



UX/UI Design

- The basics of designing mockup interfaces for existing systems by employing different design principles.

UX/UI Exam

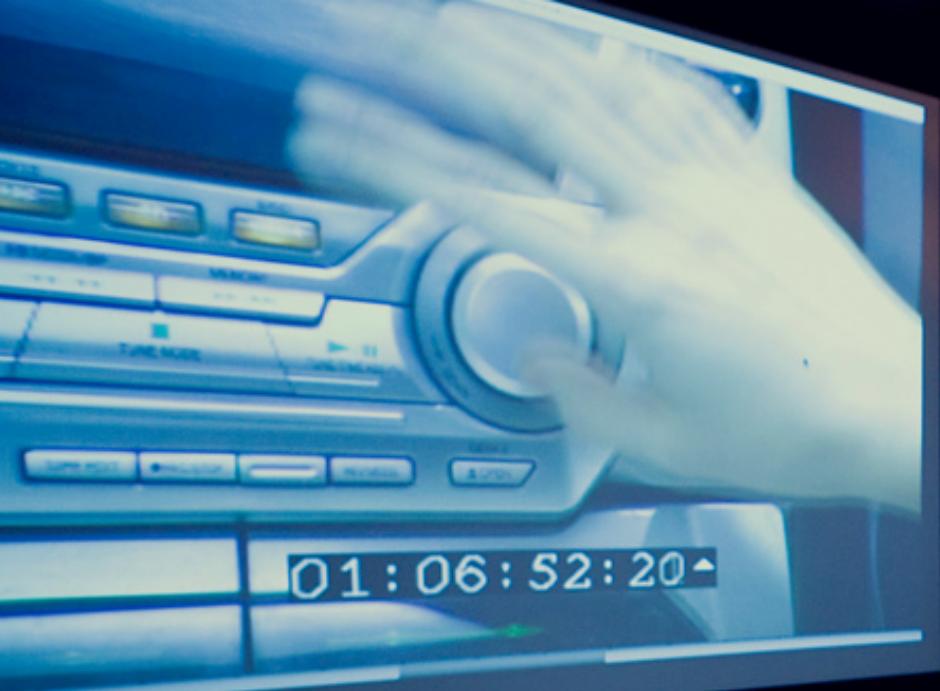
- 3 assignments:

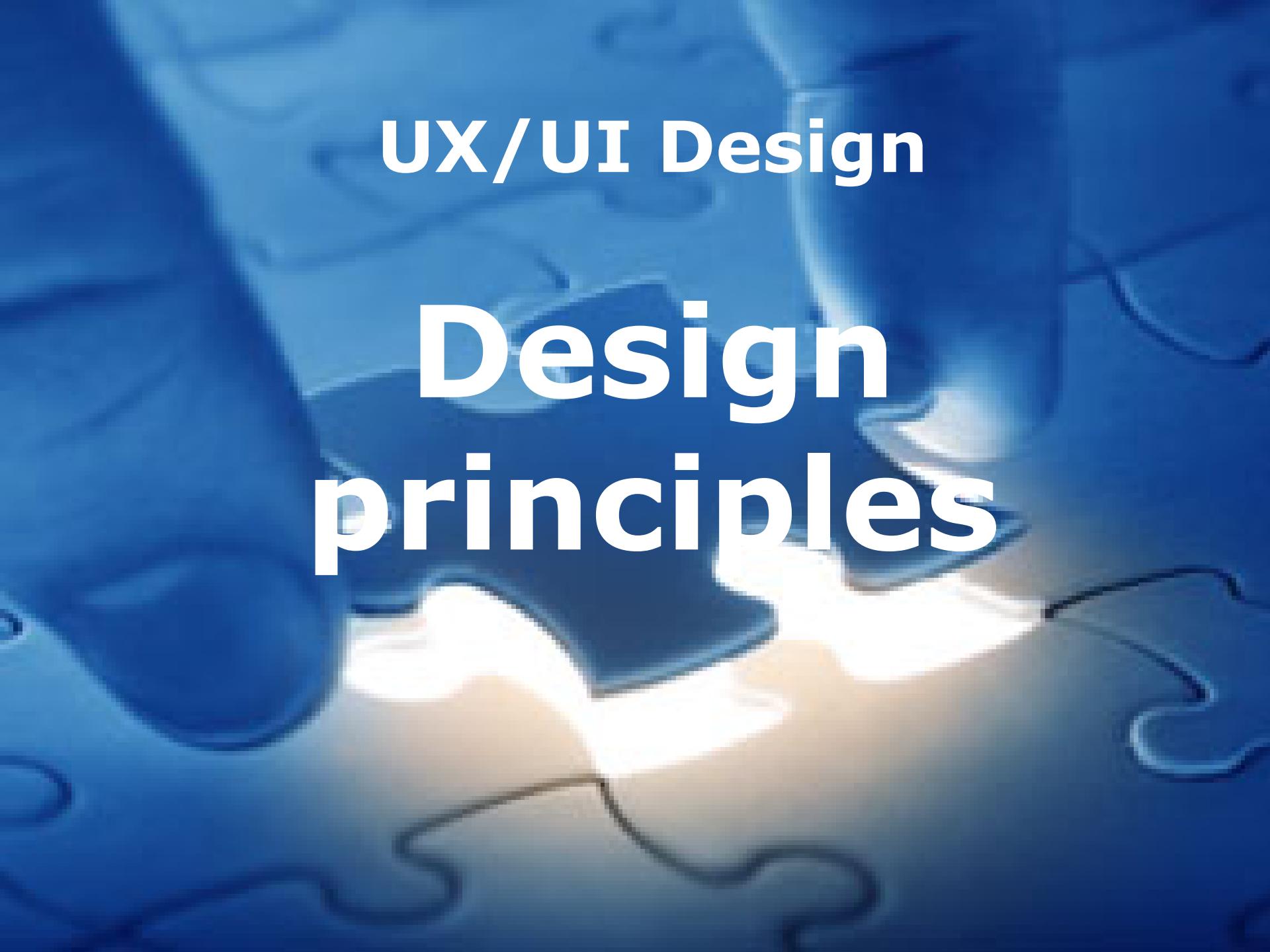
1. Web UI

2. Game Menu UI

3. Interactive installation museum







UX/UI Design

Design principles

Interaction Design

**Bill Moggridge
Design firm IDEO
1990**









min.

auto



55°-65°

50°

45°



h.

— Reset —

A photograph of a person in a dark room. They are wearing a white helmet and a blue t-shirt. In the foreground, there are several large, glowing spheres in various colors (blue, orange, yellow) on the floor. A glowing brain is visible in the background. A glowing Pac-Man maze is overlaid on the top right.

Interaction should be...

