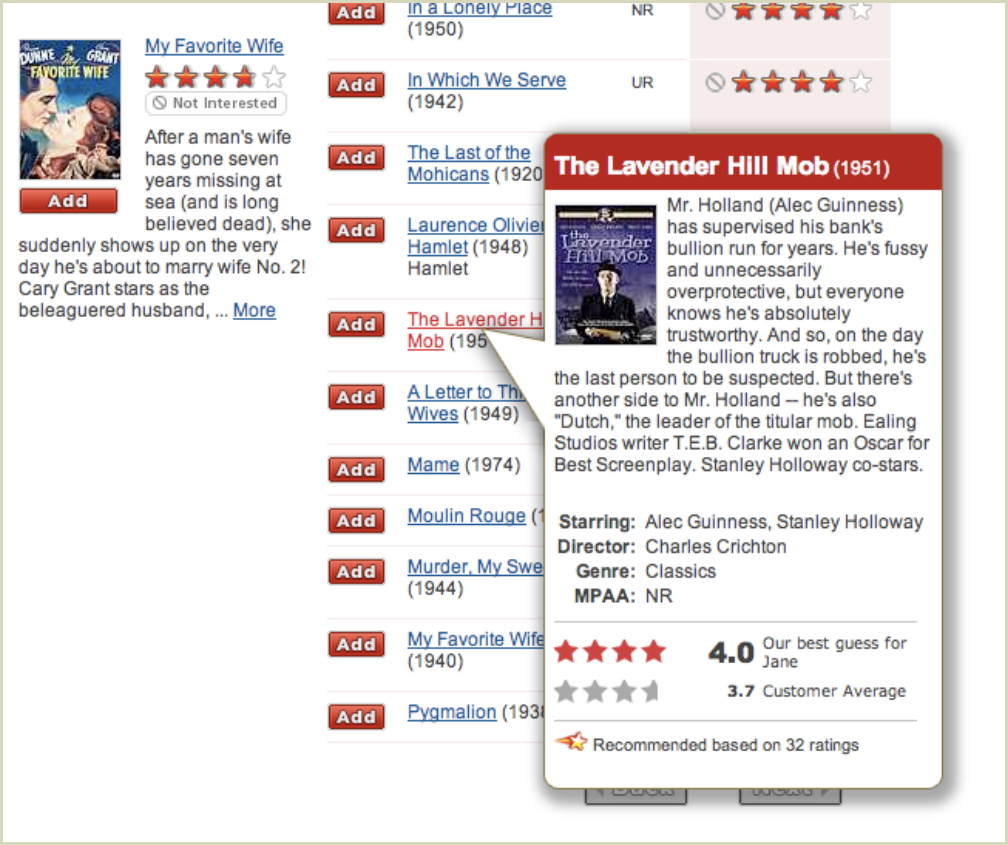


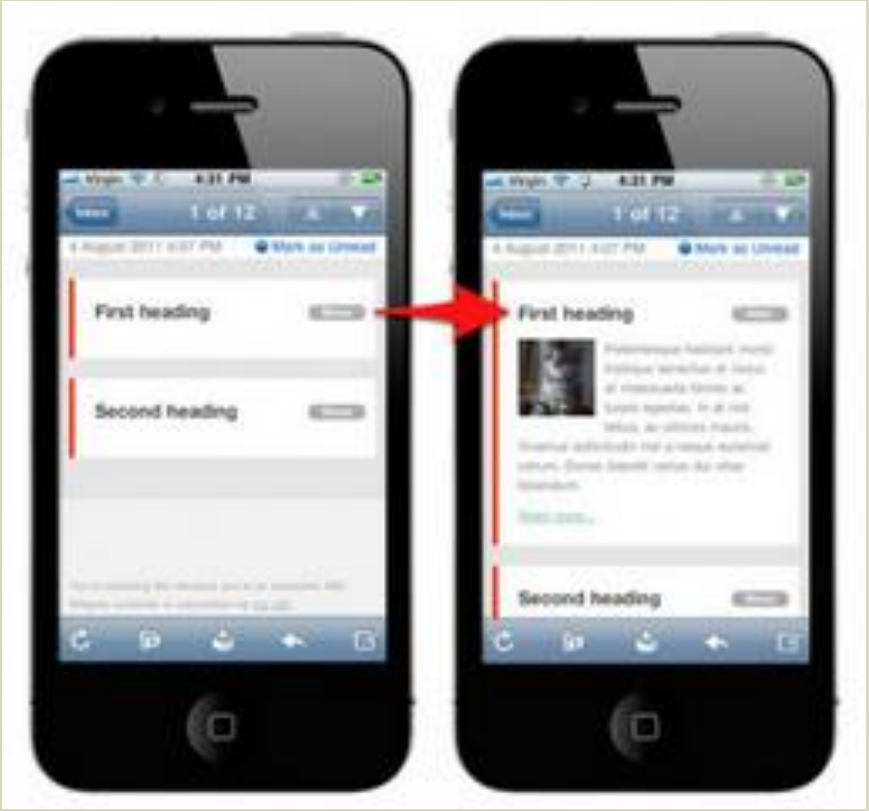
Promote an object-action syntax (Intuitive)



Use real-world metaphors (Transfer)

Utilize progressive disclosure (Context)





Utilize progressive disclosure (Context)

Yahoo! Sports - Tennis News

- APNewsBreak: US Open tennis prizes to $50M by '17 (Yahoo! Sports)
- Sharapova wants to stay on winning path at Sony (Yahoo! Sports)
- Nadal and Sharapova win Indian Wells titles (Yahoo! Sports)

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- APNewsBreak: US Open tennis prizes to $50M by '17 (Yahoo! Sports)
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KEY BISCAYNE, Fla. (AP) -- Third-seeded Maria Sharapova is hoping she can keep her winning ways intact from the BNP Paribas Open last week to the Sony Open this week.

+1 0

- Nadal and [illegible]ova win Indian Wells titles (Yahoo! Sports)

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Sharapova wants to stay on winning path at Sony

The Associated Press – 7 hours ago

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KEY BISCAYNE, Fla. (AP) -- Third-seeded Maria Sharapova is hoping she can keep her winning ways intact from the BNP Paribas Open last week to the Sony Open this week.

Promote visual clarity (Organize)

Golden Rules

History

Purpose

Psychology & HCI

Golden rules

- Place users in control
- Reduce users' memory load
- **Make the experience consistent**

