COMS W4170
UI Design Principles 3

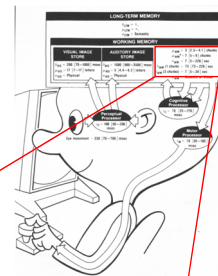Steven Feiner
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September 20, 2018

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Golden Rules of UI Design:
8. Reduce STM Load

- Remember
  - μ_{WM} (and even μ_{WM*}) are small
  - δ_{WM} is short
- Minimize
  - amount of information to remember
  - time information must be remembered

$$\mu_{WM} = 3 \left\lfloor 2.5 \sim 4.1 \right\rfloor \text{ chunks}$$
$$\mu_{WM}* = 7 \left\lfloor 5 \sim 9 \right\rfloor \text{ chunks}$$
$$\delta_{WM} = 7 \left\lfloor 5 \sim 226 \right\rfloor \text{ sec}$$
$$\delta_{WM} (1 \text{ chunk}) = 73 \left\lfloor 73 \sim 226 \right\rfloor \text{ sec}$$
$$\delta_{WM} (3 \text{ chunks}) = 7 \left\lfloor 5 \sim 34 \right\rfloor \text{ sec}$$

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Golden Rules of UI Design:
8. Reduce STM Load

- Minimize
  - amount of information to remember
  - time information must be remembered

3

Golden Rules of UI Design:
8. Reduce STM Load

- Minimize
  - amount of information to remember
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Golden Rules of UI Design:
8. Reduce STM Load

- Minimize
  - amount of information to remember
  - time information must be remembered

Golden Rules of UI Design:
8. Reduce STM Load

Back to that initial page,…

- Minimize
  - amount of information to remember
  - time information must be remembered

Errors

- Matching pairs: [ ], { },
  <TAG> </TAG>,…
  - If possible to correct,
    why require?
- Editor support for
  language
  - Automated checks

  ↕

  - Syntax-directed
    editors / Structure
    editors
    - Editor knows about /
      enforces language
      syntax
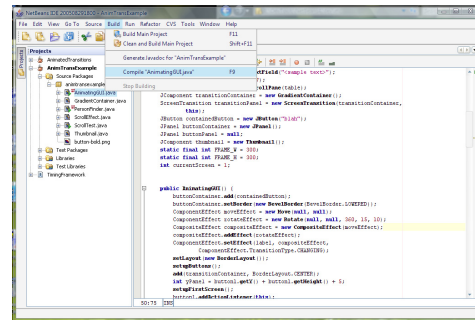
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Errors

- Package complete
  sequences of
  actions
  - Minimize need for
    user to repeatedly
    issue the same set
    of commands
    - Predefined
      sequences
      ("wizards")
    - Facilities for
      defining/invoking
      sequences
      - Macros
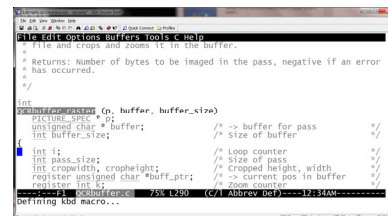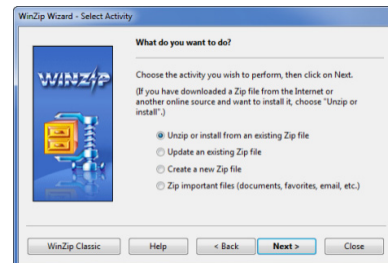
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Errors

- Prevention
  - Command completion
    - Automated vs. requested
    - Menu of possible completions
- Correction
  - Fix individual commands/arguments
    - "Thier" → "Their"
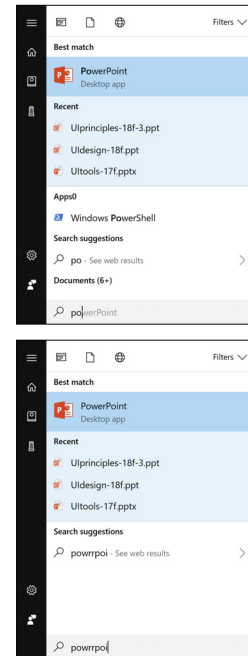
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Example: Forcing your user to make a mistake *May 2005*

- Fill out an address
- Note
  - "Address"
  - "Zip/postal code"
  - "City"
  - "State, region or county"
  - "Country"

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Slide 12

Example: Forcing your user to make a mistake May 2005

- Address is automatically "propagated" from previous page,…
- But, what went wrong?
- How can I fix it?

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Slide 13

Example: Forcing your user to make a mistake May 2005

- What's wrong?
- It's worse than you think!
- Charge is denied (instantly)

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Test, test, test!

