



Q: How does this door work?

- A. Push to the left
- B. Push to the right
- C. Pull on the left
- D. Pull on the right
- E. Slide it along

BAR DOOR



- ☐ Push ☐ Left side
- ☐ Pull ☐ right side
- ☐ Slide it along



CPSC 100

Computational Thinking

HCI - Usability Heuristics

Instructor: Parsa Rajabi
Department of Computer Science
University of British Columbia



Agenda

- Course Admin
- Learning Goals
- Human Computer Interaction
 - Usability Heuristics

Course Admin



Course Admin

- **PC Quiz 8** (last PC Quiz! 🎉)
 - Due Sunday, April 6, 11:59pm
- **Lab 9 Project Co-working + Feedback Session**
- **Project Milestone 3** *(you should be ~55% done by now!)*
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 - Make sure to submit your **AI Disclosure** via qualtrics form!
- **Final Exam**
 - Tuesday, April 22, 7pm; Location: SWING 121



Learning Goals

Learning Goals

After this **today's lecture**, you should be able to:

- **Understand** and describe the **first five usability heuristics** proposed by Jakob Nielsen.
- **Explain why** each heuristic is important in designing usable systems.
- **Illustrate** how each heuristic appears (or is violated) in real-world interfaces using provided examples.
- **Compare and contrast** different heuristics using concrete UI examples to determine which are adhered to or violated.

What are Usability Heuristics?

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What is Usability?

HCI: Usability

- Quality attribute
 - Assesses how easy user interfaces are to use
 - Improving ease-of-use during the design process
- Defined by 5 quality components

HCI: Usability Components

Recall

1. Learnability
2. Efficiency
3. Memorability
4. Errors
5. Satisfaction

What are Heuristics?



What is a Heuristic?

Practical method or guideline

- Used to facilitate
 - Problem-solving
 - Learning
 - Discovery
- Often referred to as a **"rule of thumb"**

Usability Heuristics

10 Usability Heuristics (Nielsen, 1993)



Visibility of
System Status

1



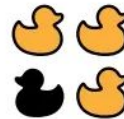
Match Between
System & Real World

2



User Control
And Freedom

3



Consistency
And Standards

4



Error
Prevention

5



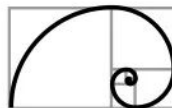
Recognition
Rather Than Recall

6



Flexibility And
Efficiency of Use

7



Aesthetic And
Minimalistic Design

8



Help Users
With Errors

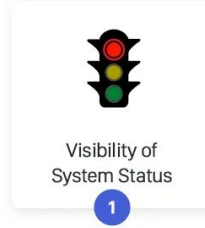
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Help And
Documentation

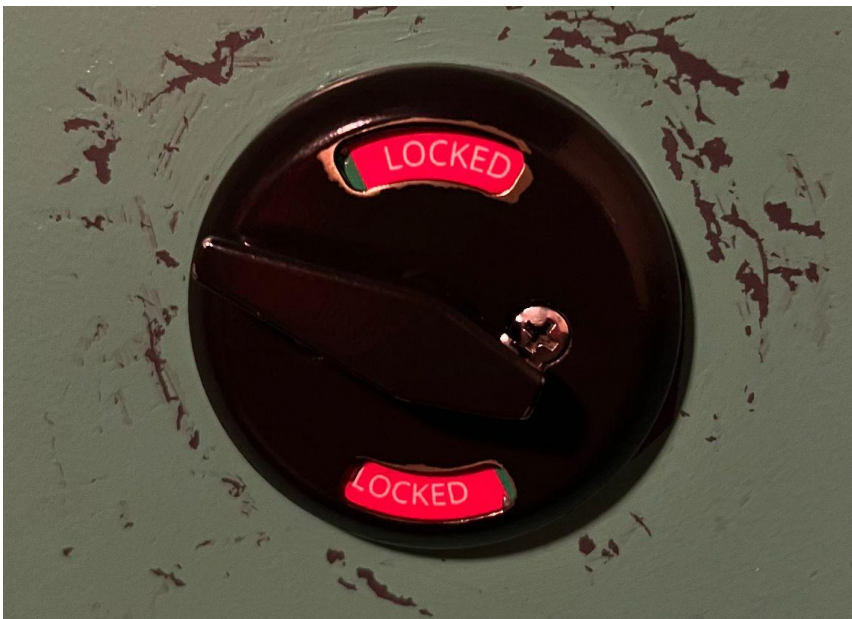
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1. Visibility of system status

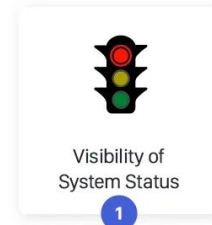


- Keep users informed about what is going on
 - e.g., what page they are on and what part of a process
 - (# of steps left)
 - e.g., you are working in offline mode (connection lost) provide appropriate feedback
- About what system is doing, and how input is being interpreted

Example: Washroom door lock status



Feedback



- Does the user know what happened?
- Sending information back to the user about what has been done
- Includes sound, highlighting, animation and combinations of these
 - e.g. when screen button clicked on provides sound or red highlight feedback:

Previous → “ccclchhk”

Previous → Previous



Step 6/10



Set Your Password

In order to keep your account safe you need to create a strong password.

