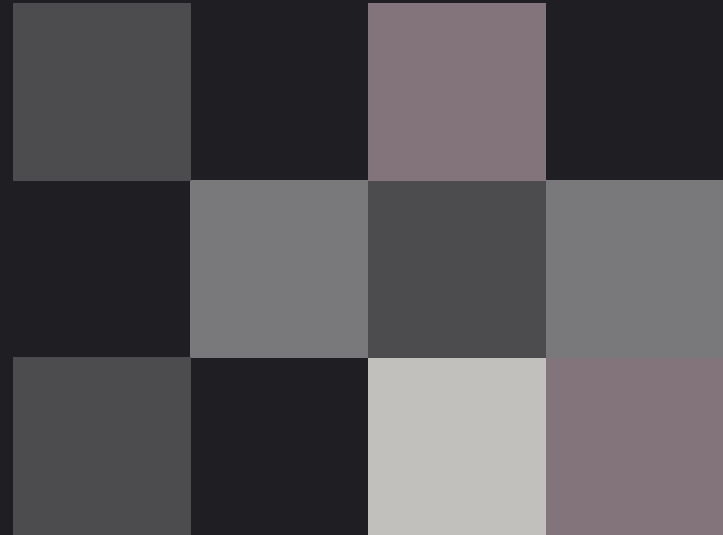


COURSE DAY 2

# UI/UX Training for Engineers

September 2025



# WELCOME

& thank you yesterday



A look in the

# Rear-view mirror



# Today's purpose

The goal is not to make you designers, but to give you tools to view your system objectively, **identify relevant design issues, and apply practical design methods to solve them.** The focus is on ensuring the **system is useful and meets user needs, with strategic, analytical choices rather than gut feeling.**



# IT'S TIME FOR THE AGENDA

# Information Architecture

Information Architecture... is the **structure and organization of information** on a website. Think of it like an architect building a house. Before the house gets built, they'll map exactly what goes where.

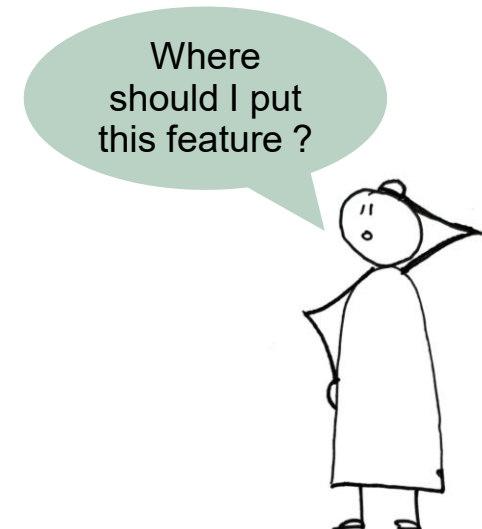
Consists of two main components:

**1** **STRUCTURE**  
Which involves  
organizing content into  
categories, hierarchies,  
and relationships.

**2** **LABELLING**  
Which uses words to  
represent and classify these  
categories, hierarchies, and  
relationships.

→ Issues with your information architecture will (most likely) show up in a test like “Think Aloud”, as users will struggle with finding things on your site.

**But how do you test your information architecture?**

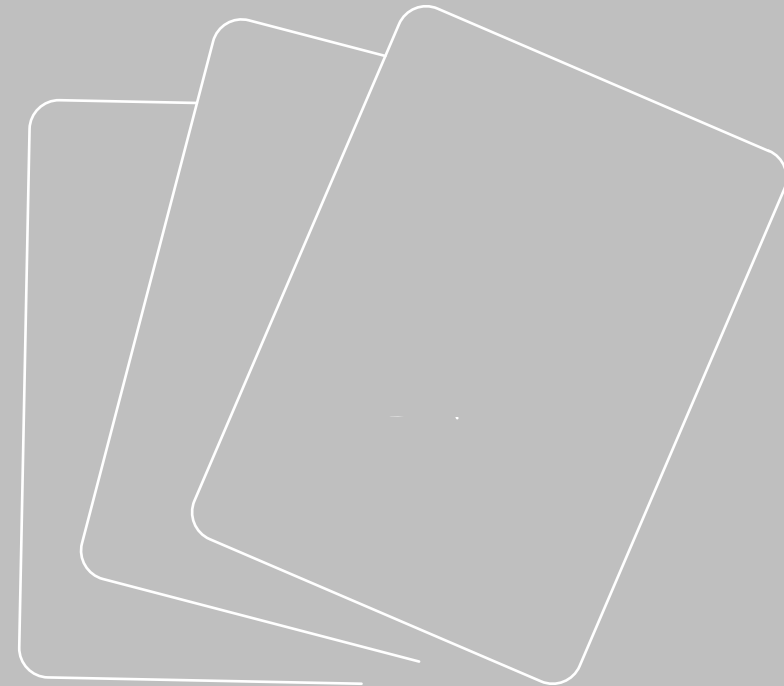




# Card Sorting

The purpose of a card sorting is to gather insights into how users perceive and organize information. Card sorting is a testing method, designed for testing if the mental model of a user, matches the information architecture.

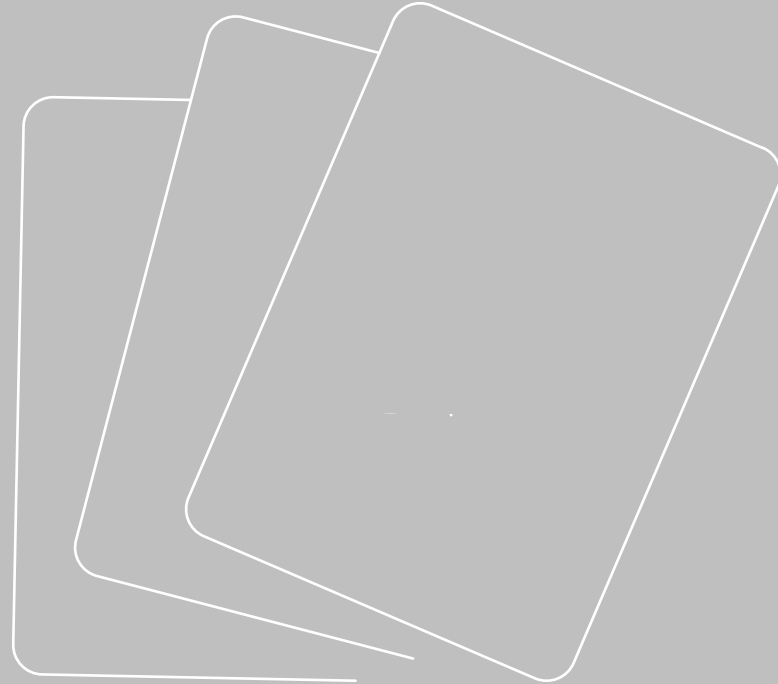
*In your booklets we have 3 different variations*



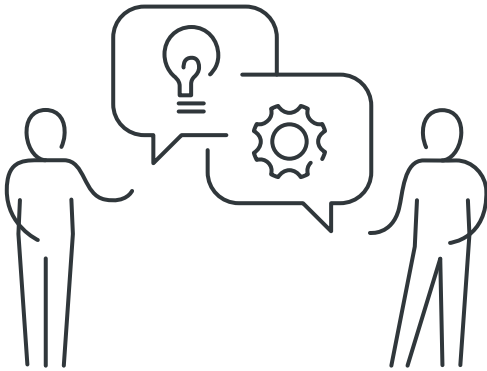


# Exercise

— Open card sort

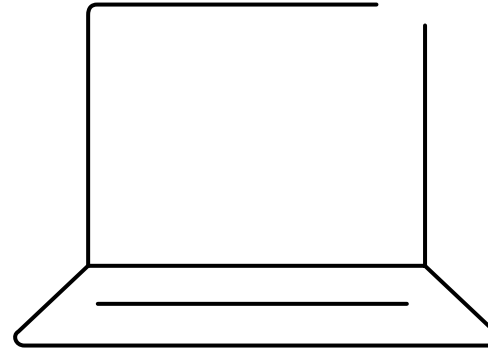


## → What is going to happen (1/3)...



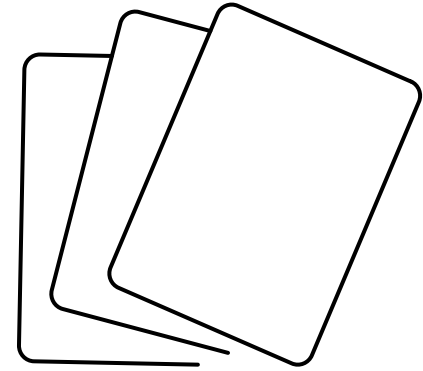
1

You will be acting as designers/interviewers.