- Heuristics aside, how do *users* respond to the design/system?
  - Do they "get it"?
- Does the system implement the design?
- What about boundary conditions?
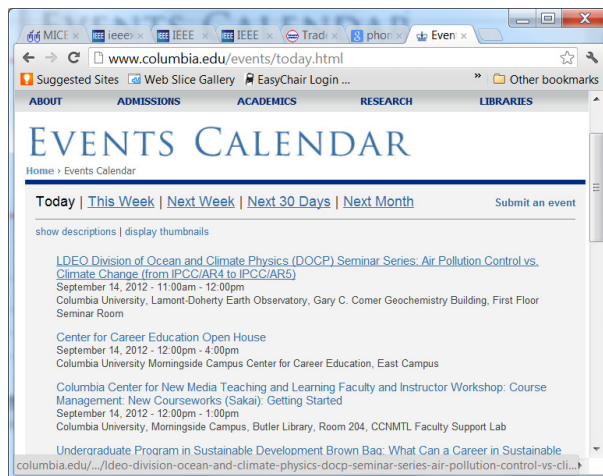
Example: Terminology

- Consistency with standard usage

Example: Terminology

- **Consistency with standard usage**
  - What do "This Week" and "Next Week" mean?
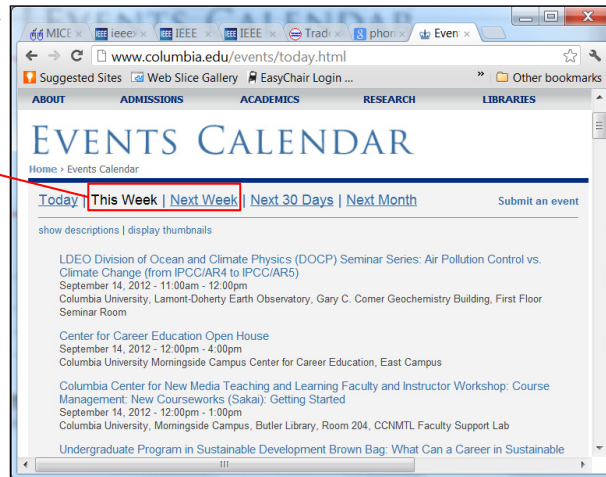
Friday, September 14, 2012

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Example: Terminology

- **Consistency with standard usage**
  - What do "This Week" and "Next Week" mean?
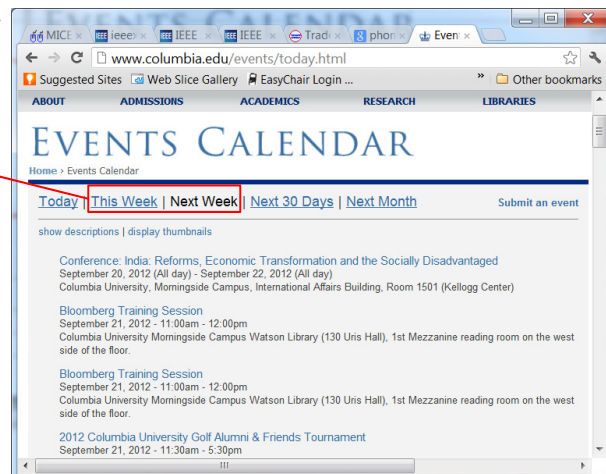
Friday, September 14, 2012

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Example: Terminology

- Consistency with standard usage
  - What do "This Week" and "Next Week" mean?
  - How about "Next 30 Days" and "Next Month"?

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Example: Terminology

- Consistency with standard usage
  - What do "This Week" and "Next Week" mean?
  - How about "Next 30 Days" and "Next Month"?