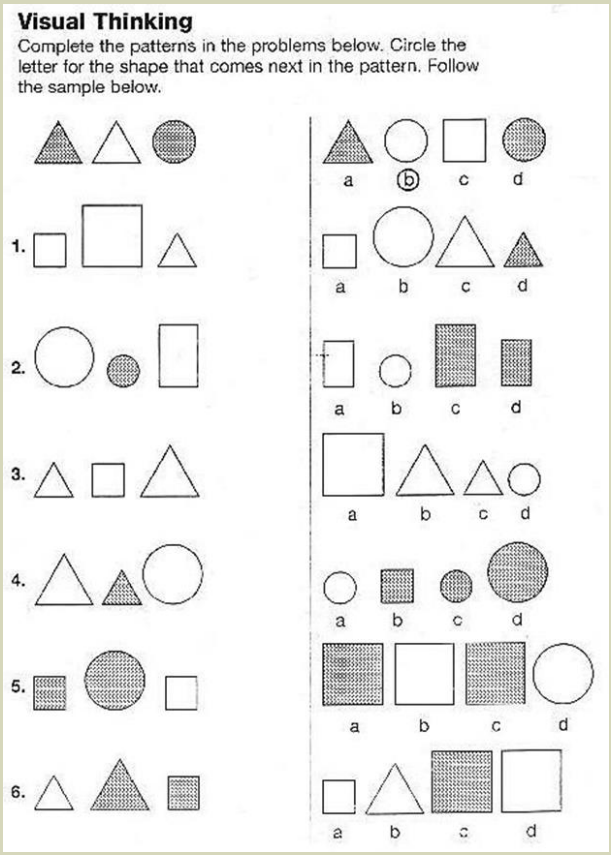
Guidelines & checklists

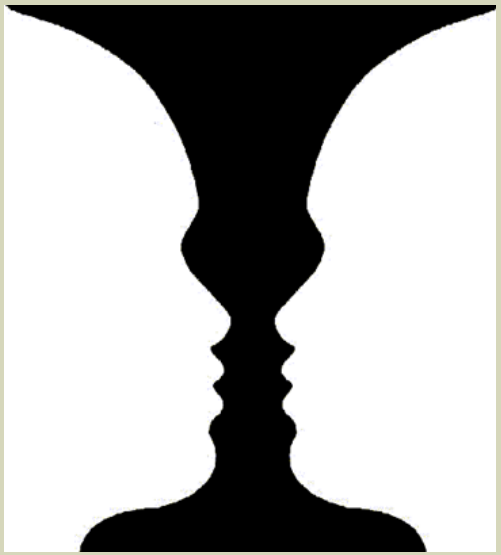
Consistency

Users organize and get meaning from interface patterns

Perceptual and psychological principles:

- Pattern recognition
- Signal detection theory
- Information processing
- "Gestalt" – wholeness



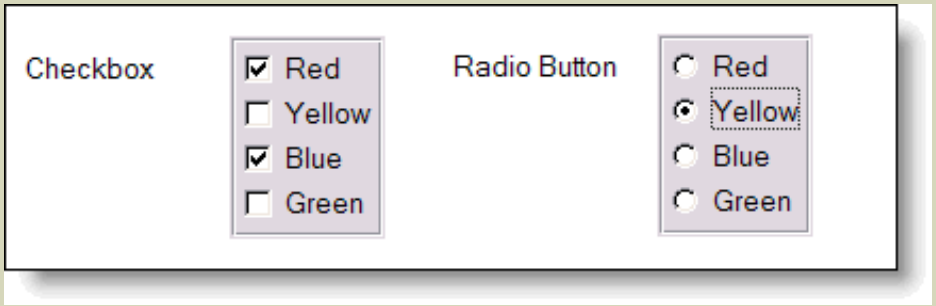


Consistency

Double-edged sword – use it wisely!

Consistency implies something (i**tem A**) is consistent with something else (i**tem B**)

