Intuition in UI design

Designing for Intuition:
Strategies for User-Centered UI Design

What Does Intuitive Mean?

"The power or faculty of attaining to direct knowledge or cognition without evident rational thought and inference"

- *Definition of intuition* according to Merriam Webster dictionary. (2023, April 30).

“A technical system is, in the context of a certain task, intuitively usable while the particular user is able to interact effectively, not consciously using previous knowledge.”

- Intuitive Use of User Interfaces (IUUI) research group. An interdisciplinary team of researchers who explore how to define intuitive use and interfaces.

Intuition in design

Intuition

Physical

Cultural

Advantages of Physical Intuition

- We use our most basic cognitive skills when we interact with the physical environment.
- Our learning curve is practically flat.
- We do not forget how to perform interactions when we use skills from the physical environment.
- Accessible across different cultures.

Limitations of Cultural Intuition

- We do not have the constant reminder from the physical world.
- We cannot be certain that users from all cultures know how to interact when the interaction is built on certain experiences from the cultural environment.
- We might have to spend some effort learning new cultural knowledge if we are unfamiliar with the symbols used.

Intuition in design

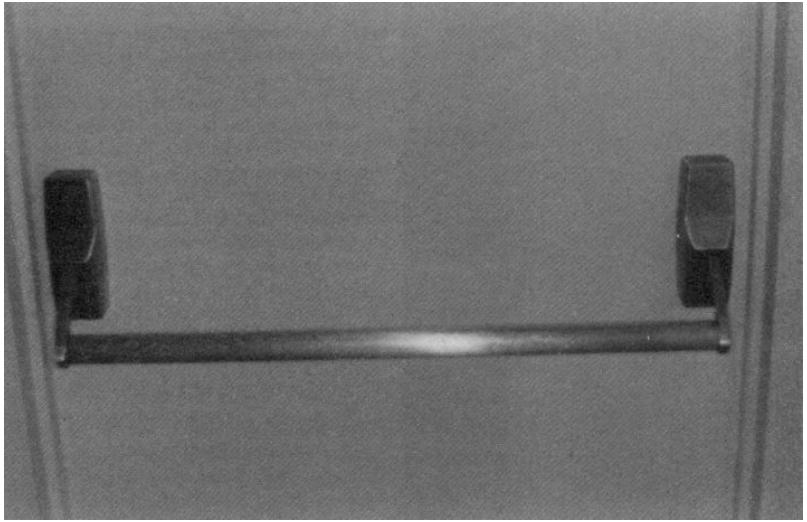
- The user instantly knows what to do without much mental effort

[3]

The classic door example

The classic door example

Door 1

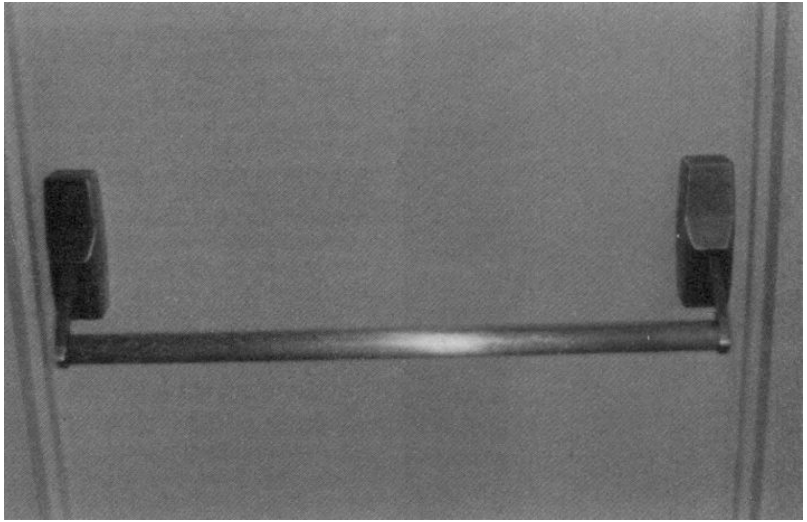


Images from (Norman, 2013) book

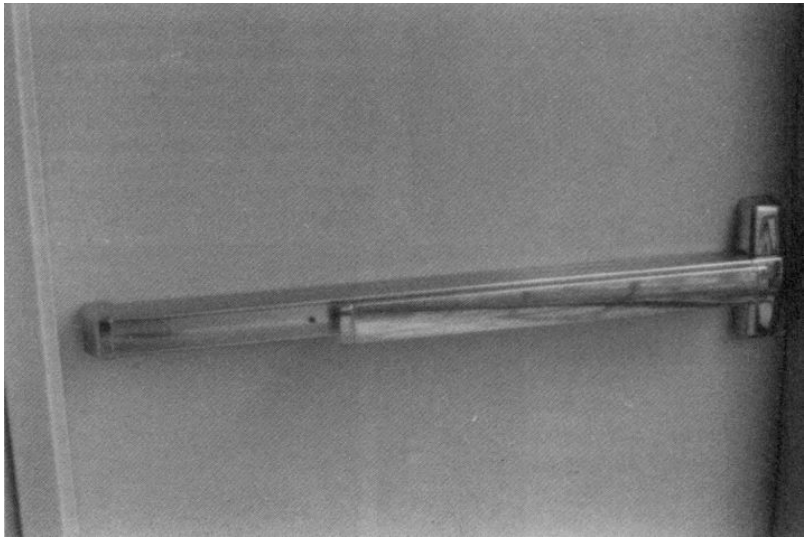
[3]

The classic door example

Door 1



Door 2



Images from (Norman, 2013) book

What comes first?

Intuition or design

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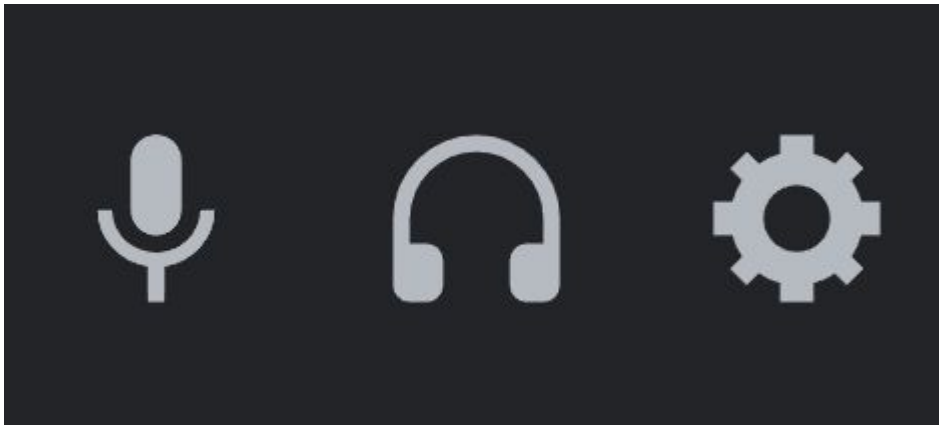
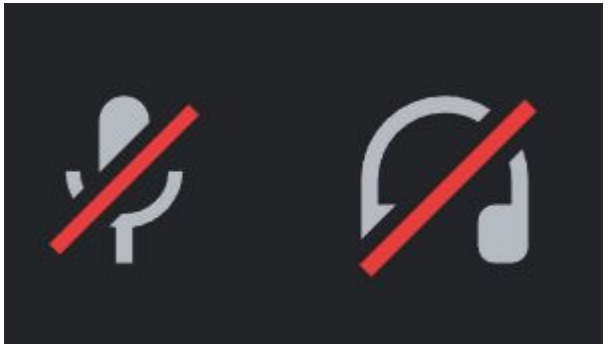
Intuition or design





What comes first?