2

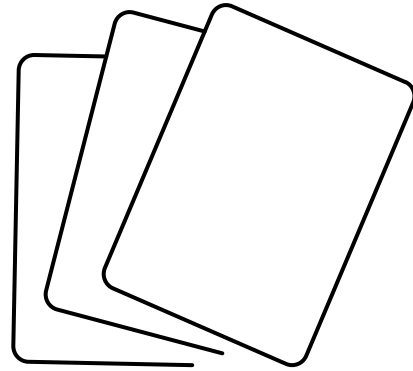
Find your computers.



3

Fill out 1 card for each keyword of important features, navigation elements, menu items, etc

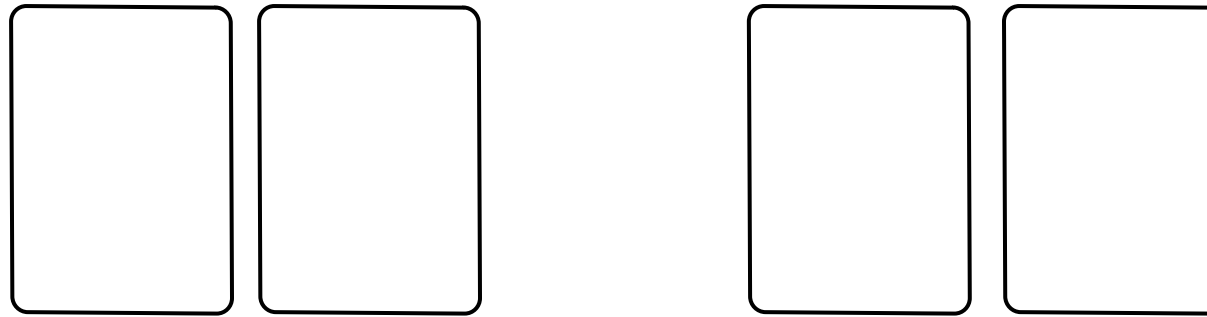
→ **What is going to happen (2/3)...**



## Transition

Hand over your set of cards to the next table  
(Clockwise)

→ What is going to happen (3/3)...



## Sort & label the cards

You will now be acting as participants

Try to group them into categories/sections you think is right, based on the wording of these cards

# Follow up: Discussion and reflection

# IT IS TIME FOR A SHORT BREAK

Be back in 10 minutes



# Exercise

— Worst possible UI





userinyerface.com

# Worst possible UI - Frustrations



Frustrations

# UI Design

Does *golden* UI design rules  
exist?

Or should we call them *guidelines*?

## Gestalt

are principles/laws of human perception that describe how humans group similar elements.



## Accessibility

the practice of designing and developing websites, tools, and technologies so that people with disabilities can use them effectively.

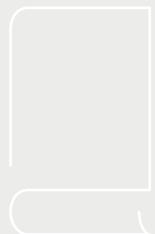


# Humans, Intuition Psychology & Experience



## Heuristics

are broad rules of thumb and not specific usability guidelines.



## Design Tips

Aggregated wisdom of the crowd.



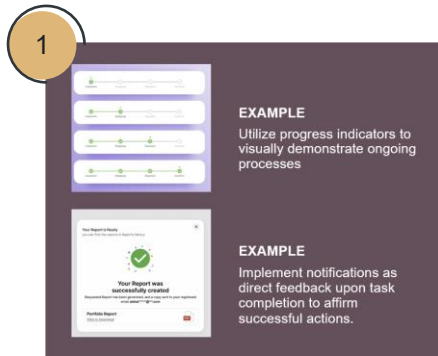
[What are the Gestalt Principles? | IxDF](#)

[What is accessibility | MDN](#)

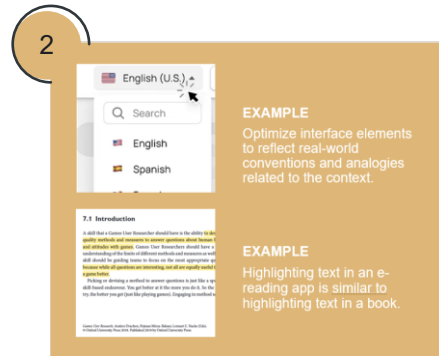
[10 Usability Heuristics | NN Group](#)

# Usability Heuristics

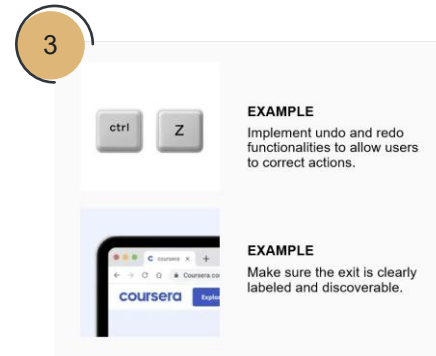
# 10 Usability Heuristics – According to NN group



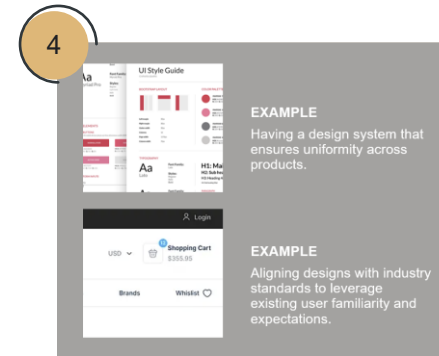
**Visibility of System Status**



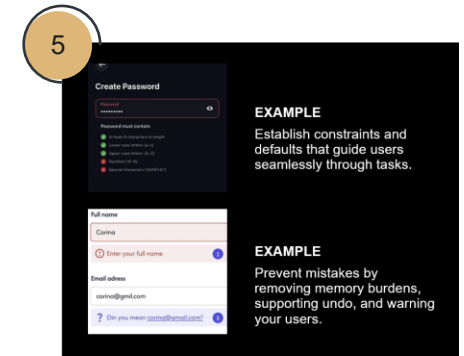
**Match Between the System & the Real World**