PASSWORD

CONFIRM PASSWORD

YOUR PASSWORD MUST CONTAIN

- ☐ Between 8 and 20 characters
- ☐ 1 upper case letter
- ☐ 1 or more numbers
- ☐ 1 or more special character

Next Step



Step 6/10



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Next Step



Visibility of
System Status

1



2. Match System + Real world



Match Between
System & Real World

2

- Terminology in user's language language from user's perspective
 - “you have bought...” VS “we have sold you...”
 - Use common words, not “techno-jargon”
- Error messages and feedback refer to user objects
- Avoid saying “you’ve entered an illegal input”



Match Between
System & Real World

2



3. User control + Freedom



User Control
And Freedom

3

- Easy to abort: cancel buttons
 - e.g., being able to cancel/undo order
- Easy to undo
 - e.g., being able to go back to previous step (s)
- Easy to make changes
 - e.g., removing items from a shopping cart
- Users (even *experts*) will make errors!

Example: User control + Freedom



User Control
And Freedom

3

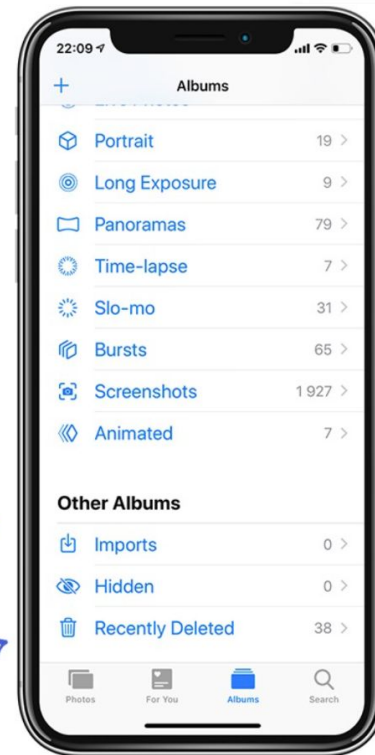


Undo the unwanted action.



Exit the navigation anytime.

Recover your accidentally deleted files.







4. Consistency + Standards



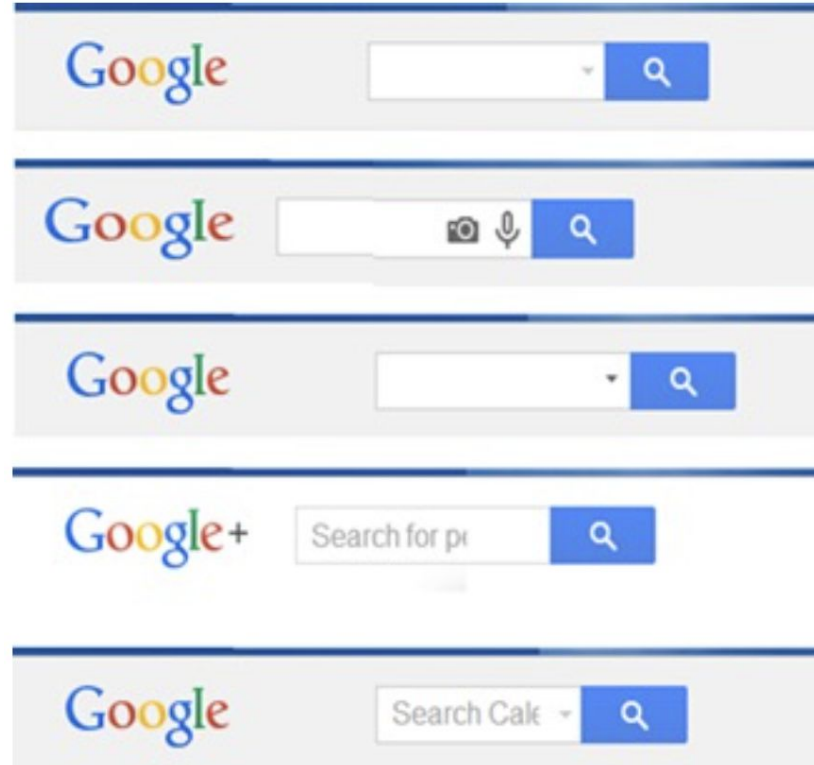
- Same commands always have the same effect
 - (e.g., ctrl+c)
- Locations for information, names of commands give the user a mental model of the system
- Size, location, colour, wording, function, sequencing
- Following standards helps
 - Web: use templates or css, style guides seems easy, but often not followed

Example: Google's Search bar



Consistency
And Standards

4



5. Error Prevention



Error
Prevention

5

- Constraints
 - Remove or gray-out illegal choices
- Auto-fill information from before
- Confirmation
 - Before making irreversible changes
 - Provide a way to "undo"
- Do not use colours to illustrate danger
 - Colour blindness / accessibility

Example: Alerts/Confirmation



Error
Prevention

5

It seems like you have forgotten to attach a file.

You wrote "are attached" in your message, but there are no files attached. Send anyway?