Intuition or design

Image from education.davidspencer.ca/wiki/Computer_Keyboarding_Skills

How is intuitive design good?

How is intuitive design good?

"Good design exploits constraints so that the user feels as if there is only one possible thing to do — the right thing"

– Don Norman

Image from https://designlab.ucsd.edu/don-norman-interview/

[4]

How is intuitive design good?

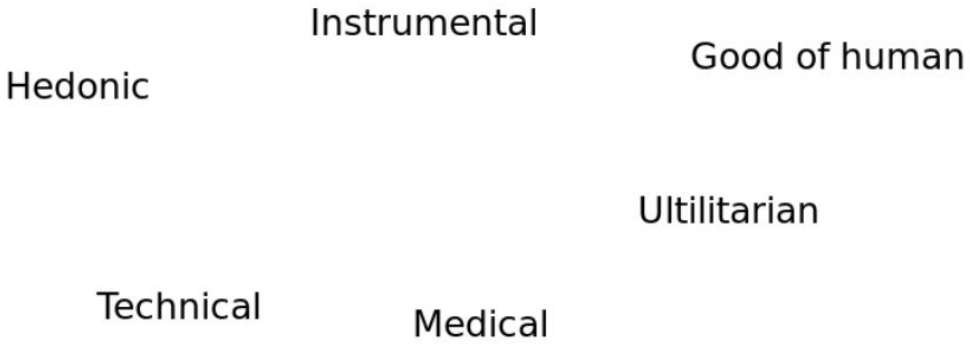
Goodness	Relative to	Context	What is 'good'
Utilitarian	Desired end of action	Task	Useful (yes/no)
Instrumental	Desired end of action	Task	Serving well
Technical	Requirements, competition	Activity	Excelling
Medical	Health, normalcy	Activity	Beneficial, not harmful
Hedonic	Pleasure, pain	Experience	Pleasure
Good of Human	Welfare	Life	Happiness and wellbeing

Table 1. Summary of the varieties of goodness.

Ylirisku, S., & Arvola, M. (2018). Varieties of Goodness in Design. In P. Vermaas & S. Vial (Eds.), Philosophy of Design: An Exploration (pp. 51–70). Springer.

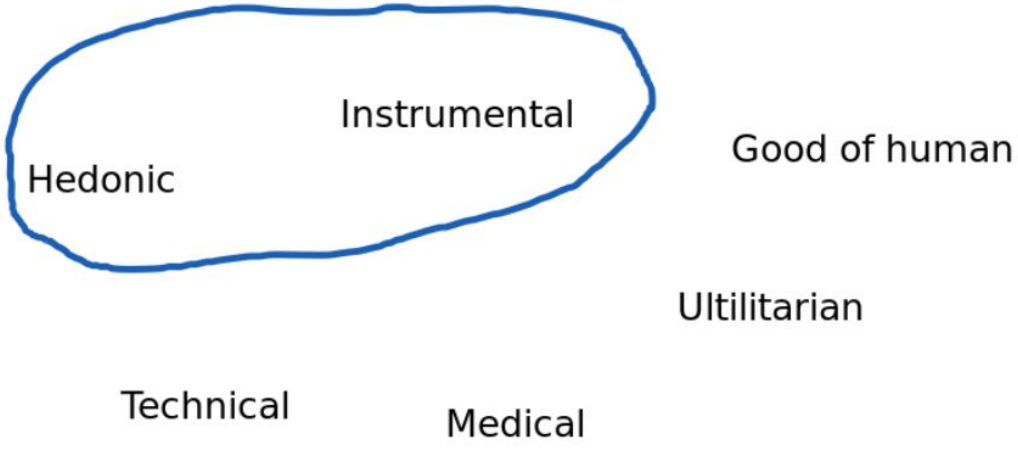
[4]

How is intuitive design good?



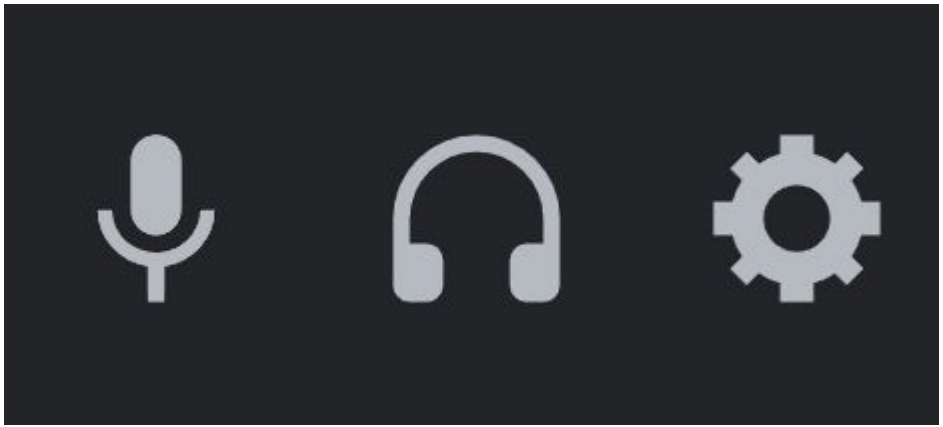
[4]

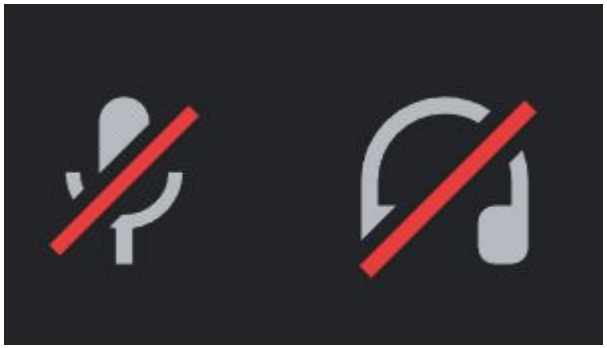
How is intuitive design good?