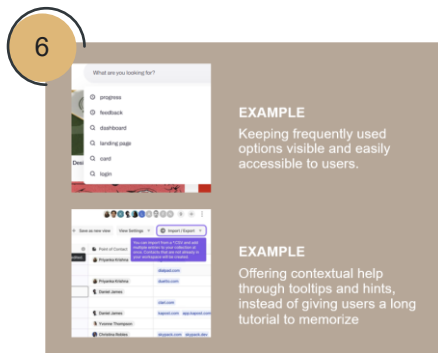
**User Control & Freedom**



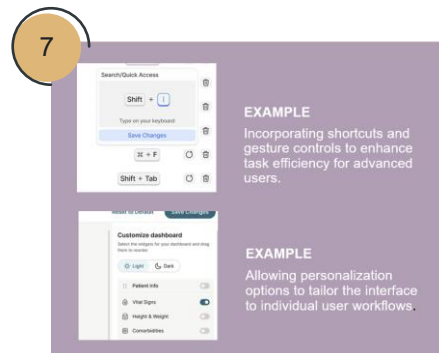
**Consistency & Standards**



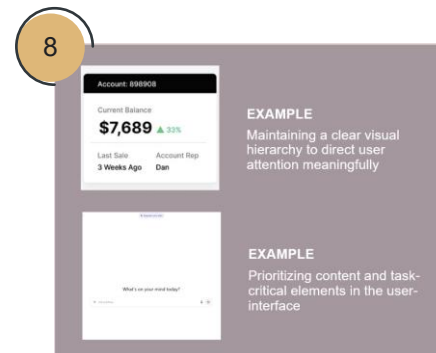
**Error Prevention**



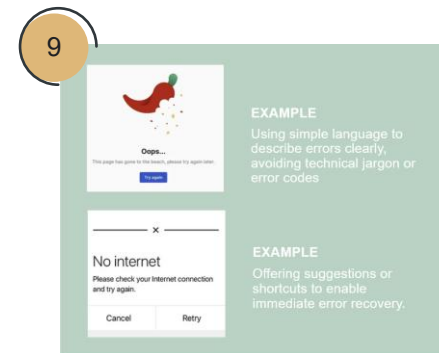
**Recognition Rather Than Recall**



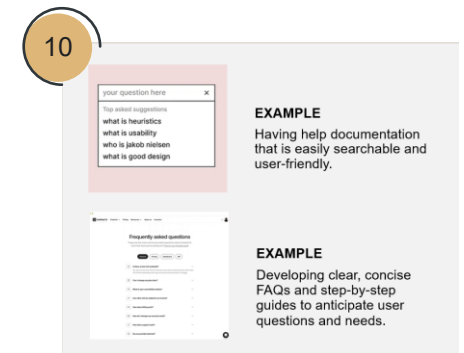
**Flexibility & Efficiency of Use**



**Aesthetic & Minimalistic Design**

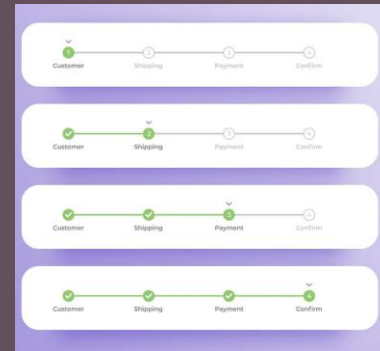


**Help Recognize, Diagnose, & Recover from Errors**



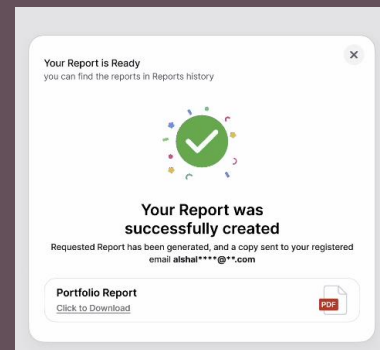
**Help & Documentation**

The design should constantly **keep users informed about what is happening** through feedback mechanisms.



## EXAMPLE

Utilize progress indicators to visually demonstrate ongoing processes

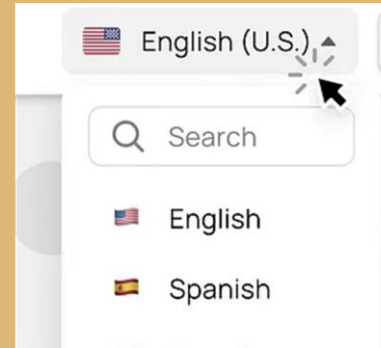


## EXAMPLE

Implement notifications as direct feedback upon task completion to affirm successful actions.



Employ **language and symbols that users are familiar with** and reflect their experiences from the real world.



## EXAMPLE

Optimize interface elements to reflect real-world conventions and analogies related to the context.

### 7.1 Introduction

A skill that a Games User Researcher should have is the ability to design quality methods and measures to answer questions about human learning and attitudes with games. Games User Researchers should have a understanding of the limits of different methods and measures as well skill should be guiding teams to focus on the most appropriate question because while all questions are interesting, not all are equally useful to a game better.

Picking or devising a method to answer questions is just like a sports skill-based endeavour. You get better at it the more you do it. So the try, the better you get (just like playing games). Engaging in method s

Games User Research, Anders Drachen, Pejman Mirza-Rabaei, Lennart E. Nacke (Eds).  
© Oxford University Press 2018. Published 2018 by Oxford University Press

## EXAMPLE

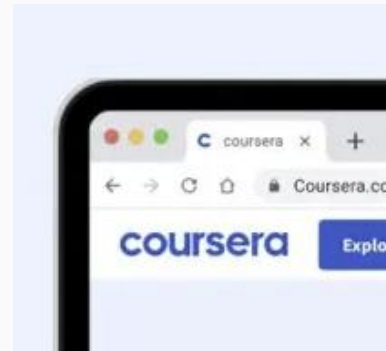
Highlighting text in an e-reading app is similar to highlighting text in a book.

Users often perform actions by mistake. They need a **clearly marked "emergency exit" to leave the unwanted action.**



## EXAMPLE

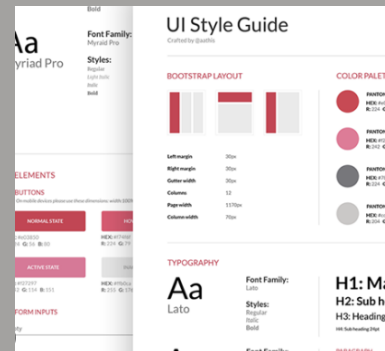
Implement undo and redo functionalities to allow users to correct actions.



## EXAMPLE

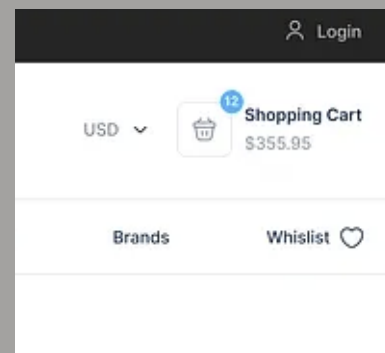
Make sure the exit is clearly labeled and discoverable.

The design should adhere to **consistent patterns and established conventions**.



## EXAMPLE

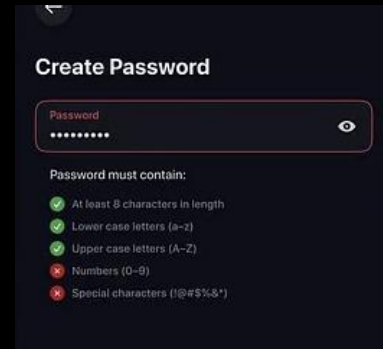
Having a design system that ensures uniformity across products.



## EXAMPLE

Aligning designs with industry standards to leverage existing user familiarity and expectations.

Systems should **proactively prevent errors**, helping users avoid **mistakes** rather than just providing solutions afterward.