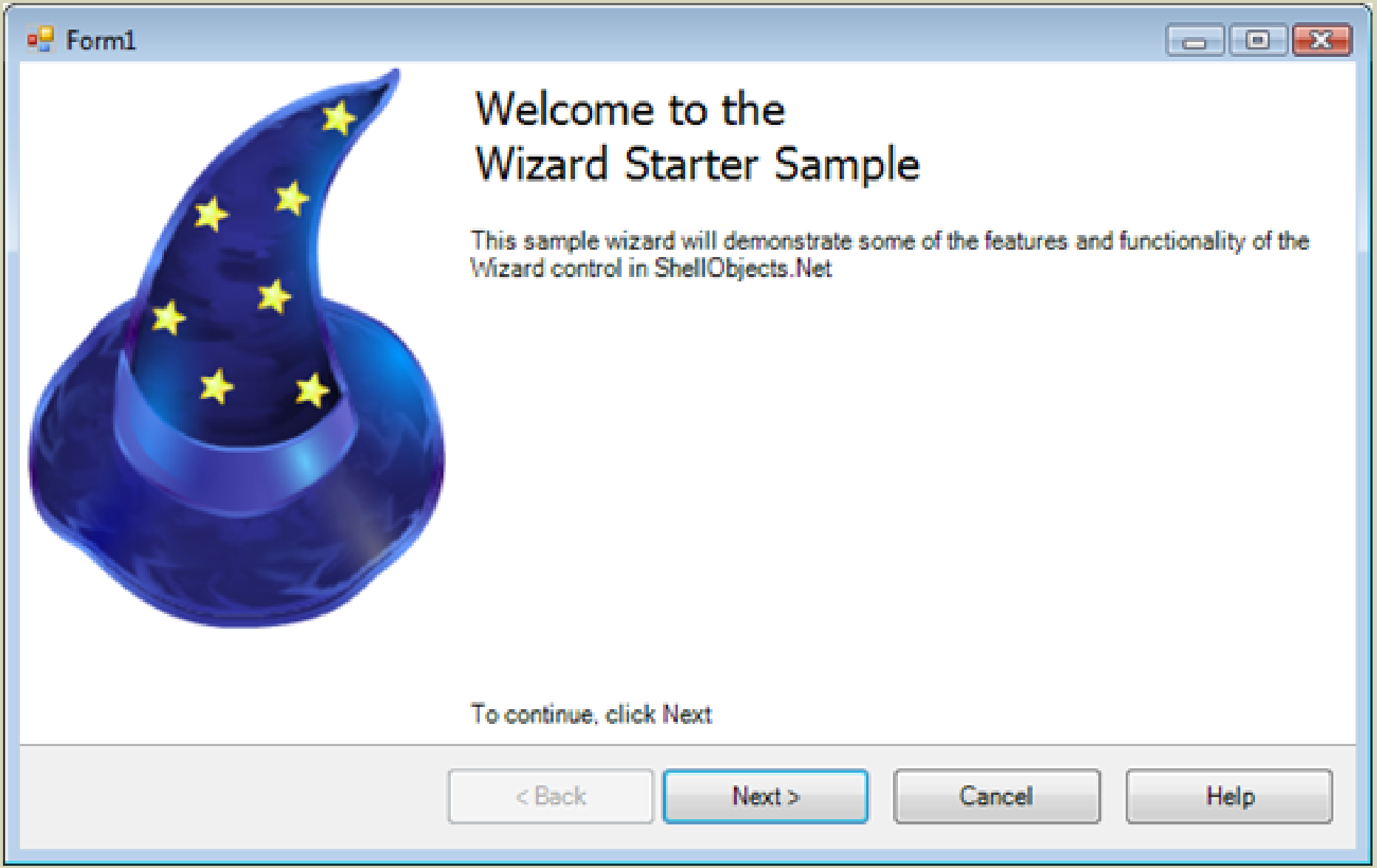
However, if the element isn't designed correctly at first, then what you have is a **consistently poor design**!



Golden rule:

First design things well and make them usable, then follow it consistently!

Sustain context of users' tasks (Continuity)



Be consistent within & across products (Experience)

Keep interaction results the same (Expectation)

Make things work like they look
(consistent interaction)

and look like they work
(consistent appearance)

Keep interaction results the same (Expectation)

Links = Navigation
(does not perform an action)

Buttons = Function
(performs an action)

Provide aesthetic appeal and integrity (Attitude)

Encourage exploration (Predictable)

Golden Rules

History

Purpose

Psychology & HCI

Golden rules

- Place users in control
- Reduce users' memory load
- Make the experience consistent

Guidelines & checklists

Guidelines

Not all rules are created equal!

Know which rules and guidelines are more important when making design tradeoffs

In specific design situations, some design principles may be in conflict with each other or at odds with product design goals and objectives

Principles are not meant to be followed blindly – they are meant as guidance for sensible interface design

Guidelines

Company, suite, product and device guidelines

How many of you create or follow style guides?

A list of Style Guides and UI Guidelines
The UX, March 26, 2013
blog.the-UX.com

Golden Rules Checklists

Place users in control

Modeless

Flexible

Interruptible

Helpful

Forgiving

Navigable

Accessible

Facilitative

Preferences

Interactive

Golden Rules Checklists

Reduce users' memory load

Remember

Recognition

Inform

Forgiving

Frequency

Intuitive

Transfer

Context

Organize

Golden Rules Checklists

Make the experience consistent

Continuity

Experience

Expectation

Attitude

Predictable

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