**Usable
Useful
Fun!**



 Utrecht Centraal

 ↔ Amsterdam Bijlmer ArenA

 Route A / B

 Vandaag geldig

 Personen
vanaf 12 jaar

- **2** +

→ Enkele reis

1e klas

↔ Dagretour

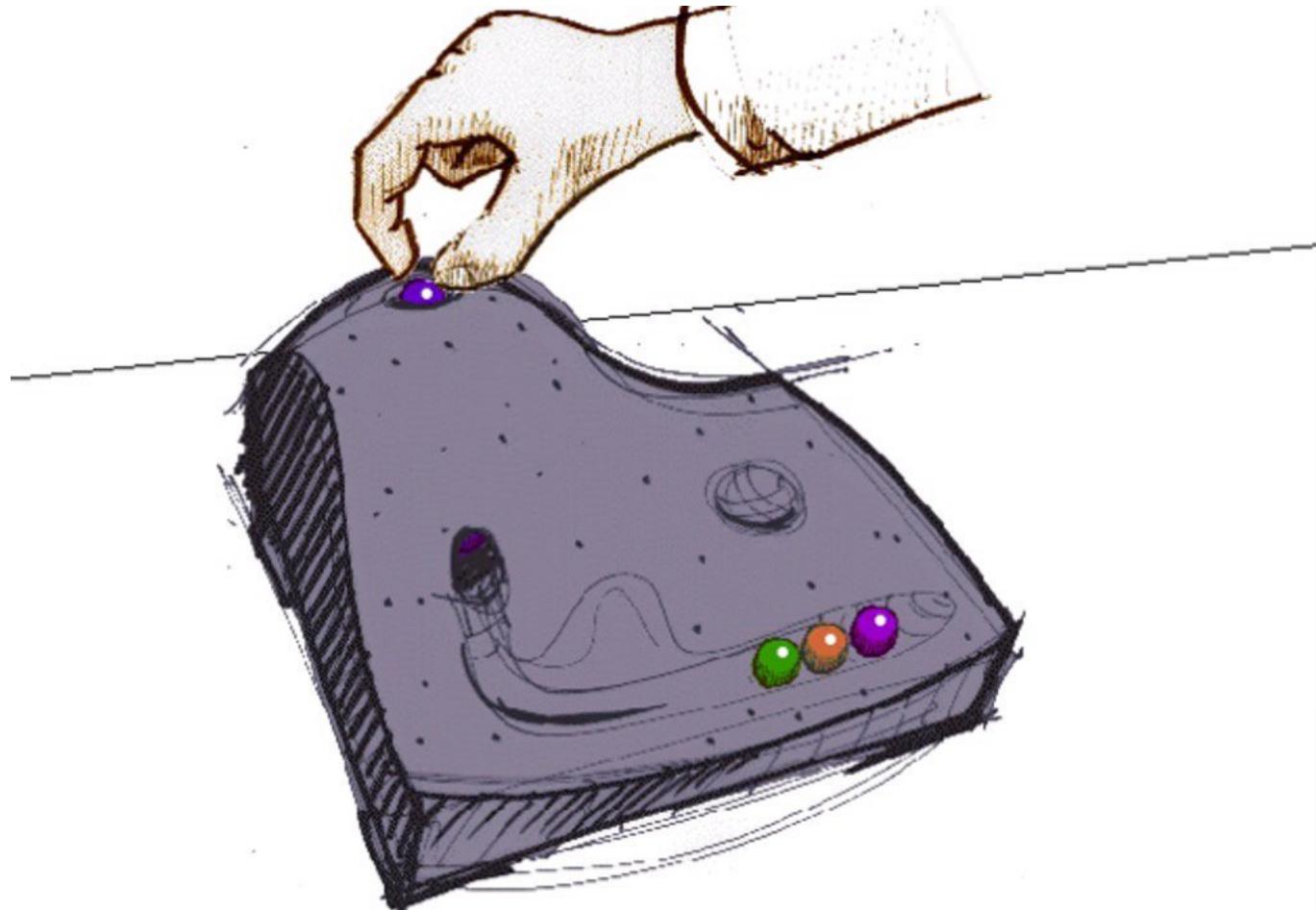
2e klas



U betaalt € 1,00 toeslag p.p.
voor de eenmalige chipkaart.



€ 13,60



The Marble Answering Machine
Durrell Bishop, 1992

Good Interaction Design

- Familiar physical objects
- Indicates visually at a glance how many messages have been left
- Aesthetically pleasing, enjoyable
- One-step actions
- Simple

Goals of Interaction Design

- Develop usable products
 - Usability means **easy to learn, effective to use** and provide an **enjoyable experience**
- Involve users in the design process



Bad and good design

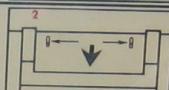


– What's wrong and how to improve it?

INSTRUCTIONS

Step 1 Using both hands,
move the card and all the
pins into the vote recorder.

Step 2 Be sure the two slots
in the end of your card fit
down over the two red pins.

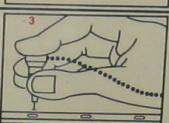


IMPORTANT NOTICE
TO VOTERS

BE SURE
ALL HOLES ARE
CLEANLY PUNCHED

PULL OFF ANY
PARTIALLY PUNCHED
"CHIPS" THAT MIGHT
BE HANGING.

Step 3 To vote, hold the voting
instrument straight up. Punch
straight down through the
ballot card for the candidates
or issues of your choice.
Do not use pen or pencil.



Step 4 Vote Appropriate Pages.

Step 5 After voting, remove the
ballot card from the Vote Recorder.

Note: If you make a mistake return
your ballot card and obtain another.

IF YOUR PUNCHED
VOTER CARD HAS ONE
SMALL CIRCULAR
HOLE, RETURN YOUR
BALLOT CARD TO AN
ELECTION OFFICIAL
AND REQUEST A
NEW ONE.

LEGAL TIME LIMIT FOR VOTING BOOTH IS 5 MINUTES

OFFICIAL BALLOT - VOTER CARD
NOVEMBER 7, 2000 PRESIDENTIAL ELECTION
CITY OF NEW YORK

RECEIVED BY
DICK CHENNEY
AL GORE
JOHN KERRY
HARRY BROWNE
RICHARD GERTZMAN
RALPH NADER
WIMONA LUCILLE
JAMES HAROLD WOODS
MARGARET BROWN
JOHN HAGELIN
NAT GOLDSTEIN

(DEMOCRATIC)
(LIBERTARIAN)
(GREEN)
(CONSTITUTIONAL)
(INDUSTRIAL WORKERS)
(NATURAL LAW)

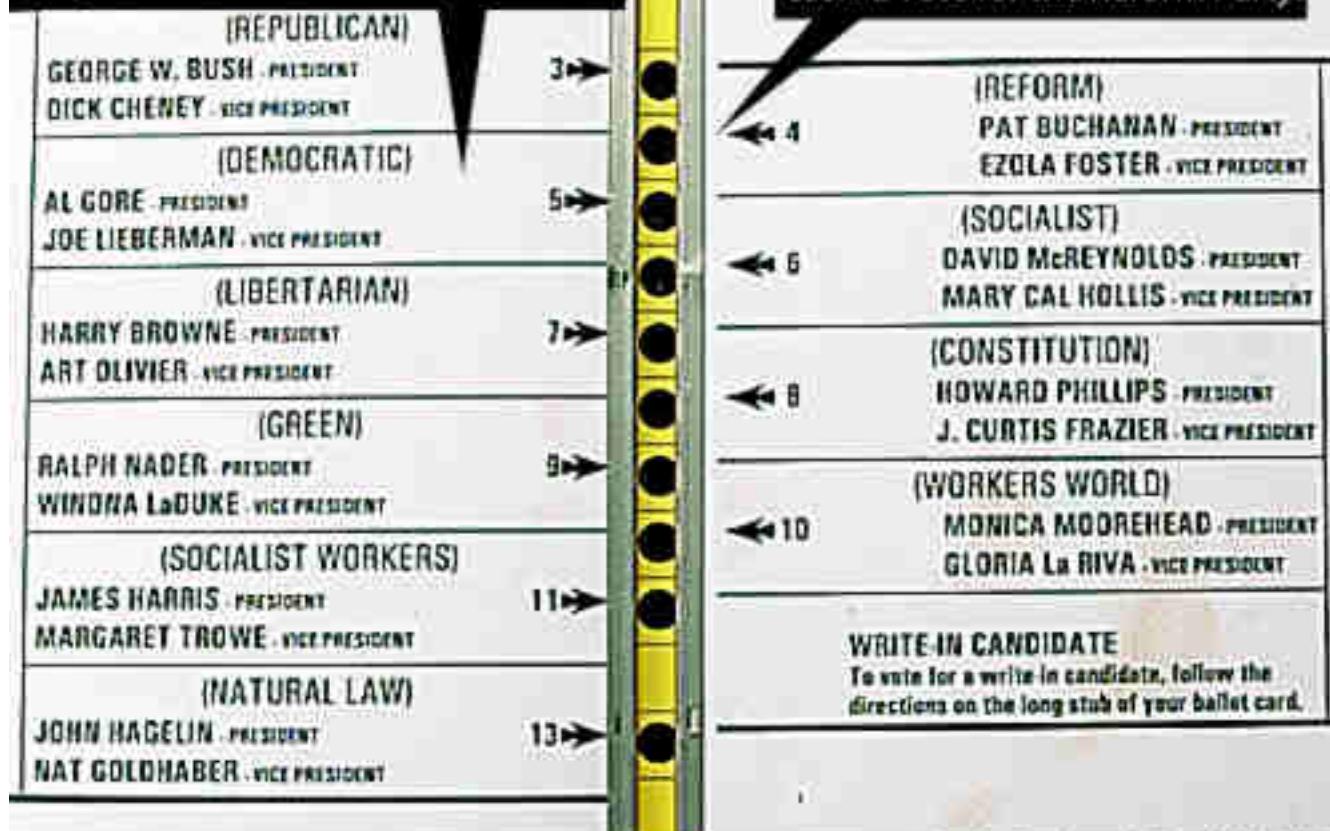
THE COUNTRY
PAT SUMMERS
CAROL POWELL
DAVID MANNYFELD
MARK COOPER
MICHAEL STONE
JOSEPHINE WILSON
MARGARET WOODS
GLORIA LA RIVA
AND PRESIDENT

WRITE IN CANDIDATE
To write in a candidate, follow the
instructions on the back of this ballot card.

TURN PAGE TO CONTINUE VOTING

Confusion over Palm Beach County ballot

Although the Democrats are listed second in the column on the left, they are the third hole on the ballot.



Sun-Sentinel graphic/Daniel Niblock

Official Florida Presidential Ballot

Follow the arrow and Punch the appropriate dot.