**Create Password**

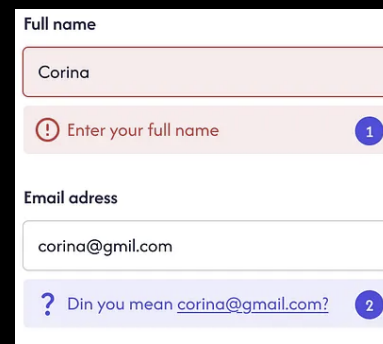
Password

Password must contain:

- ✓ At least 8 characters in length
- ✓ Lower case letters (a-z)
- ✓ Upper case letters (A-Z)
- ✗ Numbers (0-9)
- ✗ Special characters (!@#\$%^&\*)

### EXAMPLE

Establish constraints and defaults that guide users seamlessly through tasks.



**Full name**

! Enter your full name 1

**Email address**

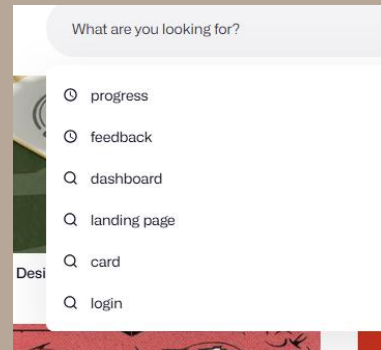
? Did you mean [corina@gmail.com?](#) 2

### EXAMPLE

Prevent mistakes by removing memory burdens, supporting undo, and warning your users.

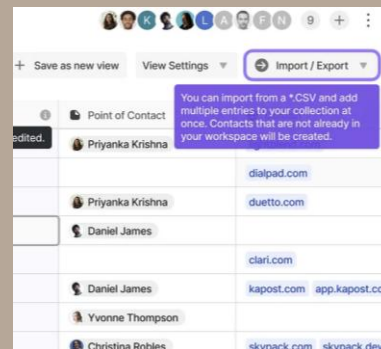
## 6 Recognition Rather Than Recall

The **system should rely on recognition of visible elements** rather than requiring users to recall information from memory.



### EXAMPLE

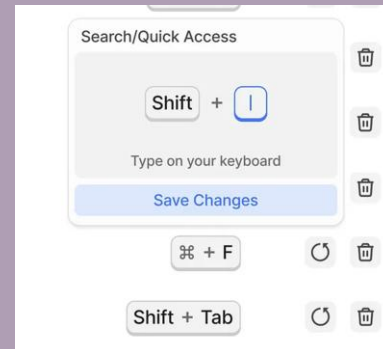
Keeping frequently used options visible and easily accessible to users.



### EXAMPLE

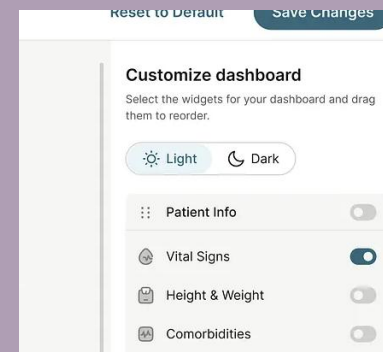
Offering contextual help through tooltips and hints, instead of giving users a long tutorial to memorize

**Offer flexibility to accommodate both novice users and experts, providing shortcuts for efficiency.**



## EXAMPLE

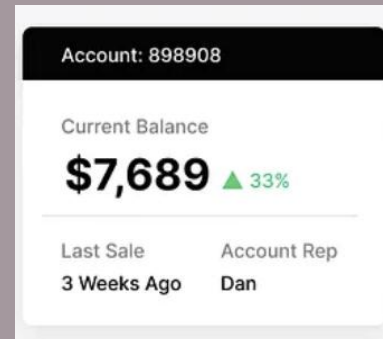
Incorporating shortcuts and gesture controls to enhance task efficiency for advanced users.



## EXAMPLE

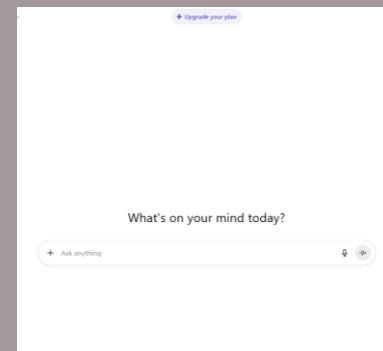
Allowing personalization options to tailor the interface to individual user workflows.

Interfaces should **not contain information that is irrelevant or rarely needed.**



## EXAMPLE

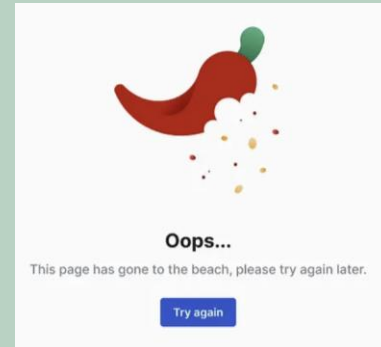
Maintaining a clear visual hierarchy to direct user attention meaningfully



## EXAMPLE

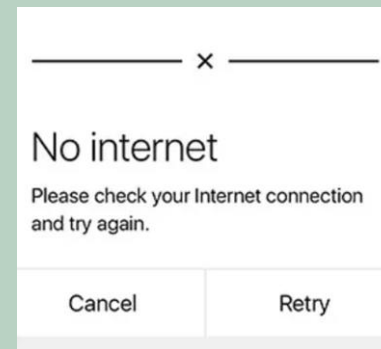
Prioritizing content and task-critical elements in the user-interface

Error messages should **be expressed in plain language (no error codes)**, precisely indicate the problem.



## EXAMPLE

Using simple language to describe errors clearly, avoiding technical jargon or error codes

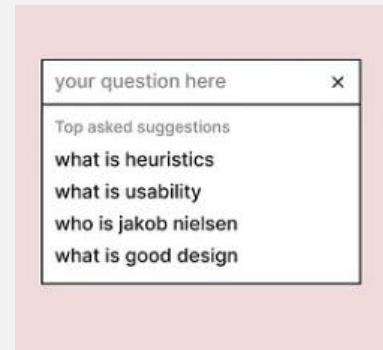


## EXAMPLE

Offering suggestions or shortcuts to enable immediate error recovery.

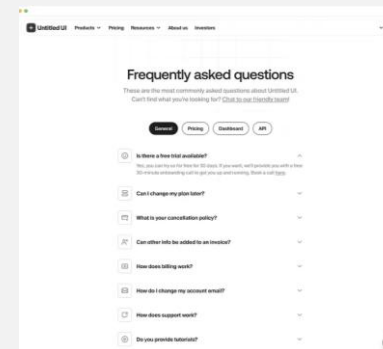


The design should **have accessible help documentation** for guiding **users** in understanding and completing tasks.



### EXAMPLE

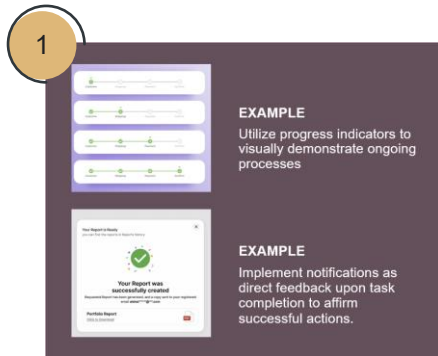
Having help documentation that is easily searchable and user-friendly.



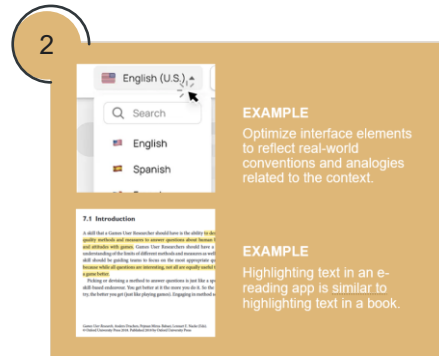
### EXAMPLE

Developing clear, concise FAQs and step-by-step guides to anticipate user questions and needs.