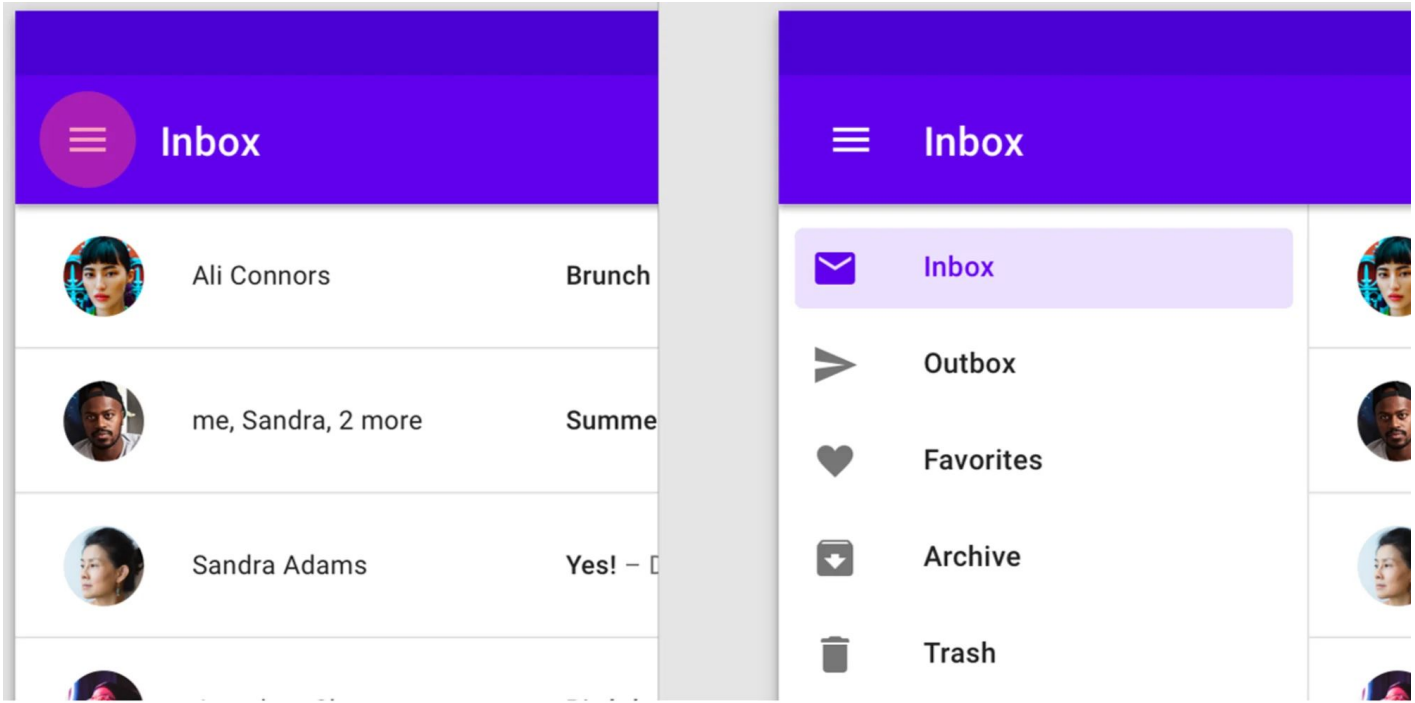
No universal intuition

No universal intuition



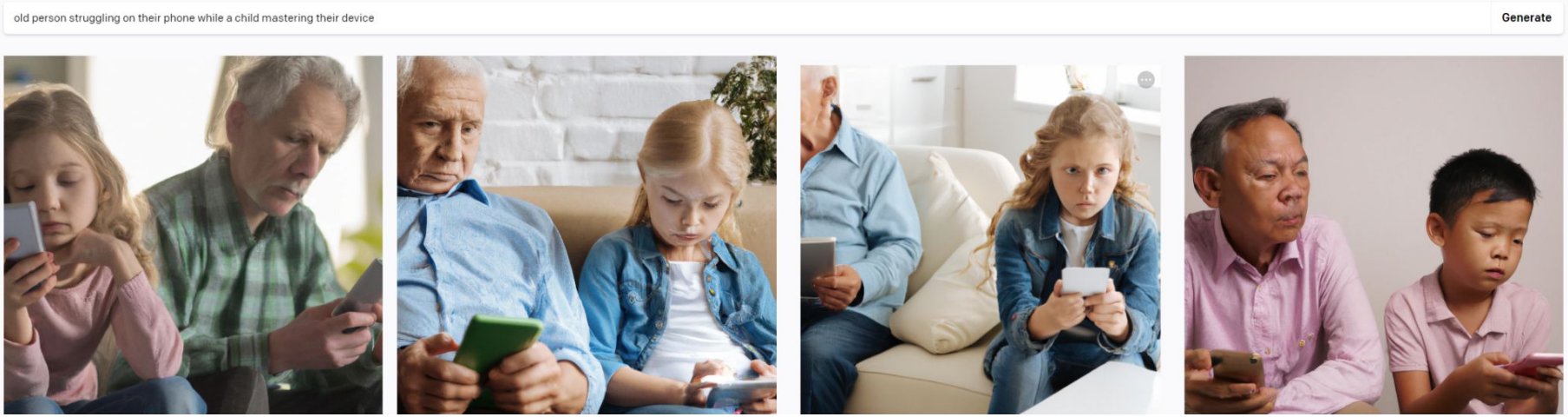


No universal intuition



Hamburger menu. (Image source: uxdesign.cc)

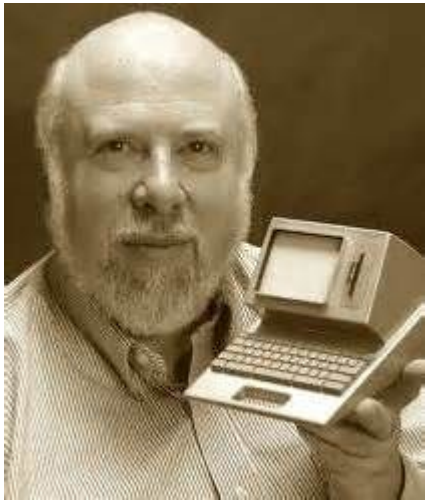
No universal intuition



Universally intuitive design?

Universally intuitive design?

"*It has been claimed that the use of a computer's mouse is intuitive. Yet it is far from that.*"
– Jeff Raskin



[5]

Universally intuitive design?

Universally intuitive design?

Universally intuitive design?

(Nearly) universally intuitive design?

(Nearly) universally intuitive design?

1. Who is my user and what is his/her previous experience with related products?

(Nearly) universally intuitive design?

1. Who is my user and what is his/her previous experience with related products?
2. What is the current state of the art (design)?

(Martensen, 2020)

(Nearly) universally intuitive design?

1. **Who is my user and what is his/her previous experience with related products?**
2. What is the current state of the art?

(Martensen, 2020)

(Nearly) universally intuitive design?

1. Who is my user and what is his/her previous experience with related products?
2. **What is the current state of the art?**

(Martensen, 2020)

[6]

(Nearly) universally intuitive design?

2. What is the current state of the art?

Affordance

[1]

Affordance

“... the perceived or actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used... A chair affords (’is for’) support and therefore affords sitting. A chair can also be carried. Glass is for seeing through, and for breaking.”

- *Norman 2013*

Affordance

Also...

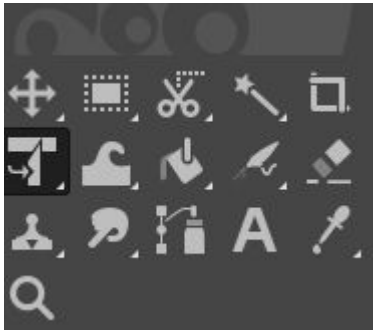
“so they took the closest existing word—affordance. Soon designers were saying such things as, “I put an affordance there,” to describe why they displayed a circle on a screen to indicate where the person should touch, whether by mouse or by finger. “No,” I said, “that is not an affordance. That is a way of communicating where the touch should be.”

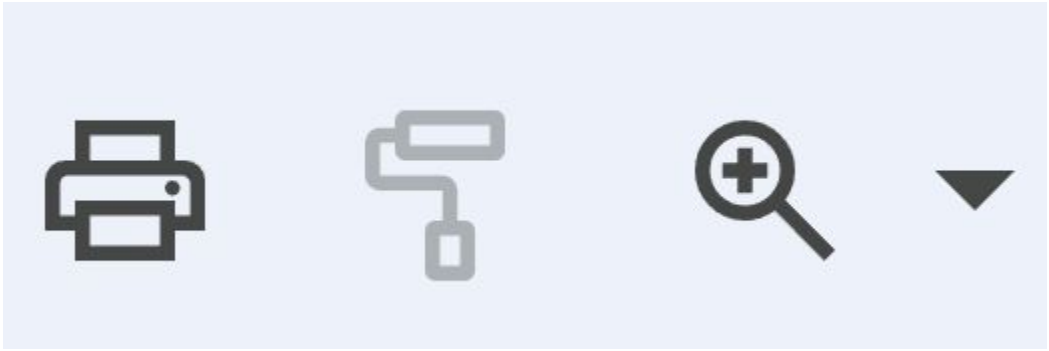
- *Norman 2013*

[1]

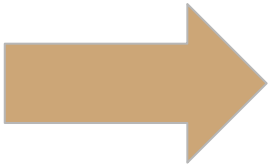
Affordance/Signifiers

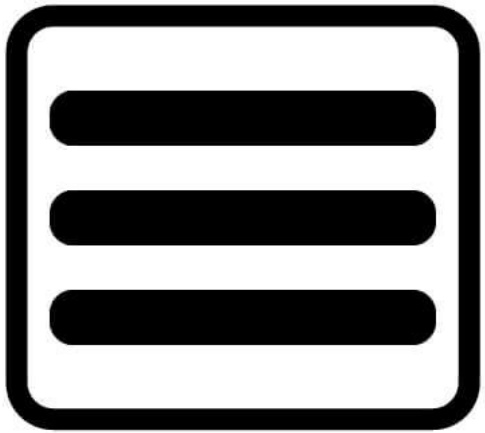
Use visual cues and skeuomorphism (derivative objects) to convey the functionality of buttons and elements, helping users understand their purpose.