Bush

Buchanan

Gore

Nader

(c) 2000 Mike Collins, Taterbrains.com

 DELTA

TESTACCT/QA
GOLD/ELITEPLUS
DL2397768025
H2GB

FLIGHT DATE CLASS CRZRS
DL10 02FEB H ATLANTA
OPERATED BY COACH
DELTA AIR LINES INC DESTINATION
LONDON-HEATHROW 940P
DEPARTURE GATE - **SUBJECT TO CHANGE**
SOUTH TERMINAL

BCH ATL001
ATL184617/00X



BOARDING PASS
SKY PRIORITY
1 006 2144698802 0
GKAWEZ

DEPARTS
1035P

SEAT
20E

SKY



BOARDING PASS
SKY PRIORITY
TESTACCT/QA
GOLD/ELITEPLUS
DL2397768025

FLIGHT
DL10
DATE
02FEB

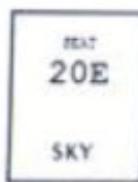
CLASS
ATLANTA

DESTINATION

LONDON-HEATHROW

OPERATED BY DELTA AIR LINES INC

DELTA SKY CLUB ONE-DAY PASS



INTL - VERIFY PASSPORT

WHEELCHAIR REQUESTED / SPECIAL MEAL REQUESTED

Ivan Boyko

June 5, 2016



Lufthansa

LH 907
to Frankfurt

Terminal 2
Boarding area D

Boarding
9:10 AM

Gate
D10

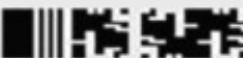
Boarding priority
1 2 **3** 4

Seat
A22


Window



Departing 9:40 AM 



In Frankfurt
take Sky Train to Terminal 1

Interaction Design principles

- The **do's** and **don'ts** of interaction design
- What to provide and what not to provide at the interface
- Derived from a mix of theory-based knowledge, experience and common-sense

Interaction Design principles

1. Visibility
2. Feedback
3. Constraints
 - physical
 - cultural
 - logical
4. Mapping
5. Consistency
6. Affordances
 - skeuomorphic design
 - flat design
 - material design

1. Visibility

It should be obvious what a control is used for

If I press this button, what will happen?

If I want to unlock the door, which control should I use?

A system with good visibility allows the user to easily translate goals into actions.

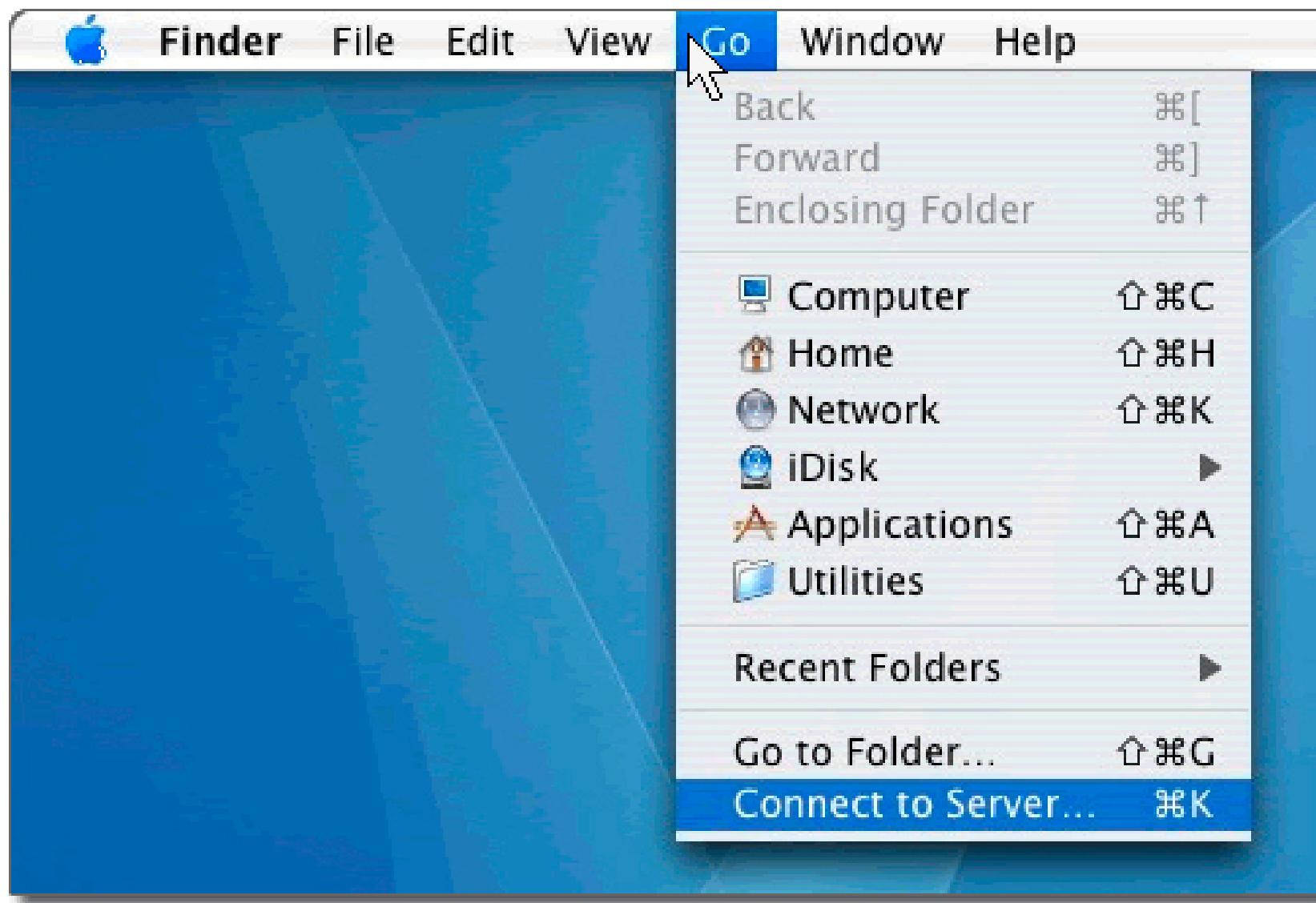












Mo
Oregon
I found tr
apartments



Elvia Atkins
Meet and Greet
No Conflict



Tomorrow at 11 AM (30)
Patti Fernandez

Marketplace Buzz
Greetings Team

With the X1

Celeste Burton
Surprise Birthday

Hi everyone,
already be

Rob
Pi









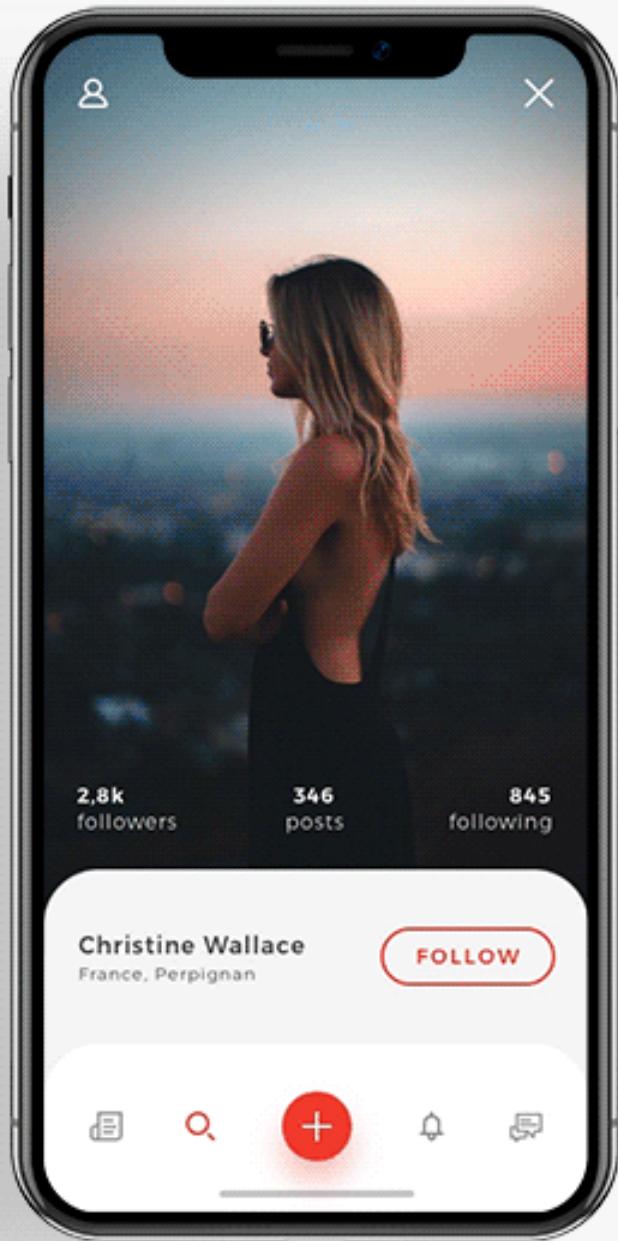
2. Feedback

- Sending information back to the user about what has been done
- Includes:
 - sound
 - highlighting
 - animation
 - haptic feedback