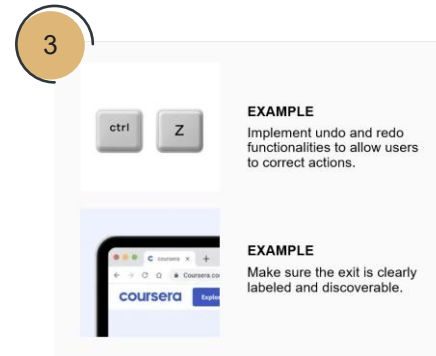
# 10 Usability Heuristics – Reflections



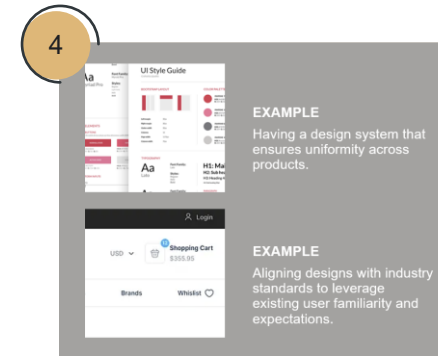
**Visibility of System Status**



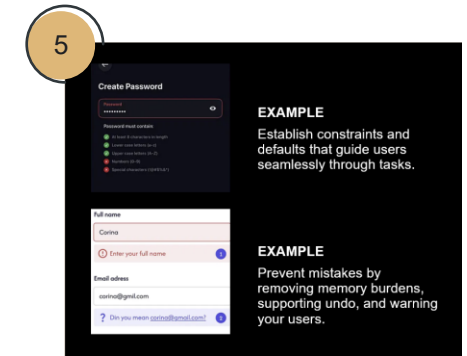
**Match Between the System & the Real World**



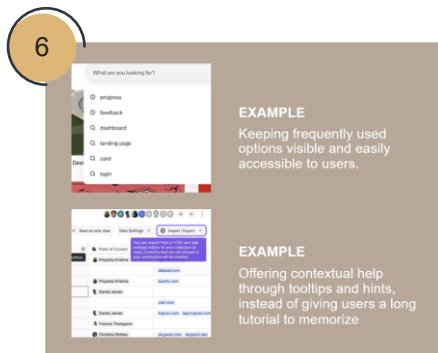
**User Control & Freedom**



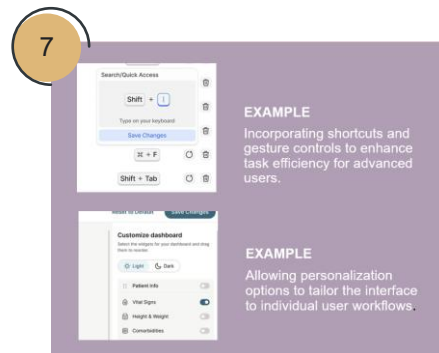
**Consistency & Standards**



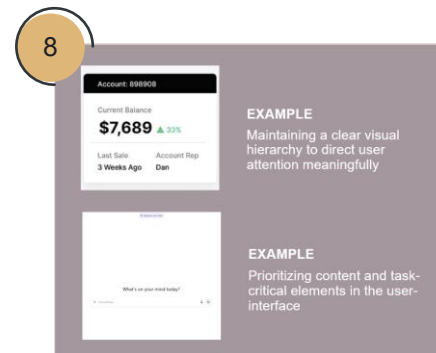
**Error Prevention**



**Recognition Rather Than Recall**



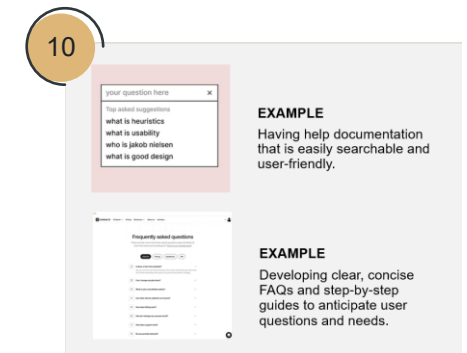
**Flexibility & Efficiency of Use**



**Aesthetic & Minimalistic Design**



**Help Recognize, Diagnose, & Recover from Errors**



**Help & Documentation**

# IT IS TIME FOR A SHORT BREAK

Be back in 5 minutes

# Evaluating a User Interface

# Heuristic Evaluation

The purpose of a heuristic evaluation is to assess the usability of a system by identifying areas where it aligns or misaligns with recognized usability heuristics.

The method is fast and inexpensive compared to other methods as it does not require involvement of real users, however it is important to note, that this method does not substitute for testing with real users.