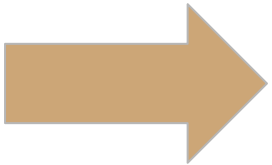


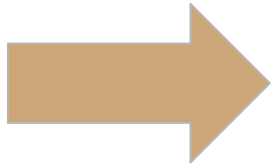


Lets play a game!









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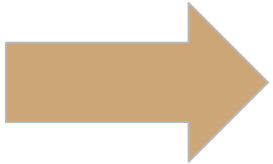
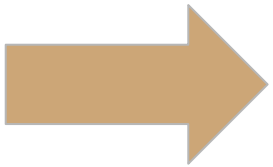
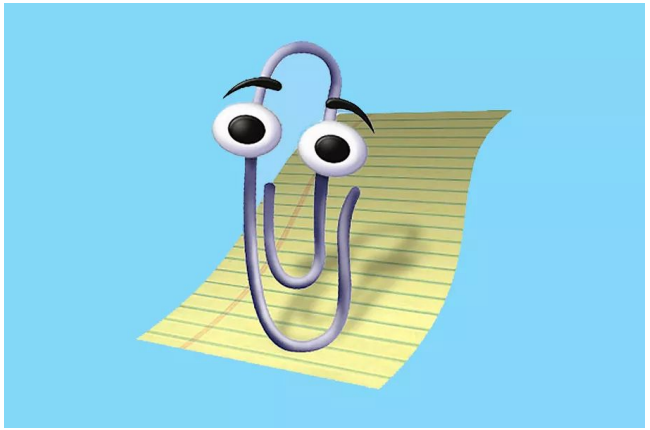




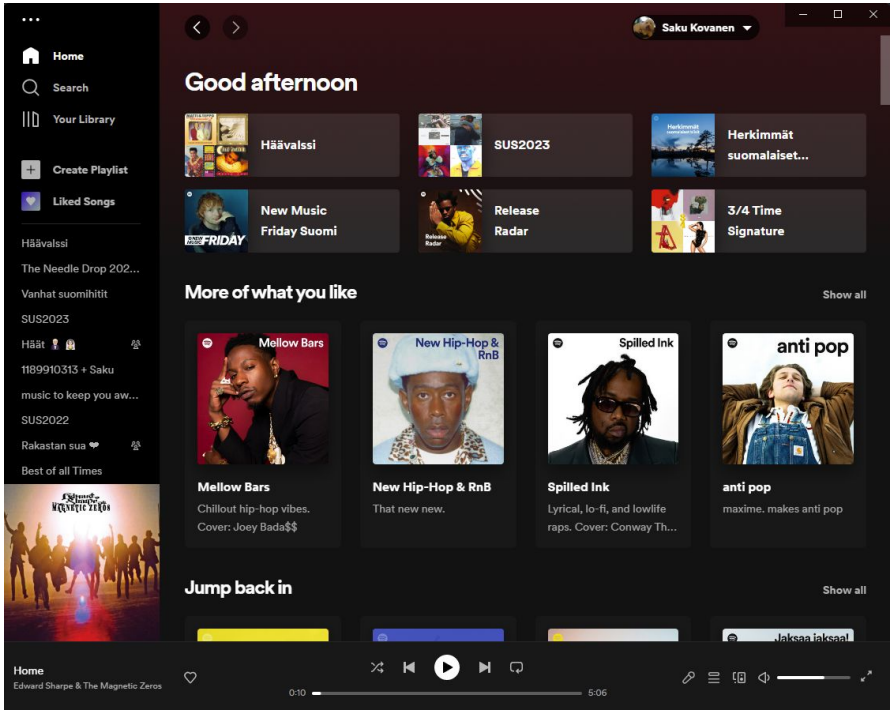


Hierarchy in UI

- Why do we need a hierarchy in design?
- Balance is needed
  - Too shallow hierarchy = Overwhelming options
  - Too tall hierarchy = Feeling lost
- Two types of hierarchy in UI design
  - Visual hierarchy
    - How to navigate the current visible interface
  - Navigational hierarchy
    - How to navigate between different interfaces of the application

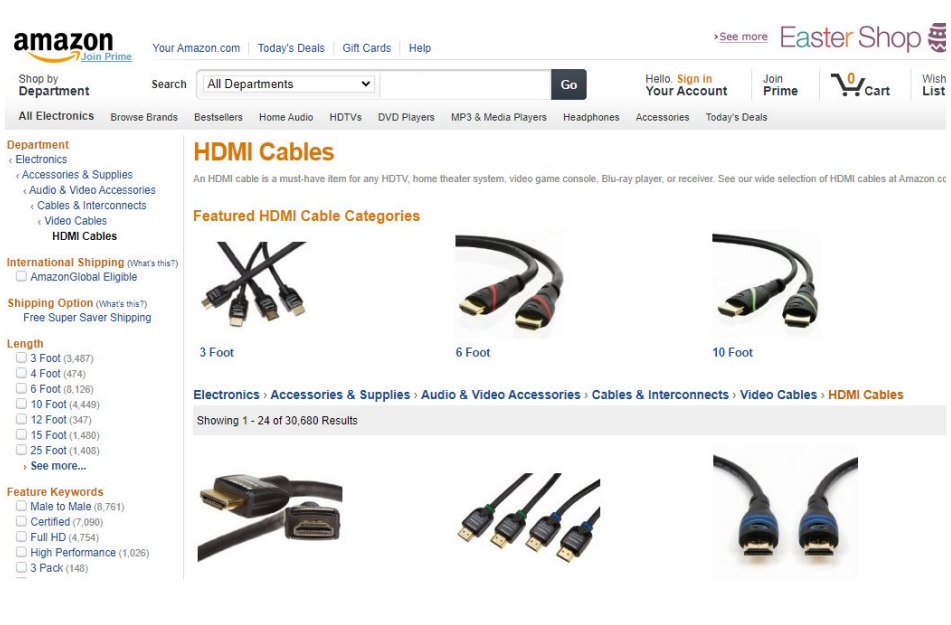
Visual Hierarchy

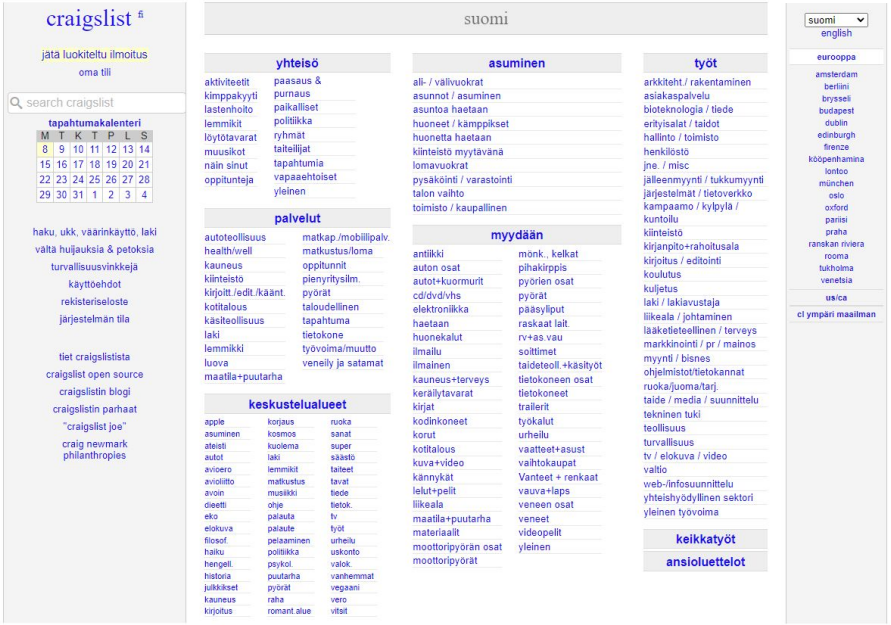
- Order of importance
- Relationships between elements
- Where do you look first?
- (Simplified) Components of Visual Hierarchy
  - Size
  - Color
  - Contrast
  - Consistency
  - Proximity
  - Whitespace
- Natural reading order
  - Left to right, top to bottom (for English speakers)



How do we use Visual Hierarchy?