Connect



SUBMIT







3. Constraints

- Restricting the possible actions that can be performed
- Helps prevent user from selecting incorrect options
- Three main types (Norman, 1999)
 - physical
 - cultural
 - logical

Physical constraints

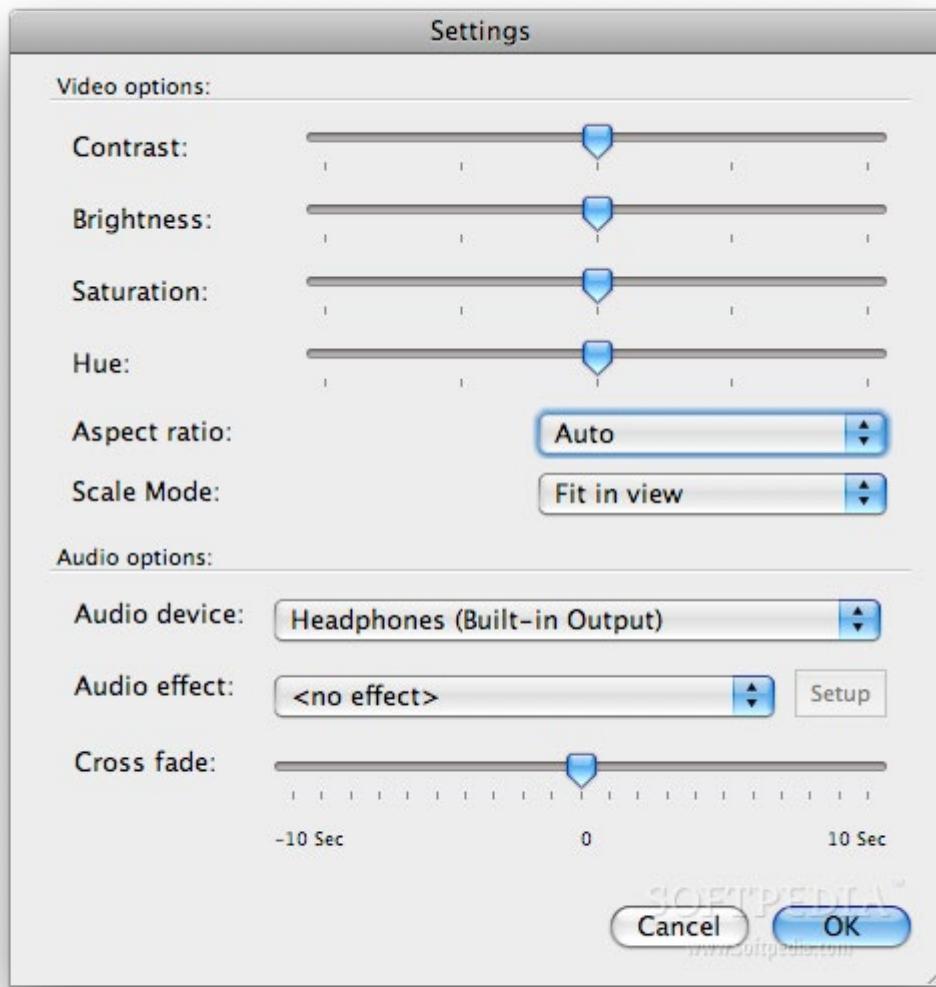
- Refer to the way physical objects restrict the movement of things
 - E.g. only one way you can insert a key into a lock or a CD in a computer







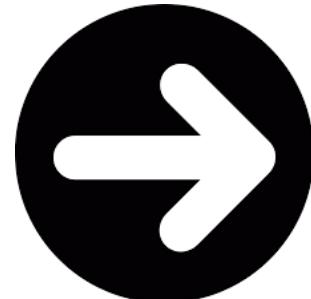
Axes



Paths

Cultural constraints

- Learned arbitrary conventions like red triangles for warning
- Can be universal or culturally specific