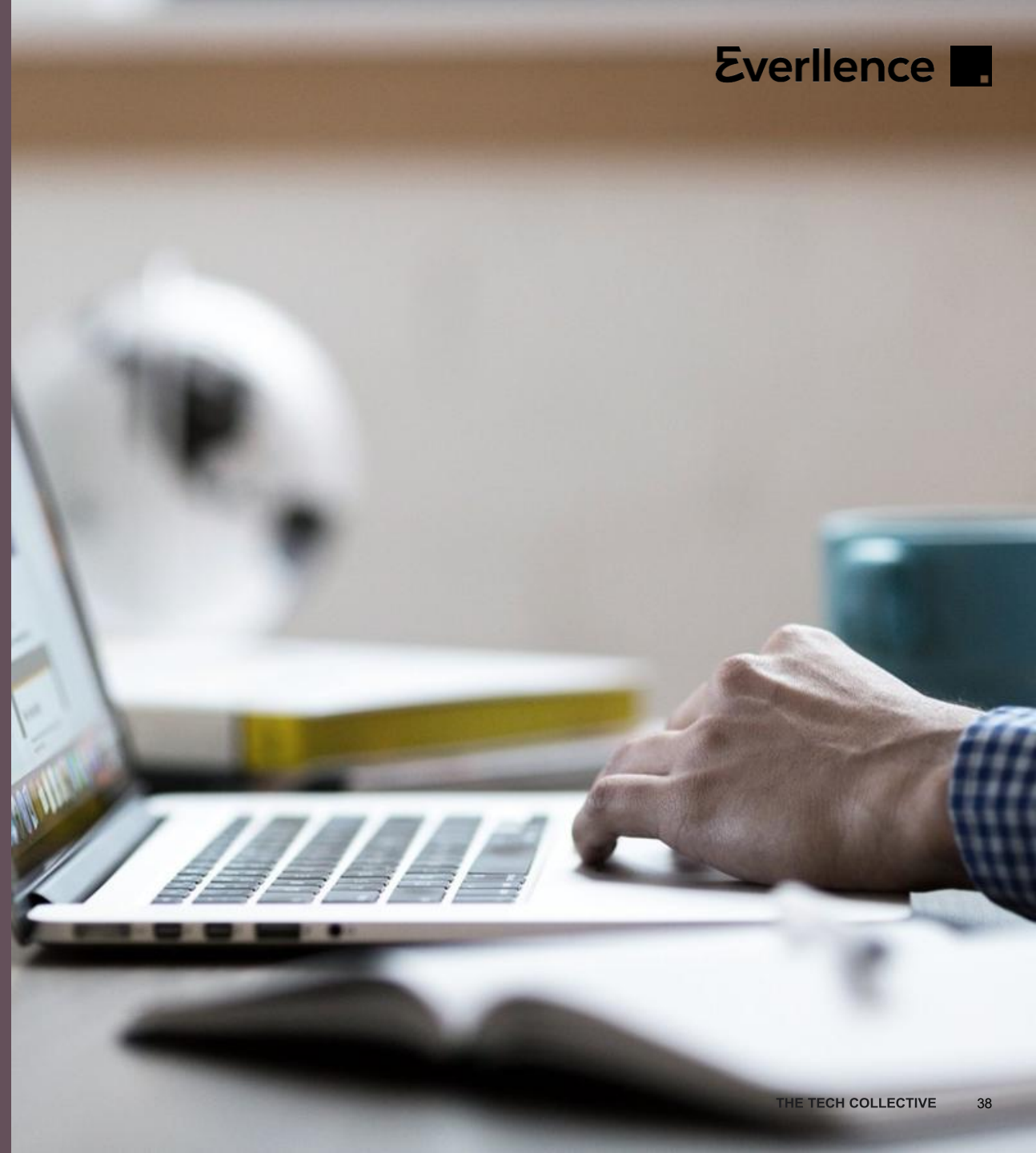


## Pros of Heuristic Evaluation

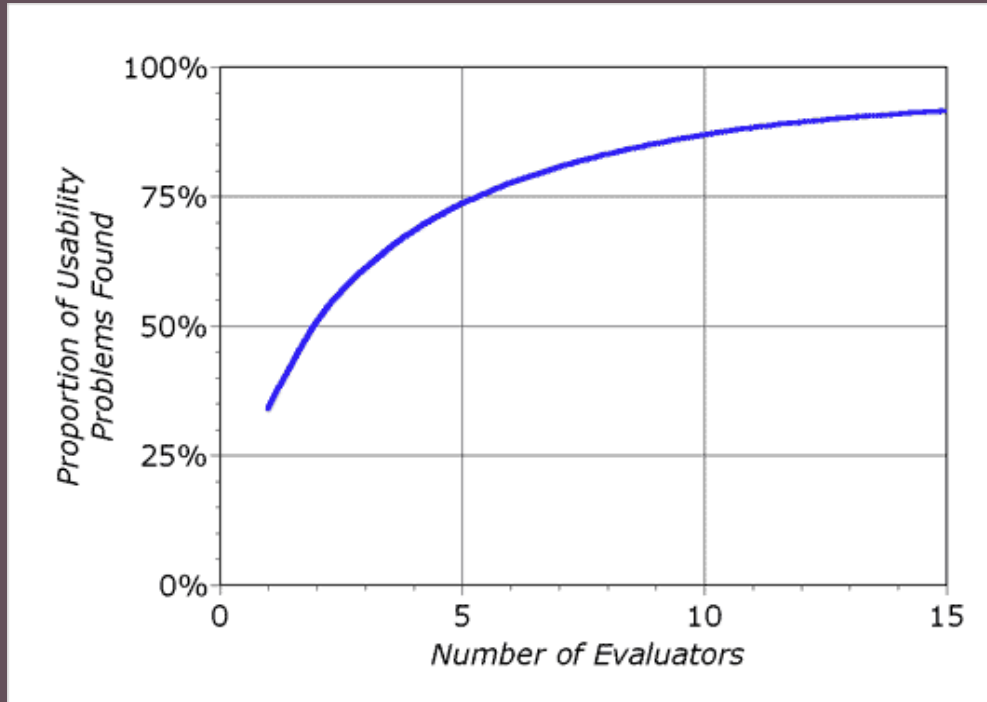
- Heuristics can help highlight potential usability issues early in the design process.
- It is a fast and inexpensive tool compared with other methods involving real users.

## Cons of Heuristic Evaluation

- Heuristic evaluation is based on assumptions about what “good” usability is. As heuristics are based on research, this is often true.
- The evaluations are no substitute for testing with real users.







Jakob Nielsen; [The Theory Behind Heuristic Evaluations](#), 1994,

### Amount of evaluators

Heuristic evaluations work best when performed by a group of people, not just by one evaluator.

Ideally, **three to five people should independently evaluate the same interface.**



# Exercise

— Heuristic evaluation





→ **What is going to happen...**



## Heuristic Evaluation Questionnaire





**Follow up:** What was the main issue?

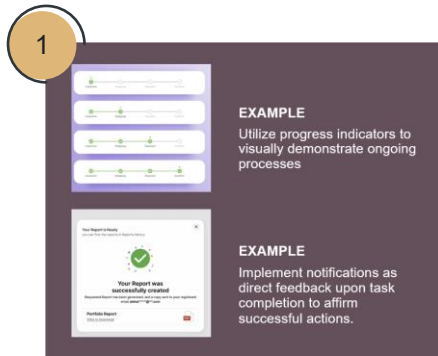


A person is sitting in a light-colored, textured armchair, eating a meal. They are wearing a dark long-sleeved shirt and brown trousers. Their left arm has a tattoo of vertical lines and a small cross. They are holding a knife and fork over a white plate of food, which includes a piece of meat, potatoes, and green herbs. The background is dark and out of focus.

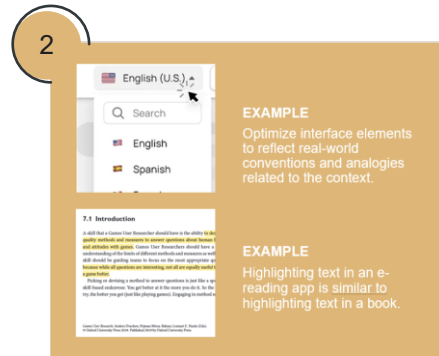
# IT'S TIME FOR LUNCH!



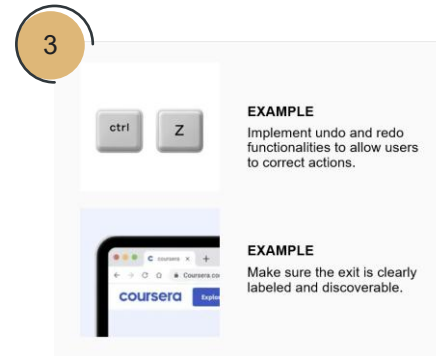
# 10 Usability Heuristics – Recap



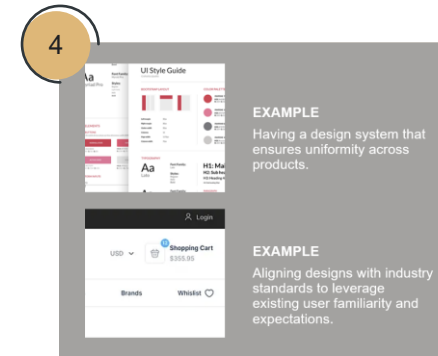
**Visibility of System Status**



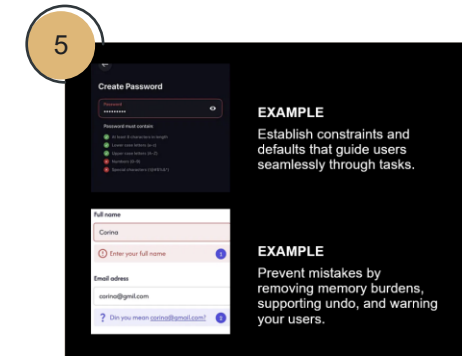
**Match Between the System & the Real World**