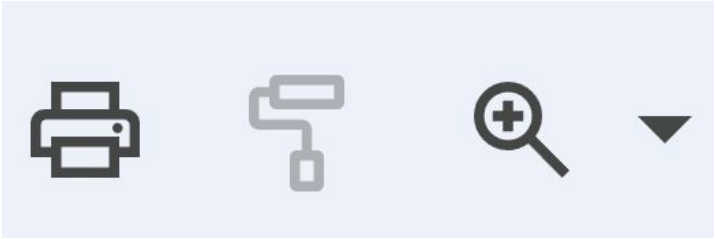
- Too tall = Higher chance of getting lost
- Too shallow = Overwhelming number of options

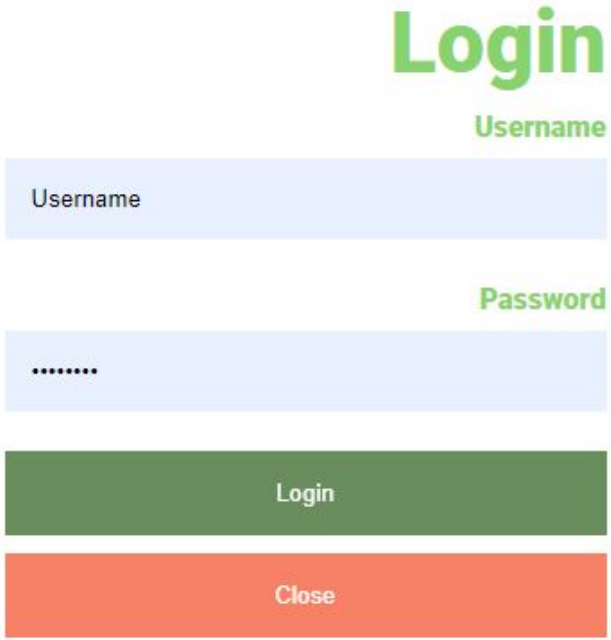




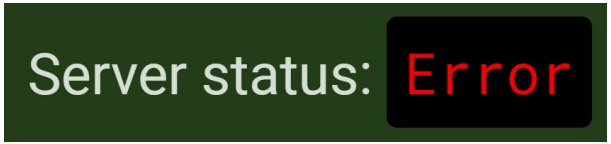
[2]

Intuitive Color





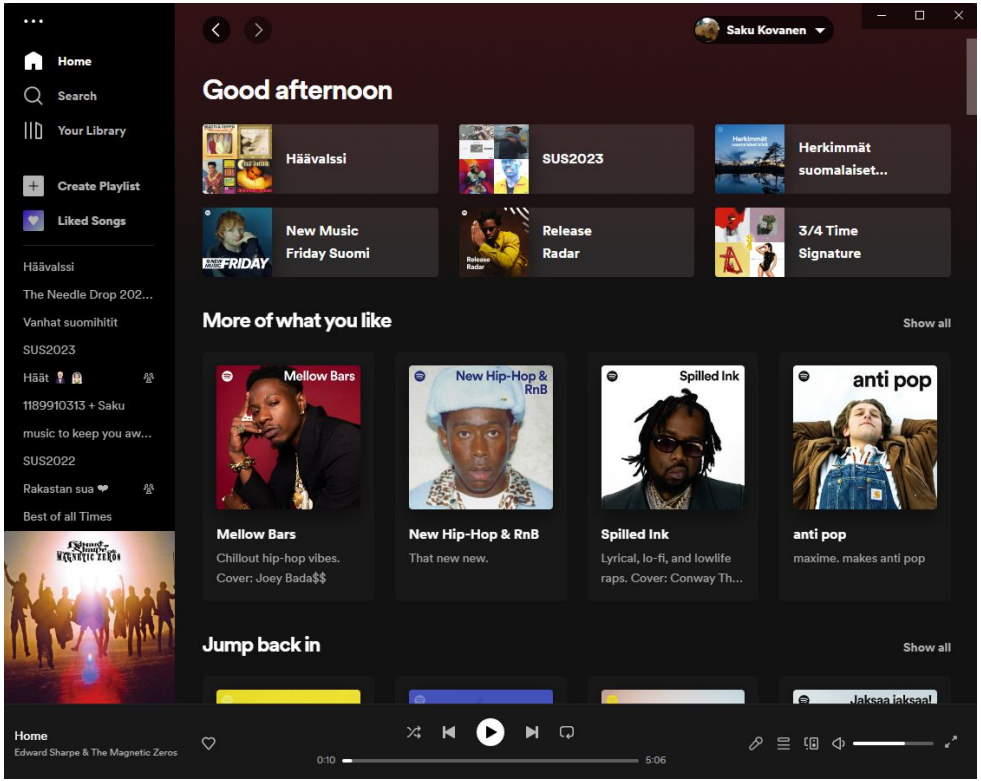
Colors can have a cognitive impact on users, influencing their emotions, decision-making, and understanding of the interface. By using colors appropriately, the design can enhance the user experience, making it more intuitive, engaging, and memorable.



[1]

Discoverability

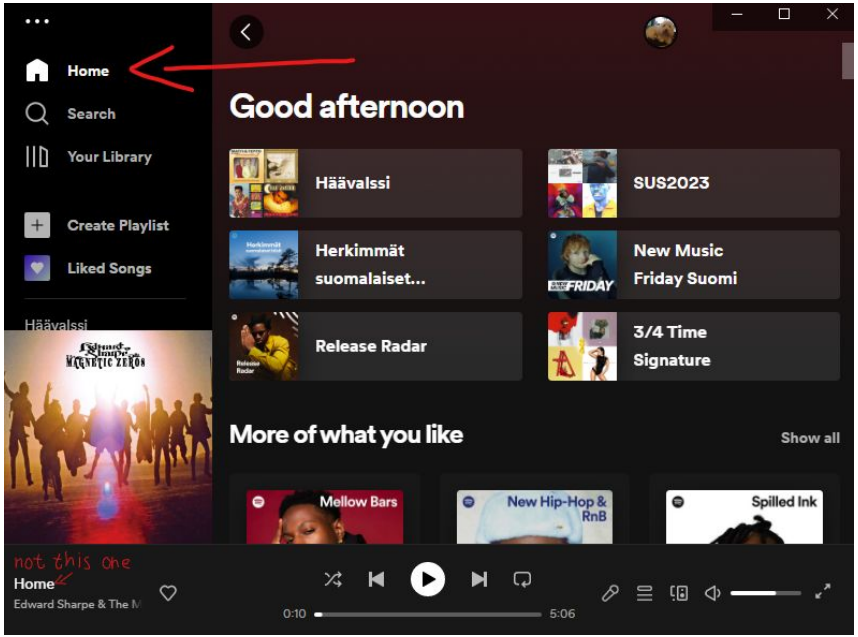
Features should be easy to discover, with essential functions accessible from the home screen or through simple navigation.