Denmark



China



Ireland



Nederland



Madagascar



Argentina



India

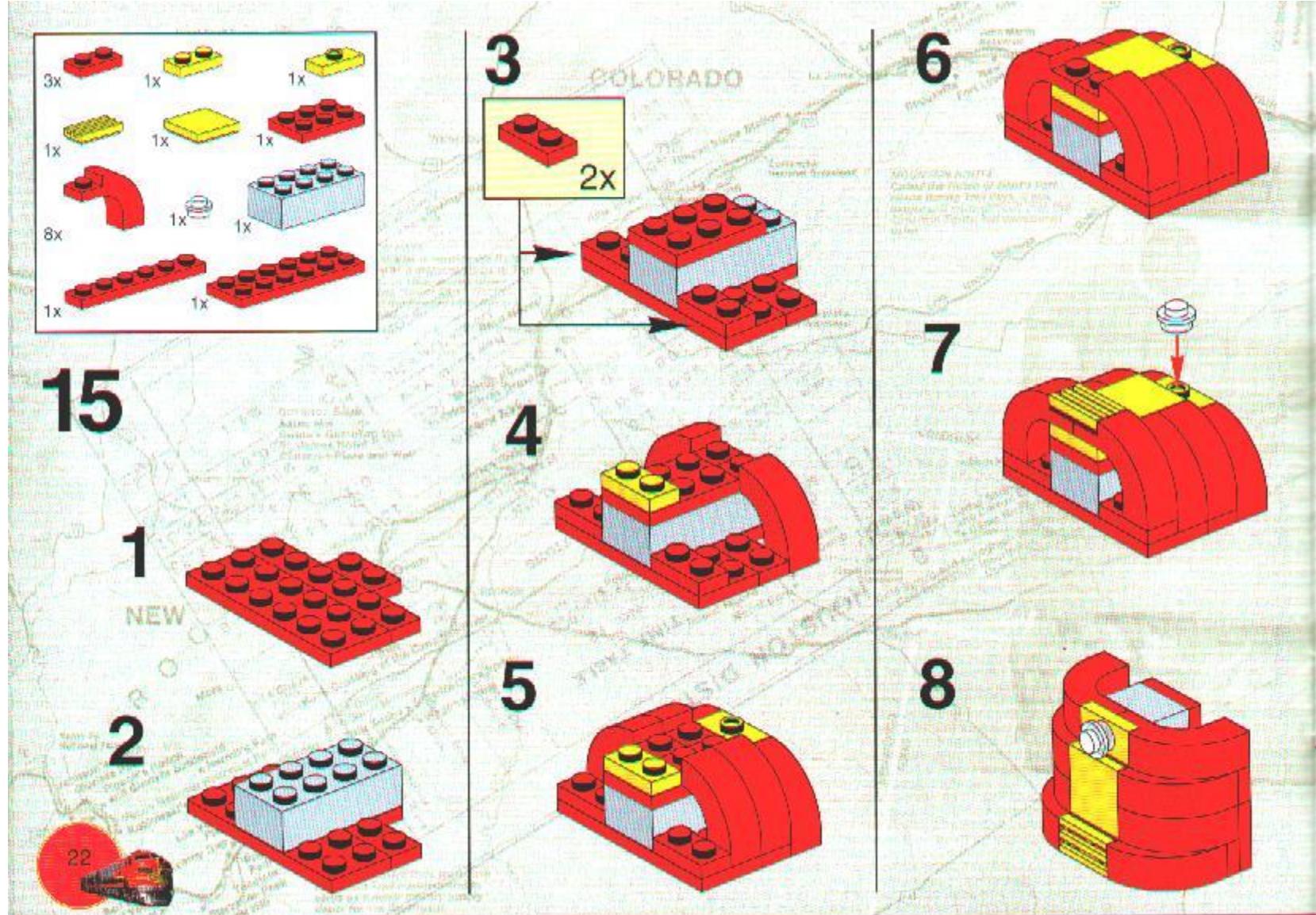


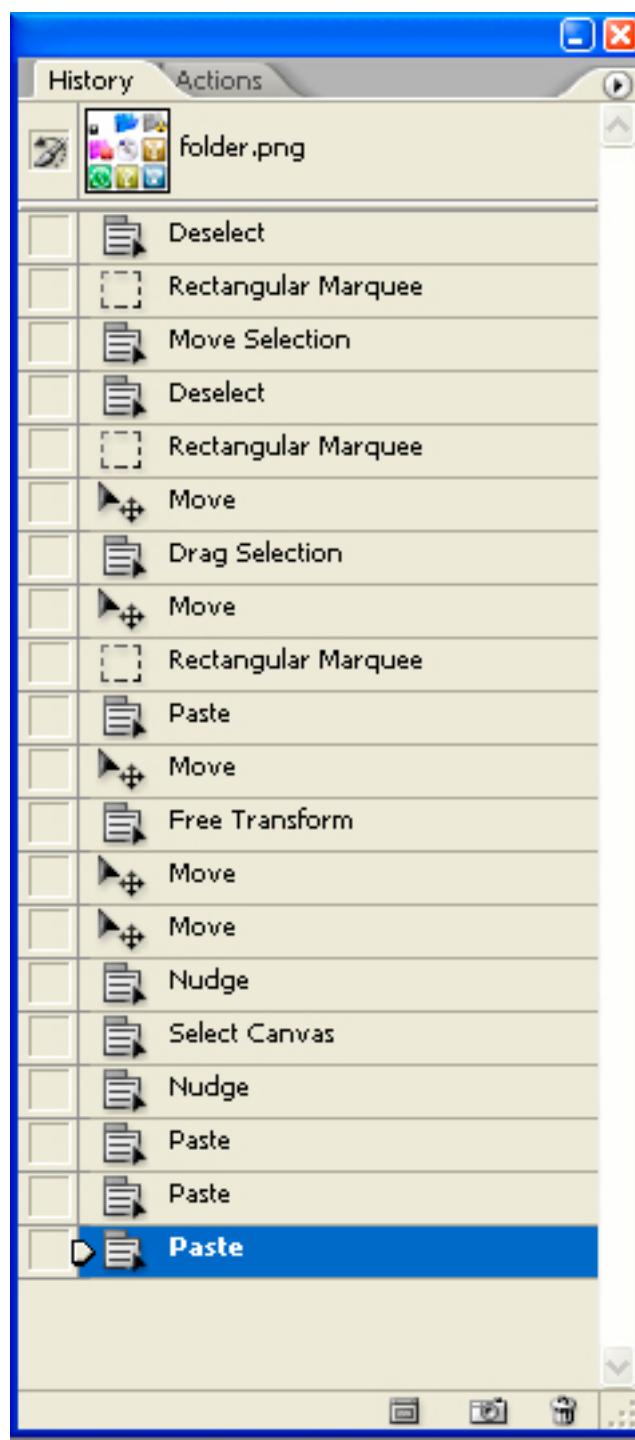
Cambodia

Logical constraints

- Exploits people's everyday common sense reasoning about the way the world works

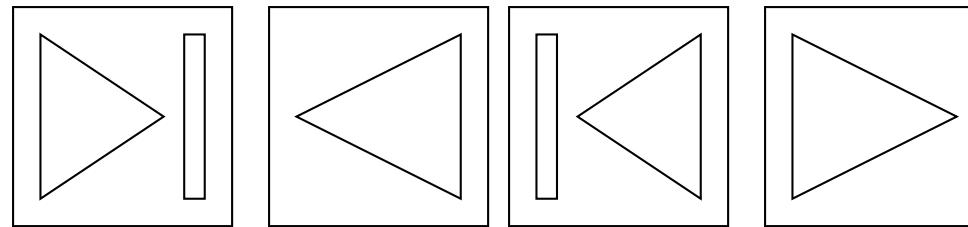






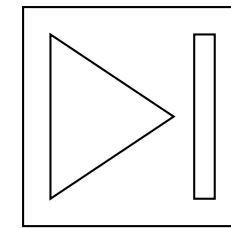
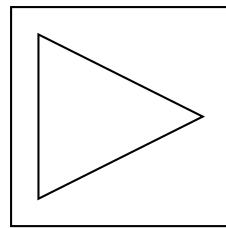
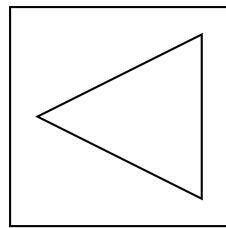
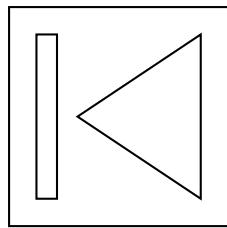
4. Mapping

- Relationship between controls and their movements and the results in the world
- Why is this a poor mapping of control buttons?



4. Mapping

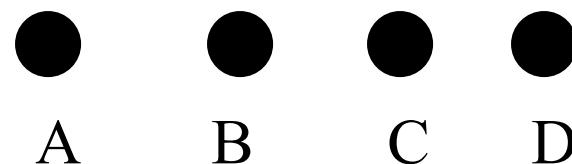
- Why is this a better mapping?



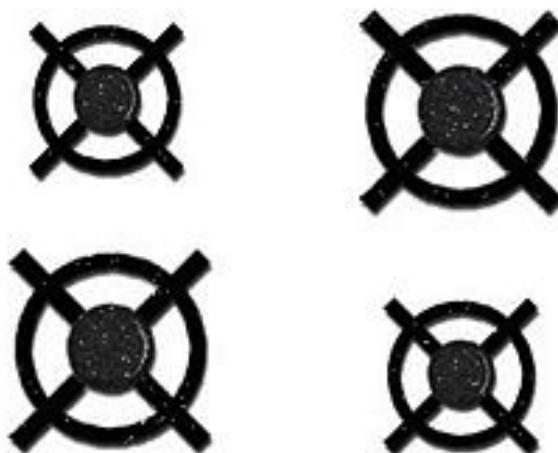
- The control buttons are mapped better onto the sequence of actions of fast rewind, rewind, play and fast forward

Activity on mappings

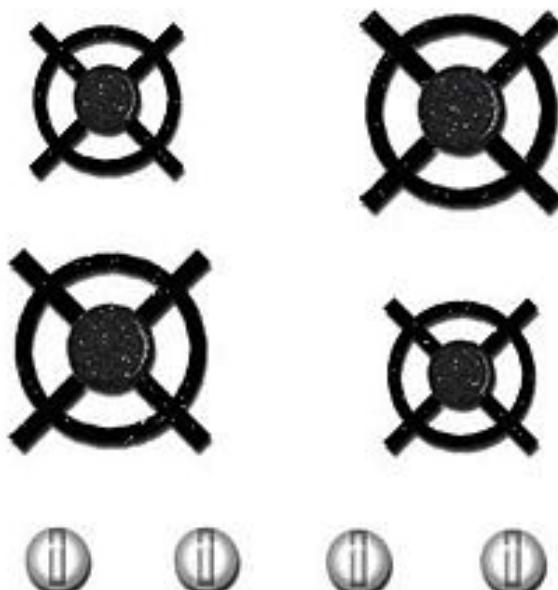
- Which controls go with which burners?



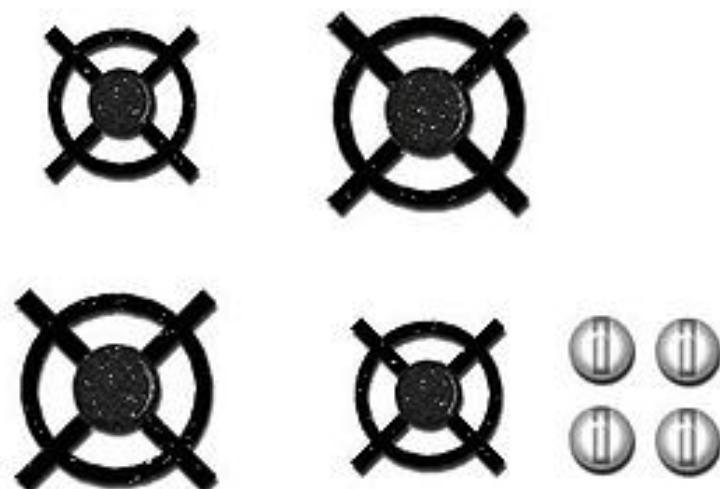
Poor mapping



Poor mapping



Good mapping







5. Consistency

- Design interfaces to have similar operations and use similar elements for similar tasks
- For example:
 - always use ctrl key plus first initial of the command for an operation – `ctrl+C`, `ctrl+S`, `ctrl+O`
- Main benefit is consistent interfaces are easier to learn and use