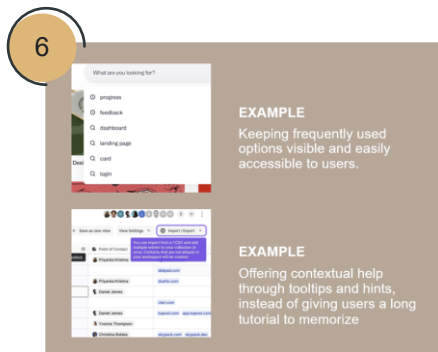
**User Control & Freedom**



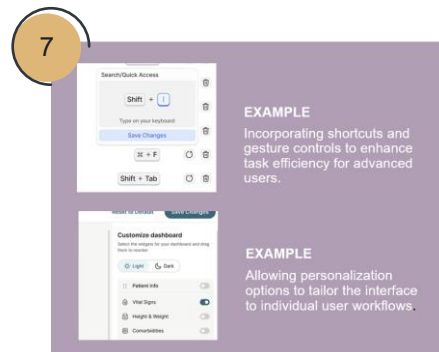
**Consistency & Standards**



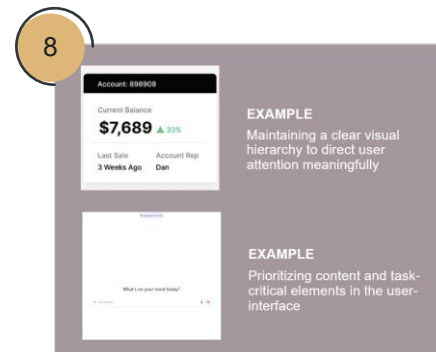
**Error Prevention**



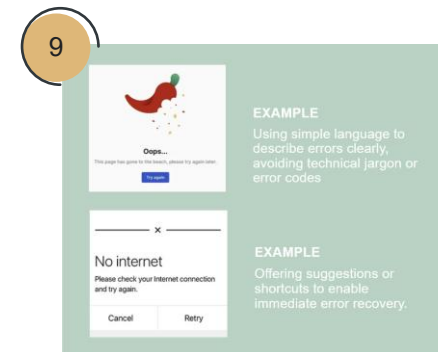
**Recognition Rather Than Recall**



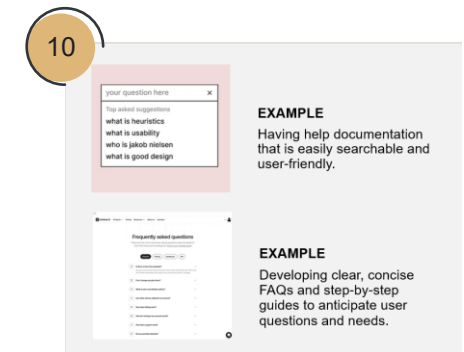
**Flexibility & Efficiency of Use**



**Aesthetic & Minimalistic Design**



**Help Recognize, Diagnose, & Recover from Errors**



**Help & Documentation**

# UI Design


## *Tips & tricks*



# Energizer

We have 4 UI design tips categories

Structuring...  
the details

From static  
  
to interactive

Visual design  
& Layouts

Design Details



# Structuring... the details

# Structuring

Designing Systems

Atomic Design

UI Patterns

# ...the details

Labels

Colors and Fonts

Forms

Buttons

Nitpick Design Rules

## Structure: Writing

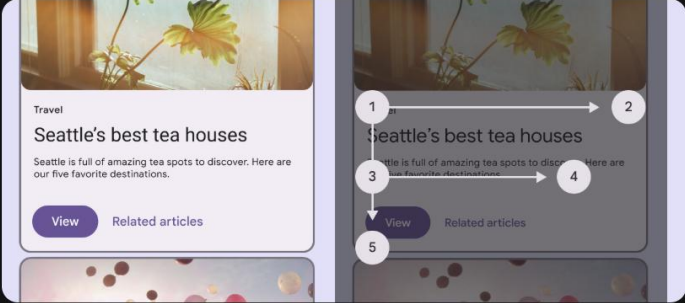
UX writing best practices

Word choice

Grammar and punctuation

### Use scannable words and formats

People scan UI text in search of the most meaningful content to them. Help by using specific titles and headings that clearly describe a topic. When users are skimming or hurrying through an action, this organization helps them avoid mistakes and unintentional actions.

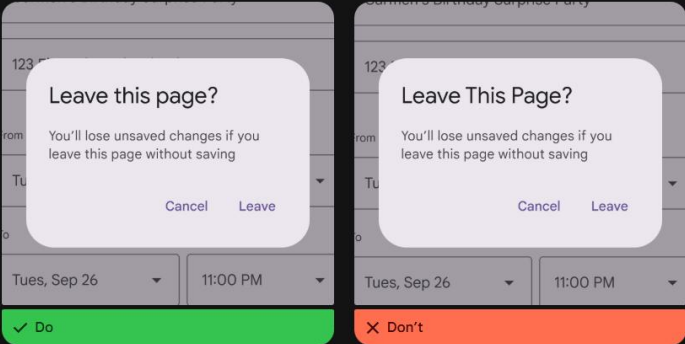


Use headings and subheads to prioritize and group information

### Use sentence case

Unless otherwise specified, use sentence-style capitalization, where only the first letter of the first word in a sentence or phrase is capitalized. All text, including titles, headings, labels, menu items, navigation components, app bars, and buttons should use sentence-style capitalization.

Products and branded terms may also be capitalized.