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Example: Terminology

- Consistency with standard usage
  - What do "This Week" and "Next Week" mean?
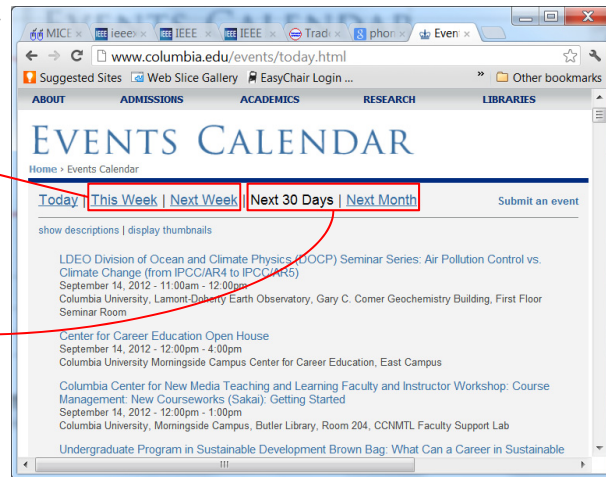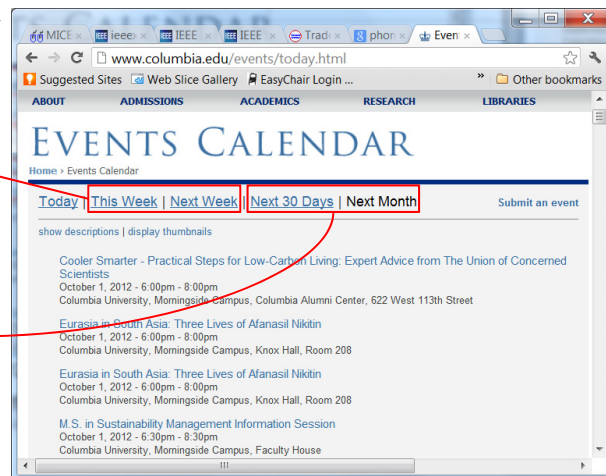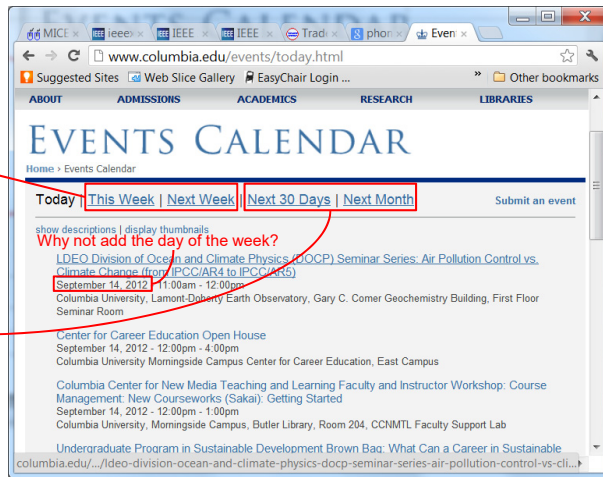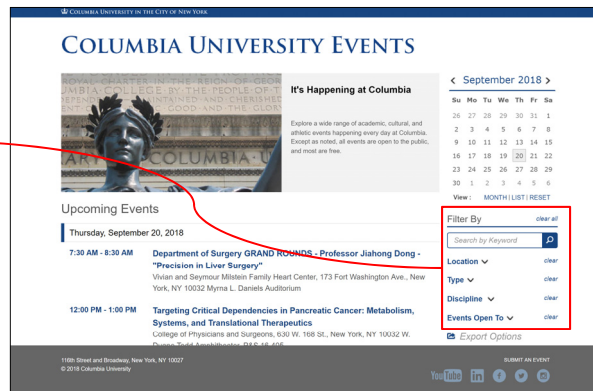 - How about "Next 30 Days" and "Next Month"?

Friday, September 14, 2012

Example

- New version, new problems,…

- Filtering
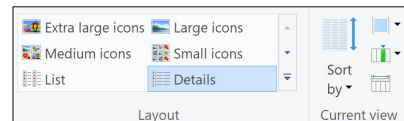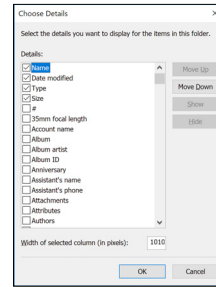

Thursday, September 20, 2018

Guidelines for Display
Smith & Mosier 86 (hcibib.org/sam/)

- Consistency of data display
    - Unless there's a good reason to be inconsistent
- Efficiency of information assimilation by the user
    - Familiar terminology/formatting
    - Understandable layout
    - Minimize unneeded information
    - Choose appropriate "encoding"
- Minimal memory load on the user
- Compatibility of display and input
    - Use same format for both
    - Combine if possible (make output editable)
- Flexibility for user control
    - Fit the task
        - What: ls, ls –a, ls –l, ls –lt, . . .
        - How/when: Mapping to display, spatiotemporal layout of output

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Guidelines for Input
Smith & Mosier 86 (hcibib.org/sam/)

- Consistency of data input
    - Unless there's a good reason to be inconsistent
- Minimal input actions by user
    - But note tradeoffs
        - Consistency: Keep the rules simple (Reisner)
        - Memory load
        - KLM/CPM issues (e.g., homing time may outweigh keystroke and widget manipulation savings; are savings on the critical path?)
- Minimal memory load on the user
- Compatibility of display and input
    - Use same format for both
    - Combine if possible (make output editable)
- Flexibility for user control
    - Fit the task
        - What: Quantity and kind of information input
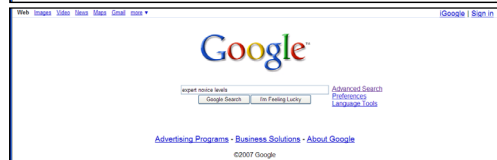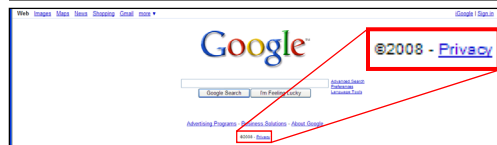   - How/when: Spatiotemporal order of input