[1]

Explorability

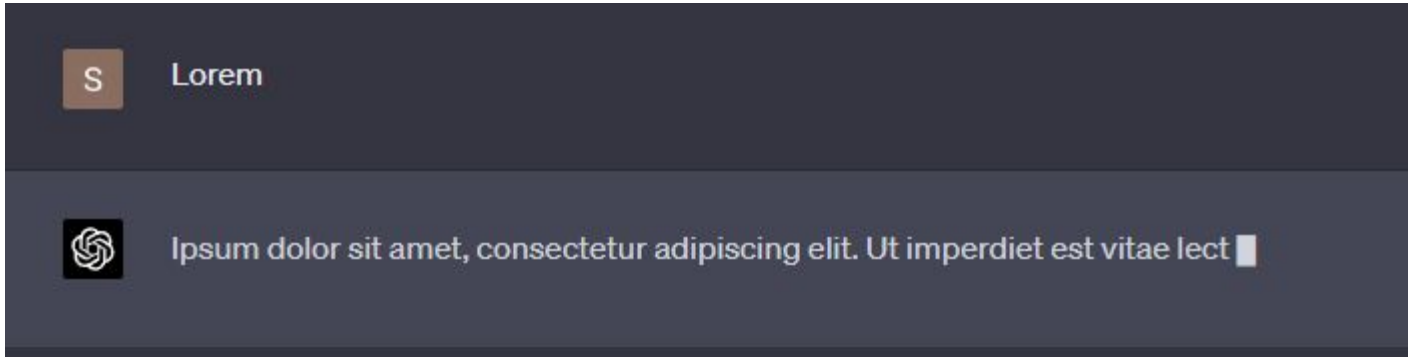
Encourage users to explore the UI by ensuring a safe, straightforward navigation experience and easy access to familiar areas (e.g., home screen).



[1]

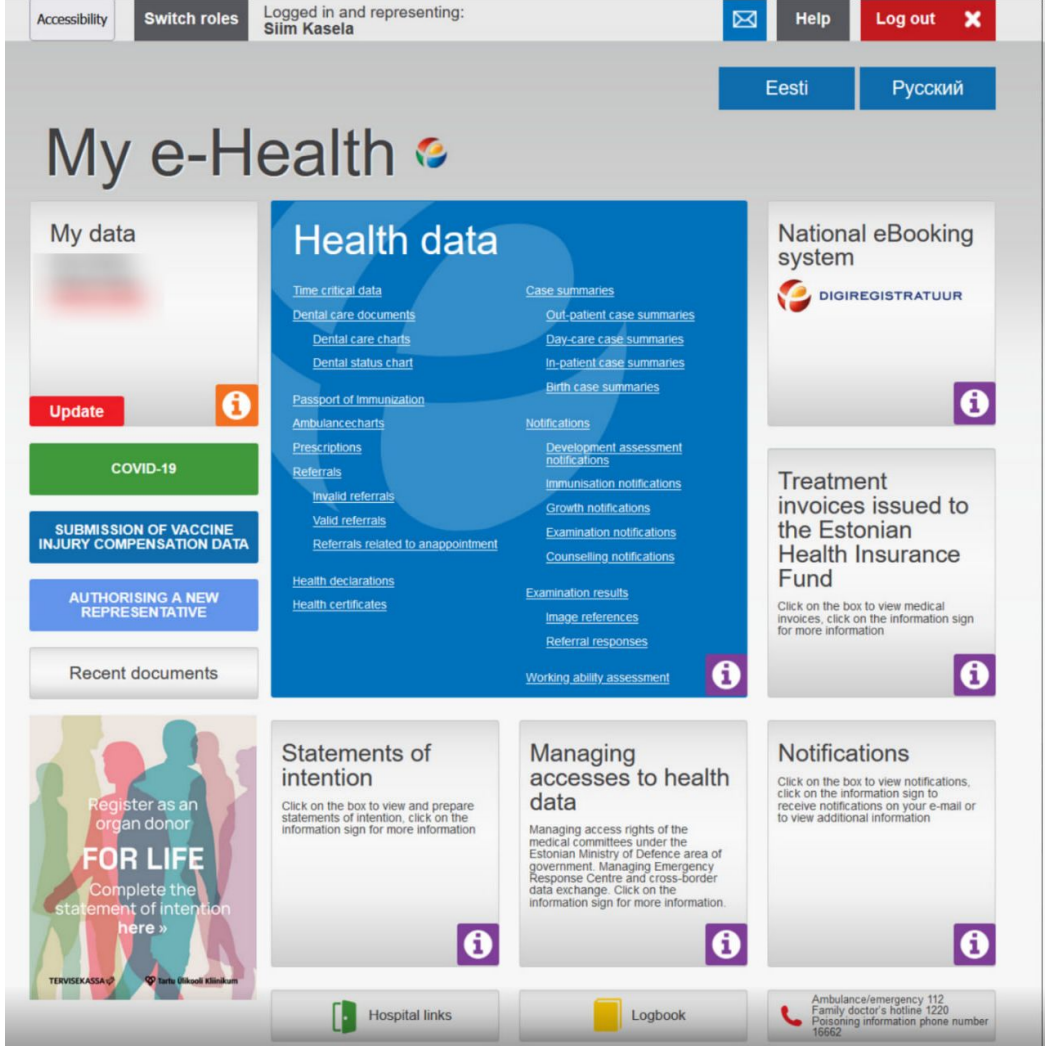
Responsiveness

Provide immediate feedback to user actions, reinforcing the sense of interaction and control. For example, ChatGPT immediately starts spitting out text unlike Bard.



What is wrong with this?

Examples...


Accessibility
Switch roles
Logged in and representing:
Siim Kasela
Help
Log out
Eesti
Русский
My e-Health
My data
Update
COVID-19
SUBMISSION OF VACCINE INJURY COMPENSATION DATA
AUTHORISING A NEW REPRESENTATIVE
Recent documents
Health data
Time critical data
Dental care documents
Dental care charts
Dental status chart
Passport of immunization
Ambulancecharts
Prescriptions
Referrals
Invalid referrals
Valid referrals
Referrals related to anappointment
Health declarations
Health certificates
Case summaries
Out-patient case summaries
Day-care case summaries
In-patient case summaries
Birth case summaries
Notifications
Development assessment notifications
Immunisation notifications
Growth notifications
Examination notifications
Counselling notifications
Examination results
Image references
Referral responses
Working ability assessment
National eBooking system
DIGIREGISTRATUUR
Treatment invoices issued to the Estonian Health Insurance Fund
Click on the box to view medical invoices, click on the information sign for more information
Register as an organ donor
FOR LIFE
Complete the statement of intention here »
TERVISEKASSA
Tartu Ülikooli Kliinikum
Statements of intention
Click on the box to view and prepare statements of intention, click on the information sign for more information
Managing accesses to health data
Managing access rights of the medical committees under the Estonian Ministry of Defence area of government. Managing Emergency Response Centre and cross-border data exchange. Click on the information sign for more information.
Notifications
Click on the box to view notifications, click on the information sign to receive notifications on your e-mail or to view additional information
Hospital links
Logbook
Ambulance/emergency 112
Family doctor's hotline 1220
Poisoning information phone number 16662