Keypad numbers layout

- A case of external inconsistency

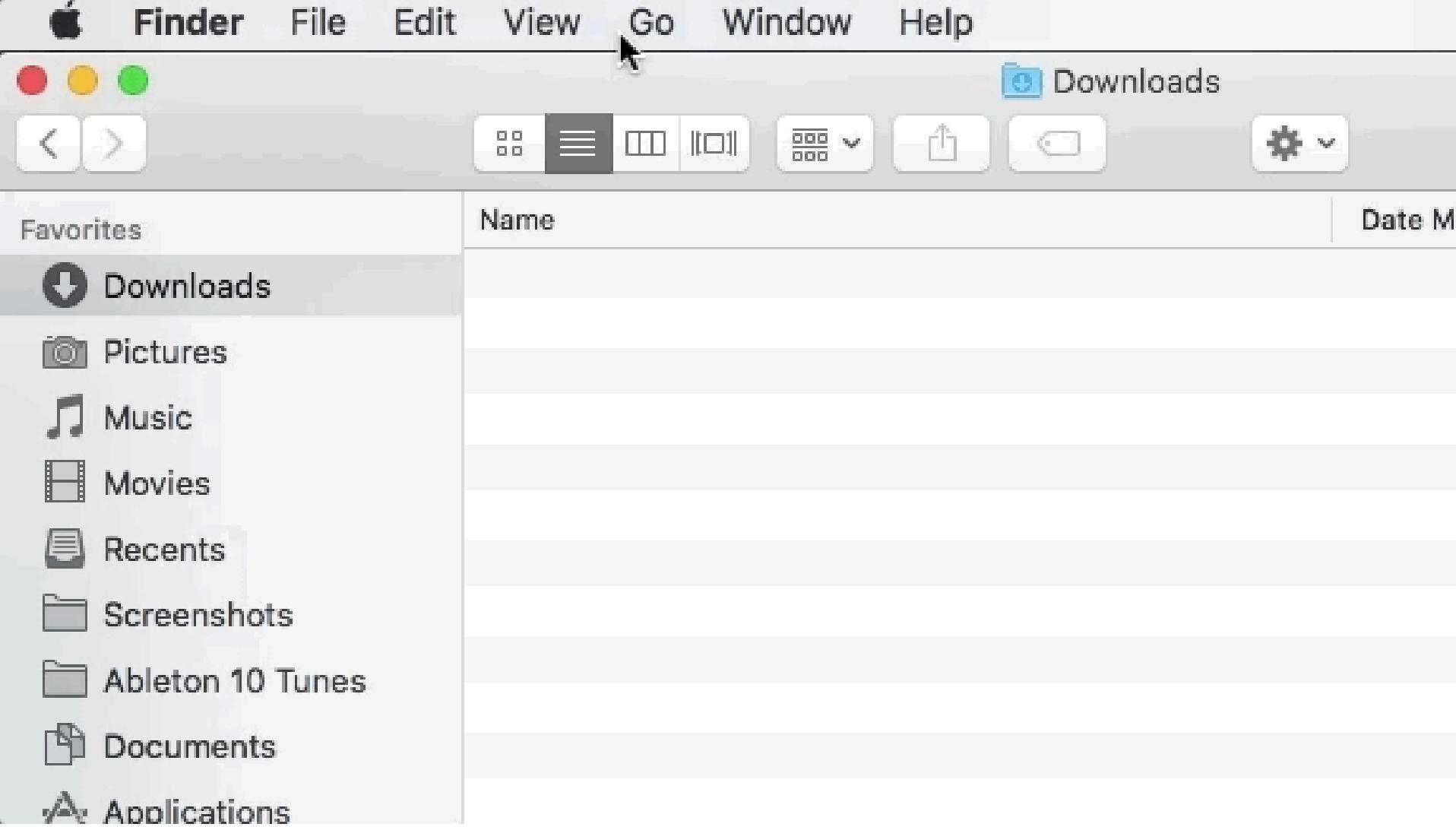
(a) phones, remote controls

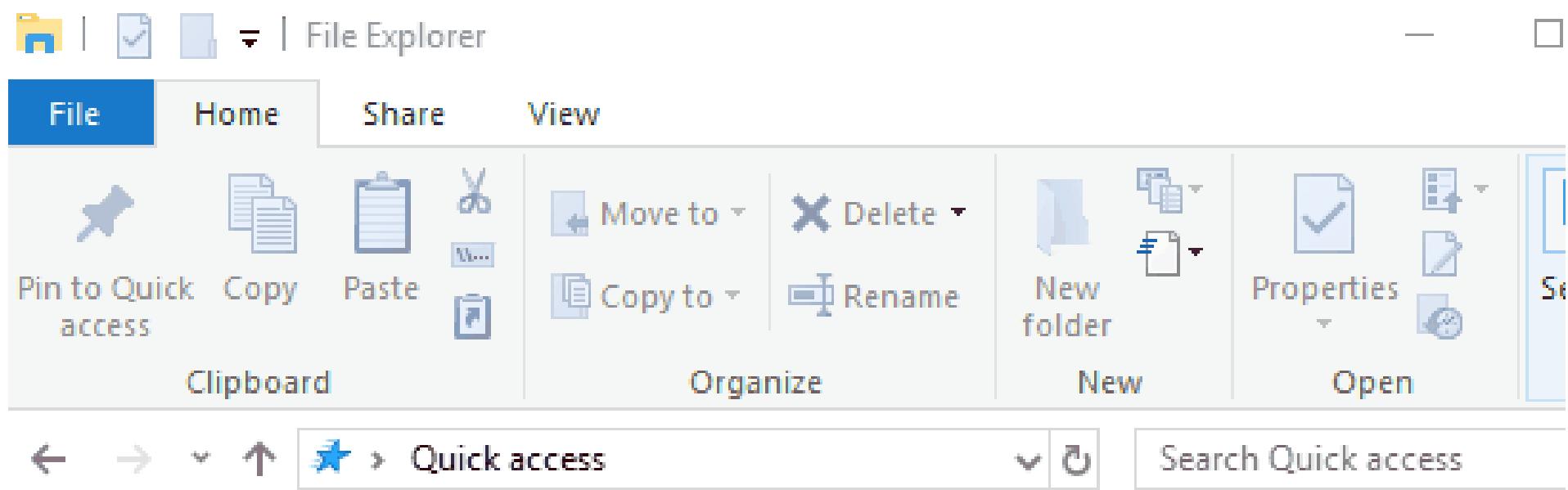
1	2	3
4	5	6
7	8	9
0		

(b) calculators, computer keypads

7	8	9
4	5	6
1	2	3
0		







Quick access

Desktop This PC

Downloads This PC

Documents

Pictures

Frequent folders (8)

Search Quick access

Quick access

Desktop

Downloads

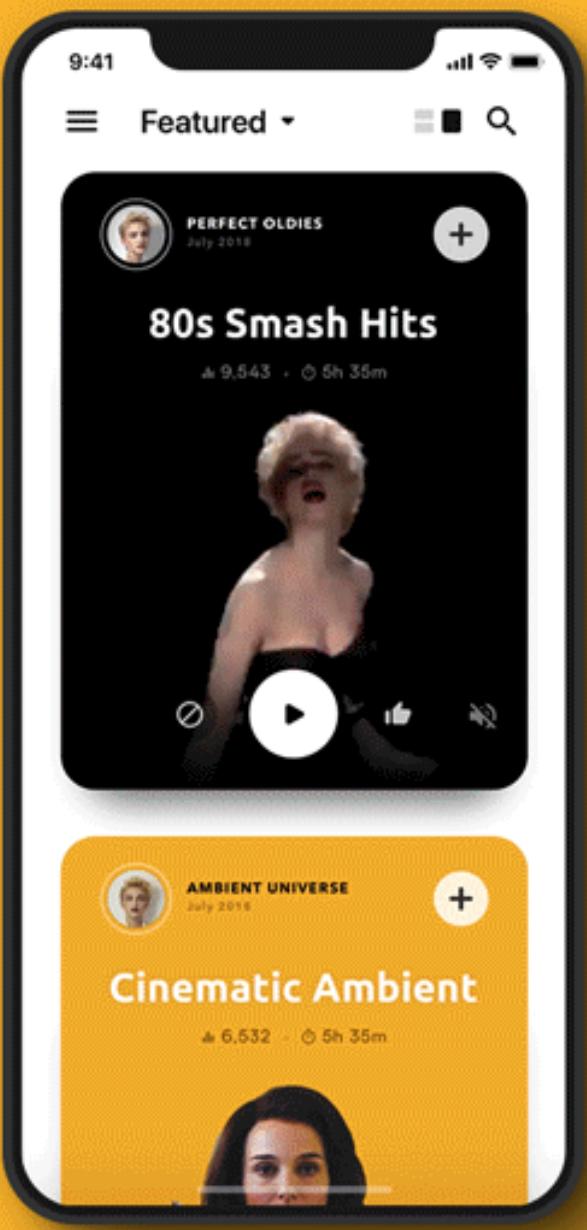
Documents

Pictures

Desktop

Downloads





6. Affordances

to give a clue

- Refers to an attribute of an object that allows people to know how to use it













OFF ON

W
B
T
Q
AF /
FOCUS
AF/MF

6. Affordances

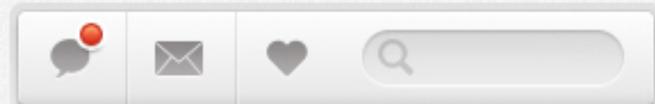
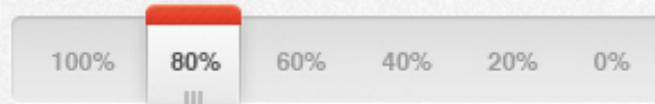
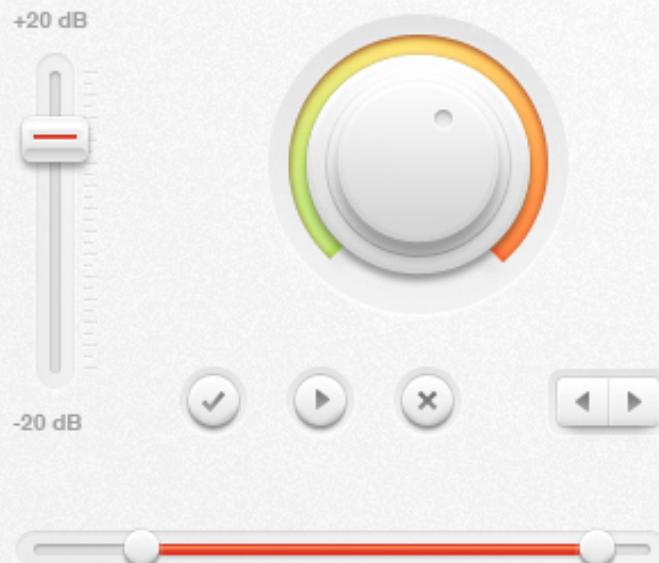
to give a clue

- Has been much popularised in interaction design to discuss how to design interface objects



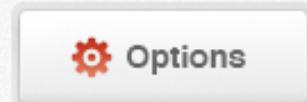
Skeuomorphic Design

- Skeuomorphism is a term most often used in graphical user interface design to describe interface objects that mimic their real-world counterparts in how they appear and/or how the user can interact with them.