Keeping it Simple
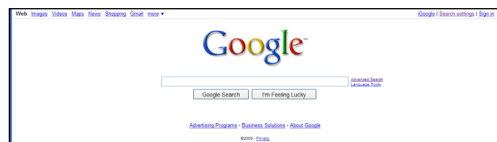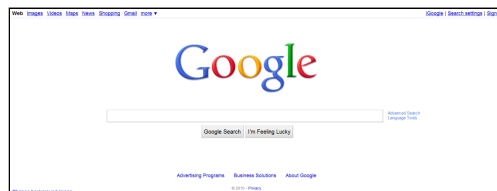
2006

2007

2008

Keeping it Simple

2009

2010

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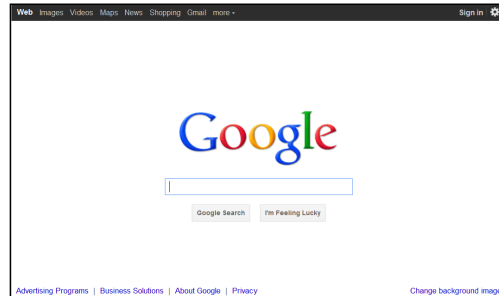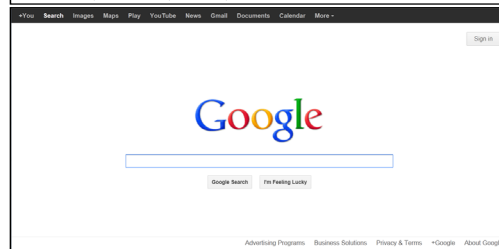
Keeping it Simple

2011

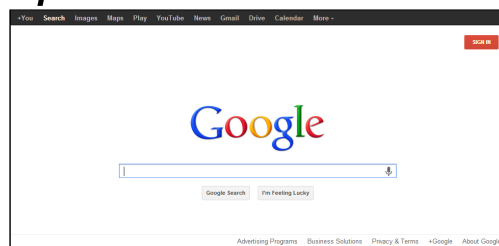2012

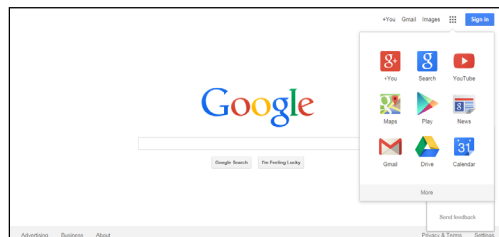# *Keeping it Simple*

2013

2014

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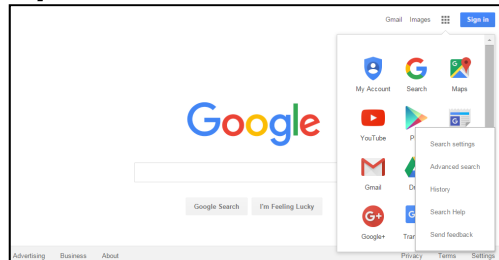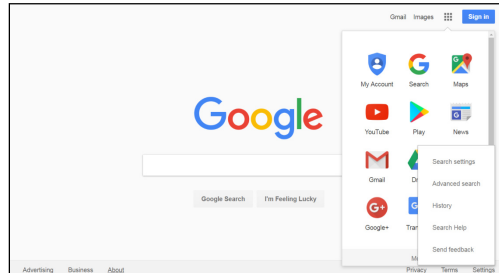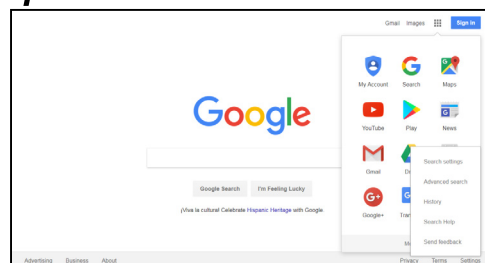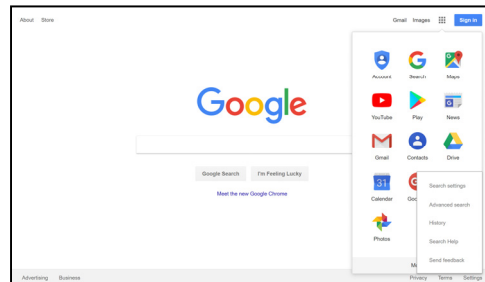
Keeping it Simple

2015

2016

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Keeping it Simple

2017

2018

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