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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

haku, ukk, väärinkäyttö, laki

vältä huijauksia & petoksia

turvallisuusvinkkejä

käyttöehdot

rekisteriseloste

järjestelmän tila

tiet craigslistista

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craigslistin parhaat

"craigslist joe"

craig newmark philanthropies

suomi

aktiviteetit
kimppakyyti
lastenhoito
lemmikit
löytötavarat
muusikot
näin sinut
oppitunteja

paasaus & purnaus
paikalliset
politiikka
ryhmät
taiteilijat
tapahtumia
vapaaehtoiset
yleinen

autoteollisuus
health/well
kauneus
kiinteistö
kirjoitt./edit. /kääntä.
kotitalous
käsiteollisuus
laki
lemmikki
luova
maatila+puutarha

matkap./mobiilipalv.
matkustus/loma
oppitunnit
pienyritysilm.
pyörät
taloudellinen
tapahtuma
tietokone
työvoima/muutto
veneily ja satamat

apple
asuminen
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autot
avioero
avioliitto
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musiikki
ohje
palauta
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politiikka
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taiteet
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valok.
vanhemmat
vegaani
vero
vitsit

ali- / välivuokrat
asunnot / asuminen
asuntoa haetaan
huoneet / kämppikset
huonetta haetaan
kiinteistö myytävänä
lomavuokrat
pysäköinti / varastointi
talon vaihto
toimisto / kaupallinen

antiikki
auton osat
autot+kuormurit
cd/dvd/vhs
elektroniikka
haetaan
huonekalut
ilmailu
ilmainen
kauneus+terveys
keräilytavarat
kirjat
kodinkoneet
korut
kotitalous
kuva+video
kännykät
lelut+pelit
liikeala
maatila+puutarha
materiaalit
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pyörien osat
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pääsyliput
raskaat lait.
rv+as.vau
soittimet
taideteoll.+käsityöt
tietokoneen osat
tietokoneet
trailerit
työkalut
urheilu
vaatteet+asust
vaihtokaupat
Vanteet + renkaat
vauva+laps
veneen osat
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yleinen

arkkiteht./ rakentaminen
asiakaspalvelu
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hallinto / toimisto
henkilöstö
jne. / misc
jälleenmyynti / tukkumyynti
järjestelmät / tietoverkko
kampaamo / kylpylä / kuntoilu
kiinteistö
kirjanpito+rahoitusala
kirjoitus / editointi
koulutus
kuljetus
laki / lakiavustaja
liikeala / johtaminen
lääketieteellinen / terveys
markkinointi / pr / mainos
myynti / bisnes
ohjelmistot/tietokannat
ruoka/juoma/tarj.
taide / media / suunnittelu
tekninen tuki
teollisuus
turvallisuus
tv / elokuva / video
valtio
web-/infosuunnittelu
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yleinen työvoima

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oxford
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praha
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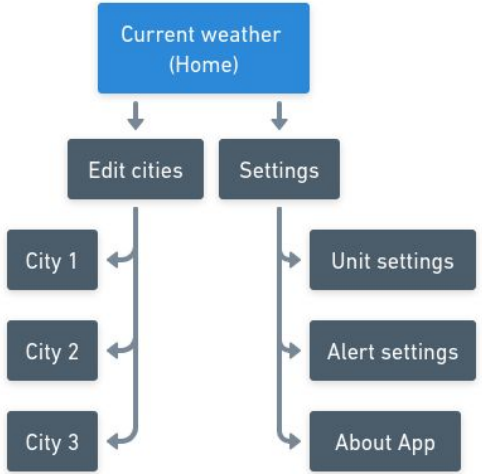
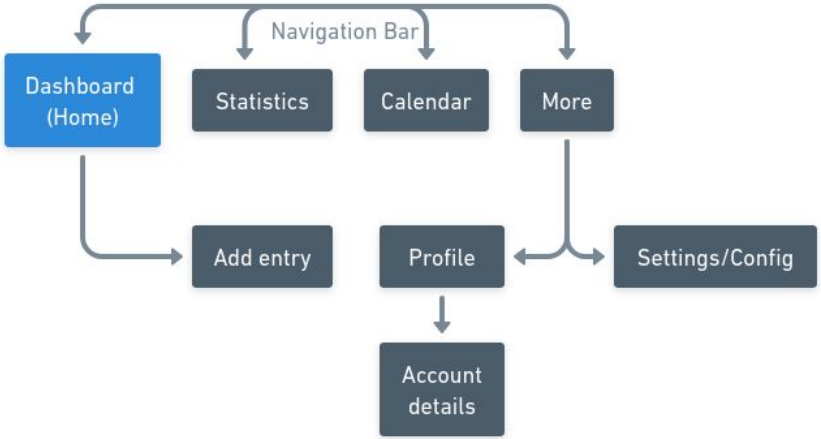
cl ympäri maailman