CATEGORIES		
	Home	<input type="radio"/>
	Photos	3
	Like	<input type="radio"/>
	Events	<input type="radio"/>
	Settings	<input type="radio"/>

RECESSION	BALANCE
18%	2,123







RAW EDITION

1.618033988

903

CE

C







LOOP

2x



DECK A





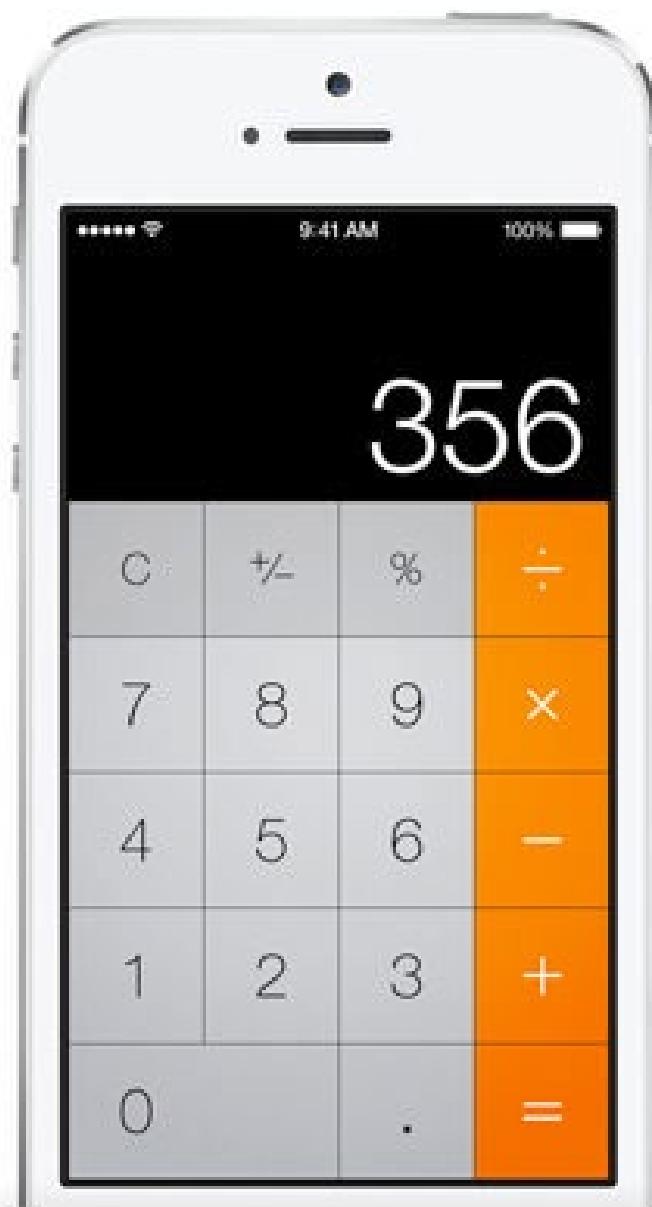
Skeuomorphism

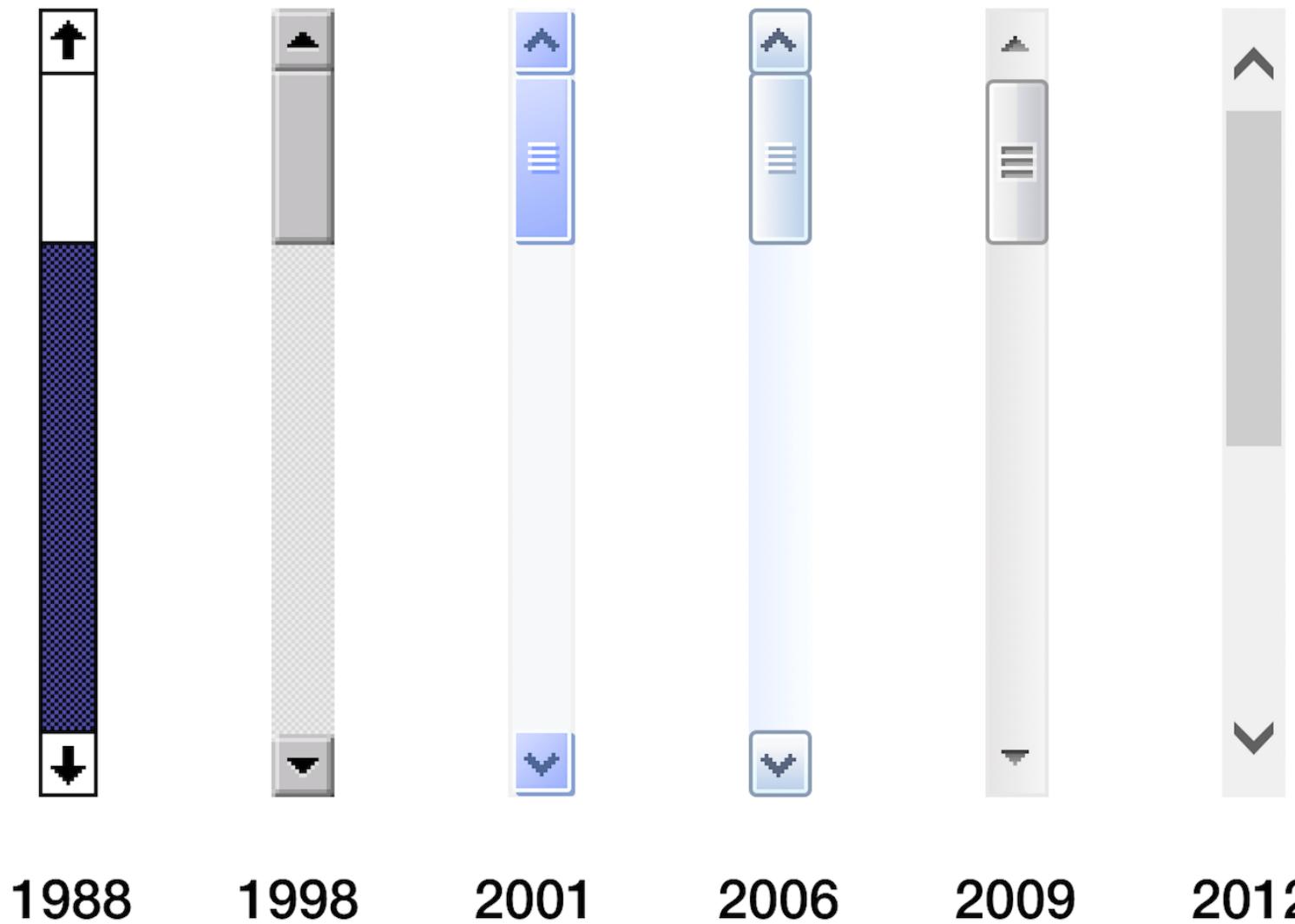


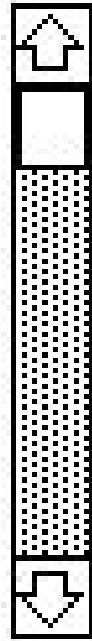
Flat Design

Flat Design

- Skeuomorphism was the leading web design trend.
- However, the (sometimes overdone) realism turned out to be too much for modern works, especially considering the need to be mobile-friendly and accessible across multiple devices.
- The reaction? Flat design.