Cancel

OK

10 Usability Heuristics (Nielsen, 1993)



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System Status

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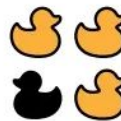
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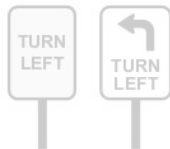
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Q: Which heuristic does this interface adhere to?

- A. Visibility of System Status
- B. Match between System & Real World
- C. User Control and Freedom
- D. Consistency and Standards
- E. Error Prevention

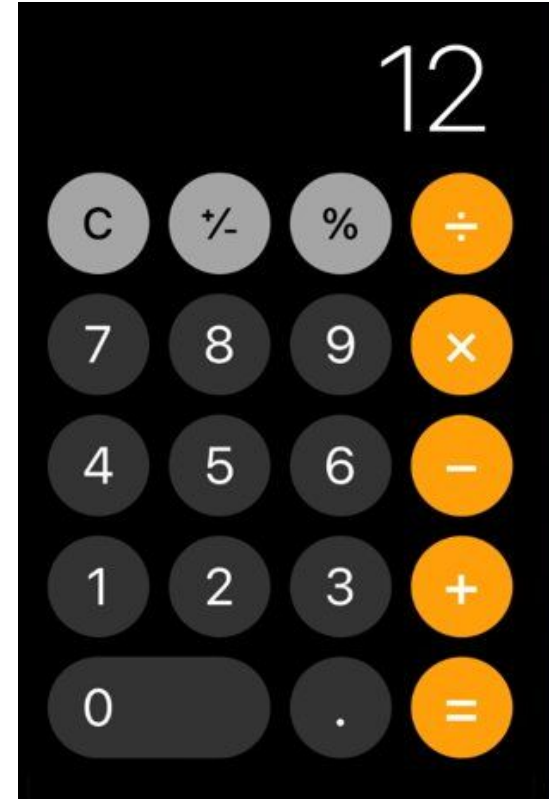




iClicker

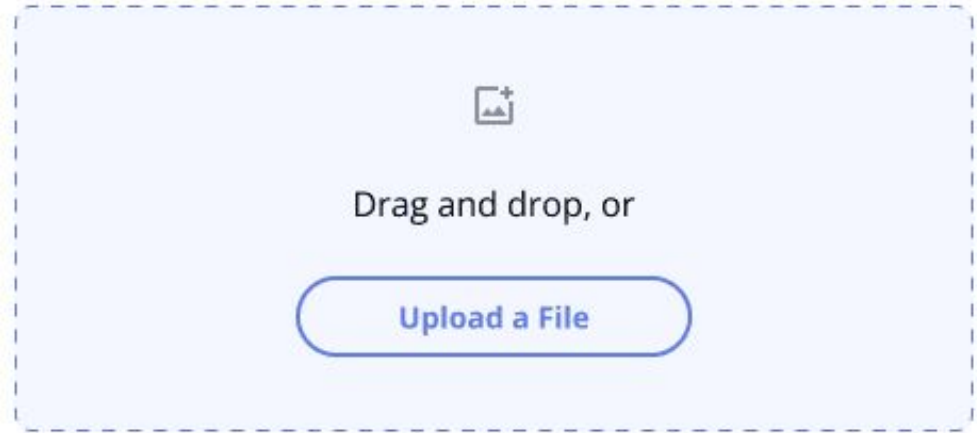
Q: Which heuristic does this interface adhere to?

- A. Visibility of System Status
- B. Match between System & Real World
- C. User Control and Freedom
- D. Consistency and Standards
- E. Error Prevention



Q: Which heuristic does this interface violate?

- A. Visibility of System Status
- B. Match between System & Real World
- C. User Control and Freedom
- D. Consistency and Standards
- E. Error Prevention



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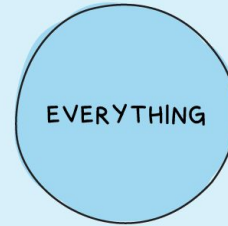
Wrap up



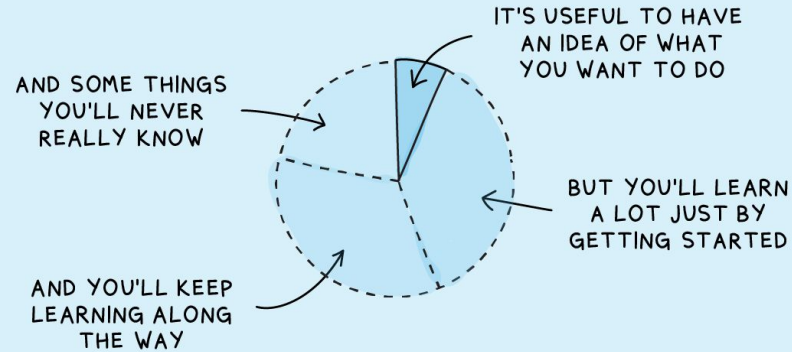
Wrap Up

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WHAT I THOUGHT I NEEDED TO KNOW TO GET STARTED



THE TRUTH



LIZ FOSSLIE



What was your main takeaway from today's session?