Navigation Hierarchy

Weather App

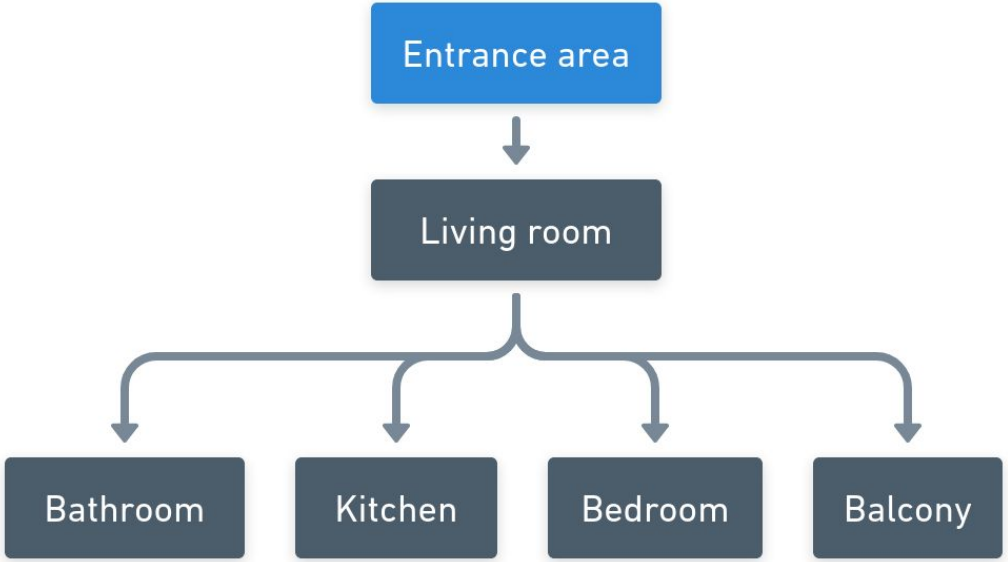


Mood Tracking App



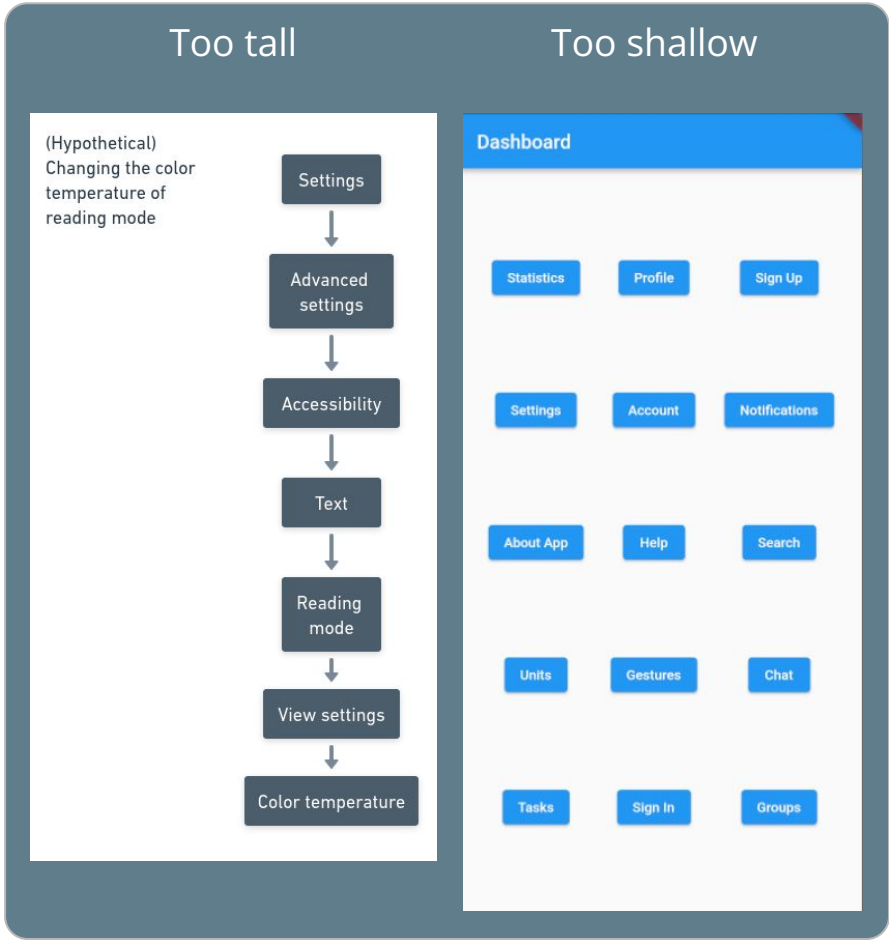
Parallels with Reality

An intuitive house



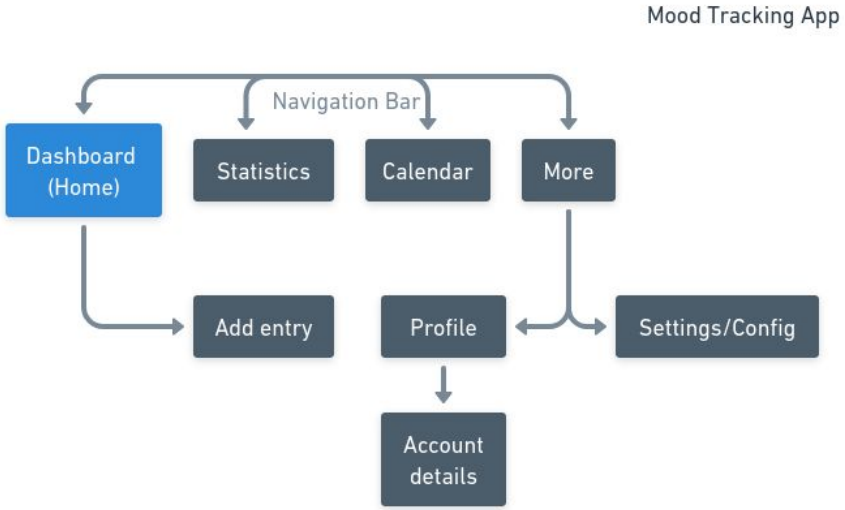
Navigational Hierarchy

- Rules of thumb
  - Like with hierarchies in design in general:
    - Not too shallow - too many options
    - Not too tall - lost sense of location



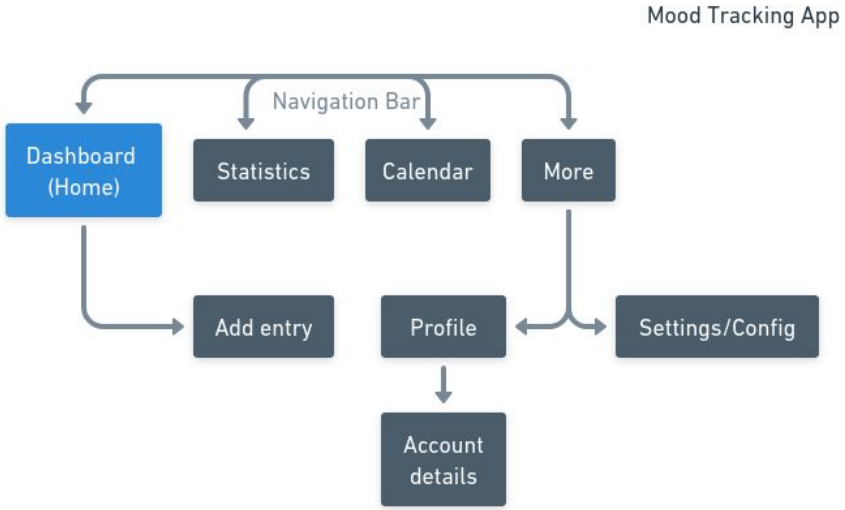
Navigational Hierarchy

- Rules of thumb
  - Lower levels of the hierarchy should be logically related to higher levels



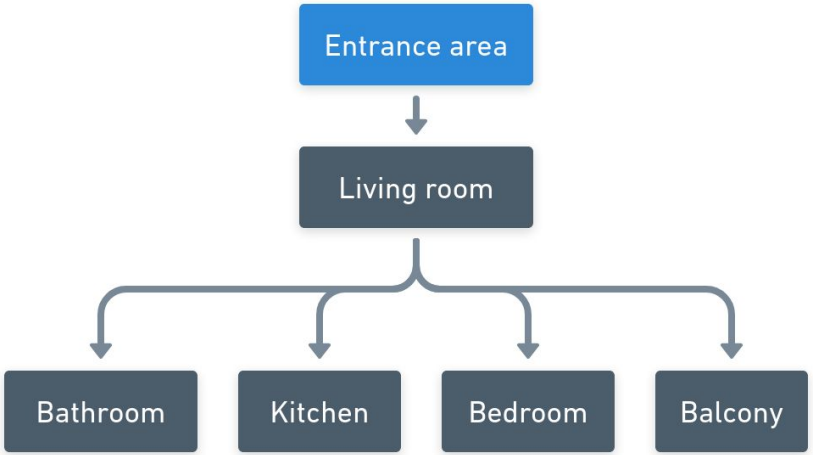
Navigational Hierarchy

- Rules of thumb
  - Forward navigation = More specific page
  - Lateral navigation = Equally important page
  - Backward navigation = Less specific page

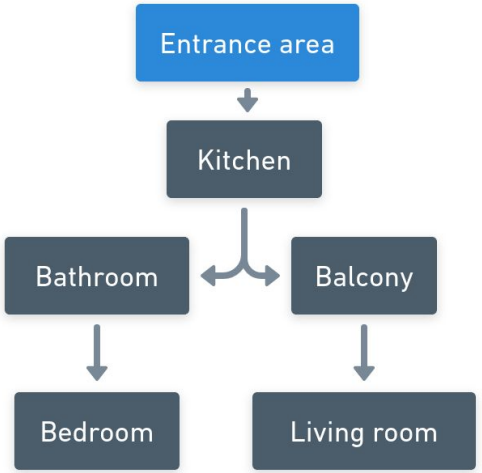


Parallels with Reality

An intuitive house



An unintuitive house



Caveat

- Intuition is not the same for everyone
- Test with actual users!

Can You Find The Following?

From the website https://www.art.yale.edu/, find

-information about teaching assistant positions.

-information on the course called "Isms and wasms"

-how much is the tuition?

-list of photography alumni of 2012

-academic regulations

Unintuition Android App

https://github.com/shzhe02/intuition/releases/tag/v1.0.0

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[5] ‘Jef Raskin on “Intuitive Interfaces”’. https://www.asktog.com/papers/raskinintuit.html (accessed May 08, 2023).

[6] ‘What is Intuitive Design?’, The Interaction Design Foundation. https://www.interaction-design.org/literature/topics/intuitive-design (accessed May 08, 2023).

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