1984
Mac OS



2000
Mac OS X



2007
iOS



2011
OS X 10.7

Start



Settings

Start

Tiles

Help

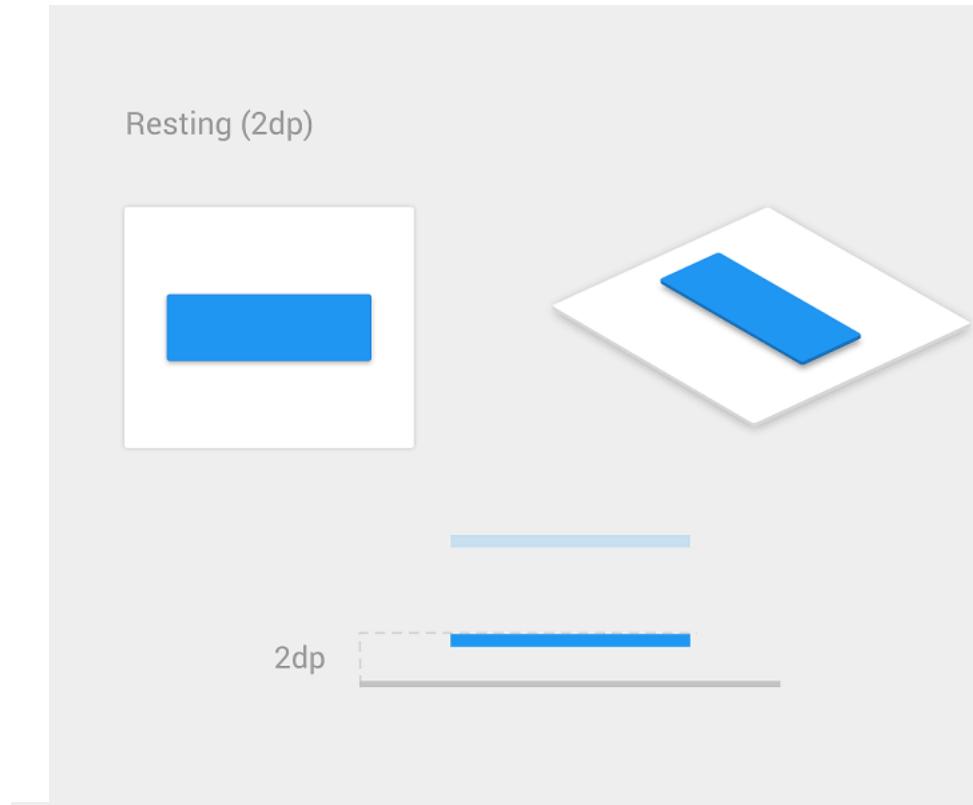


Change PC settings





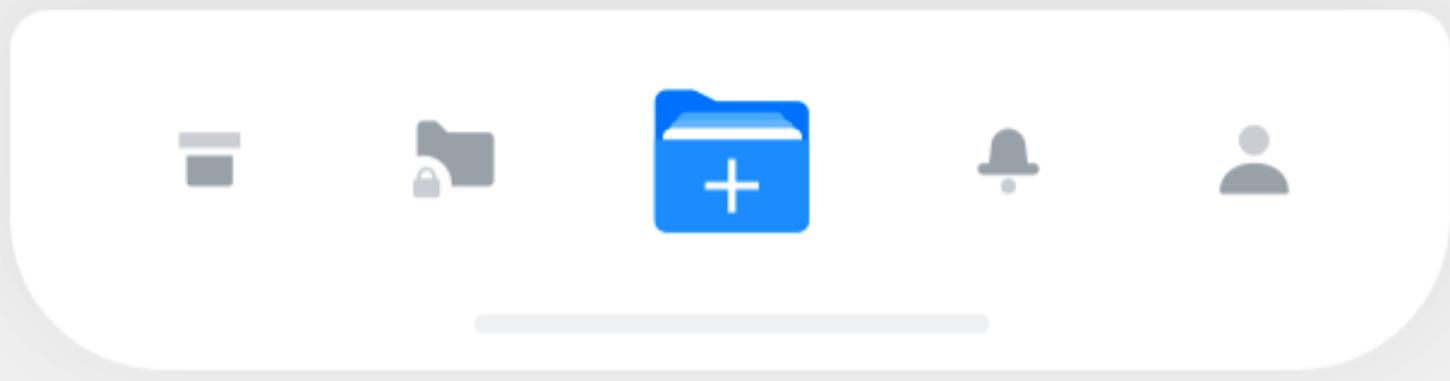
Flat Design



Material Design

Material Design

- Flat design is great for users who are highly attuned to digital interaction, while material has more of a reactive response to a user's action.
- Material design is multi-dimensional: it takes the Z-axis into consideration.
- Material is attempting to marry the real and digital worlds.



KNOWING THE DIFFERENCE BETWEEN

UX

&

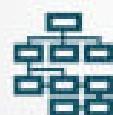
UI

DESIGN

INTERACTION DESIGN



WIREFRAMES &
PROTOTYPES



INFORMATION
ARCHITECT

USER RESEARCH



SCENARIOS



VISUAL DESIGN



COLORS



GRAPHIC
DESIGNER



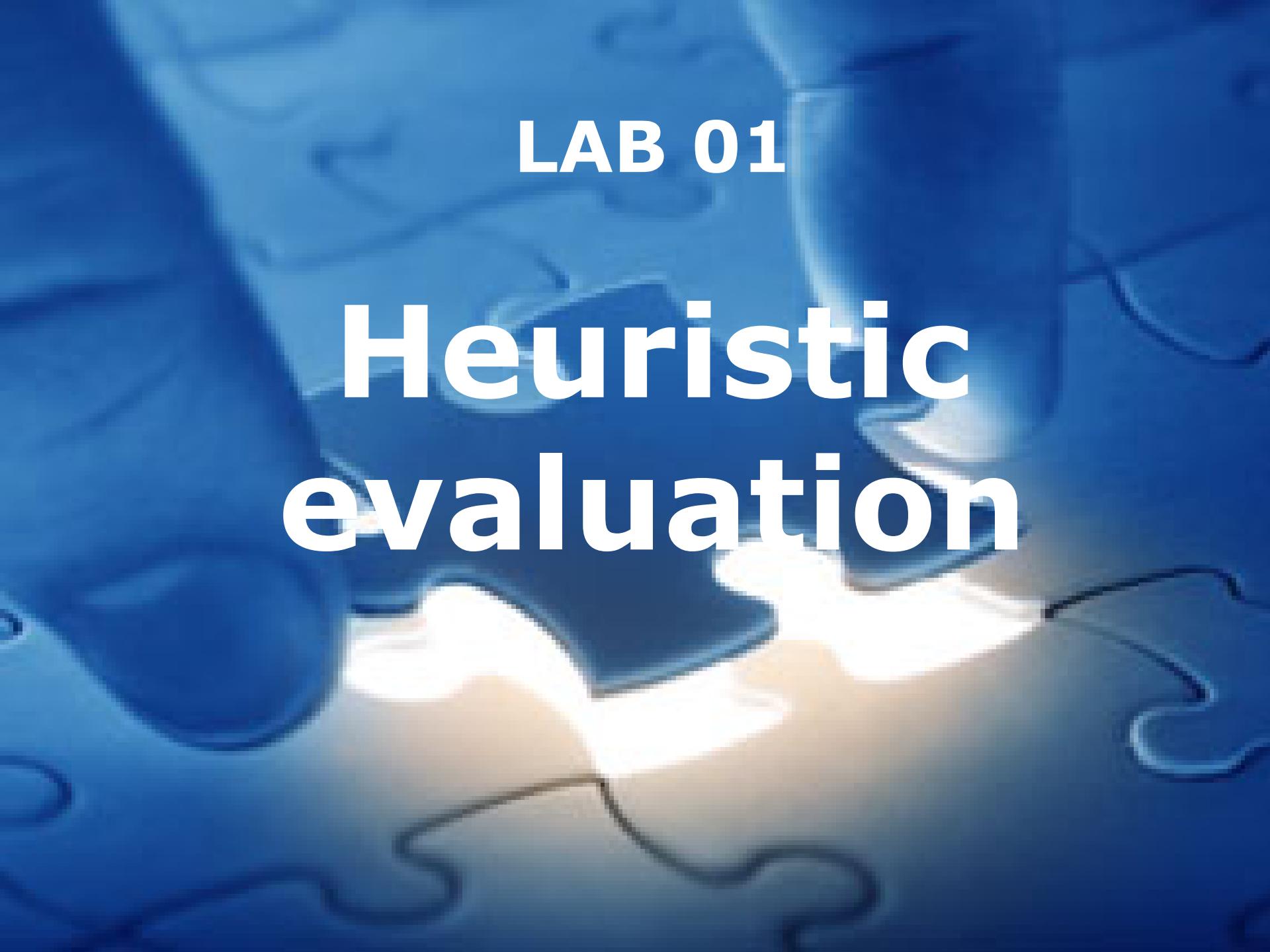
LAYOUTS

TYPOGRAPHY

Aa



papdan.com



LAB 01

Heuristic evaluation

LAB 02

Prototyping & testing