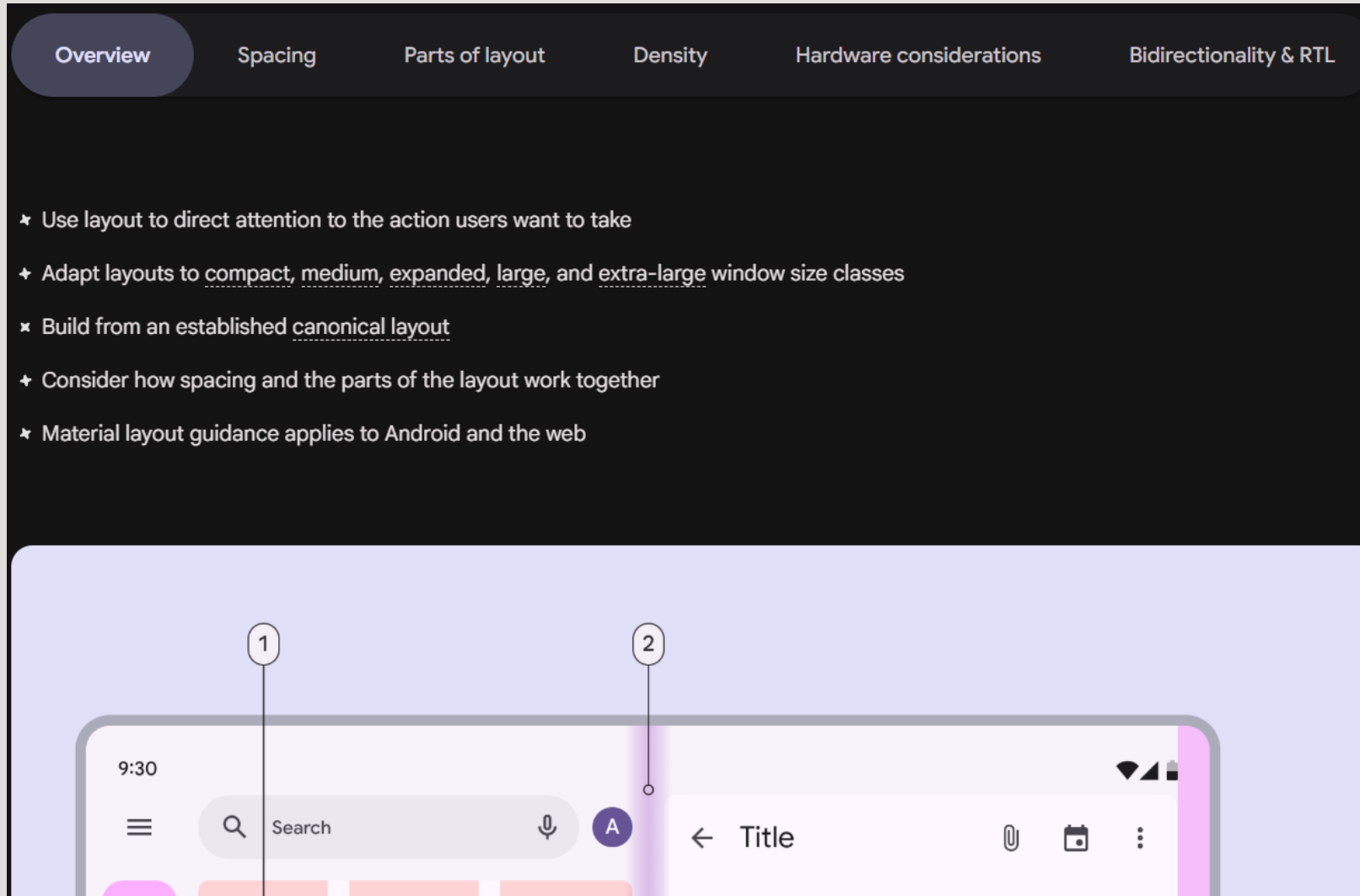
✓ Do

✗ Don't

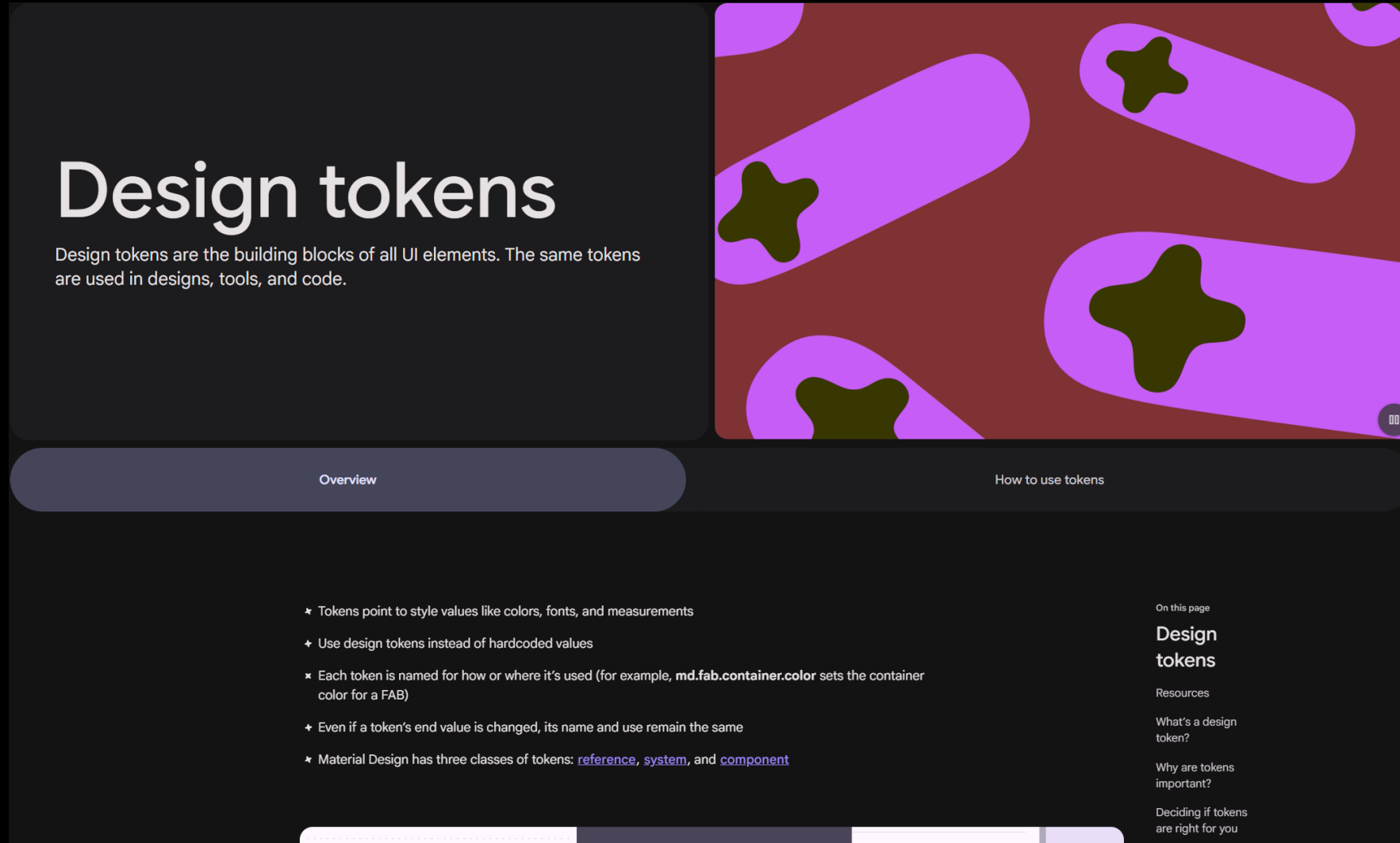
Capitalize the first word of a sentence or phrase

Don't use title case capitalization. Instead, use sentence case

# Structure: **Layout**





# Details: Tokens

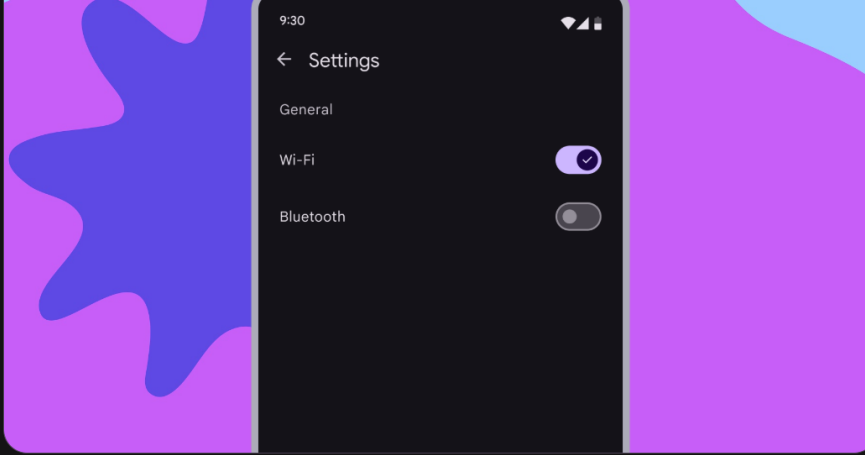


# Details: Components

## Switch

Switches toggle the selection of an item on or off

Resources   +2



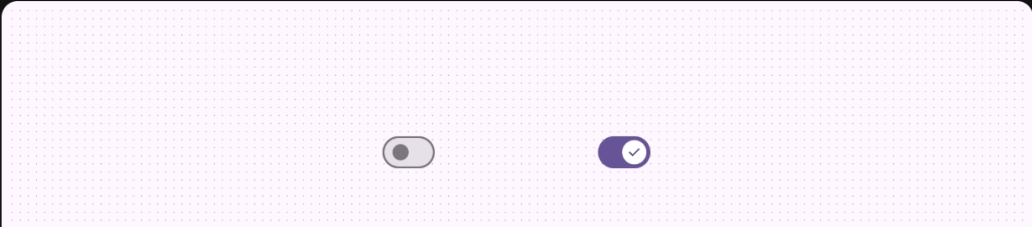
Overview

Specs

Guidelines

Accessibility

- ★ Use switches (not radio buttons) if the items in a list can be independently controlled
- ★ Switches are the best way to let people adjust settings
- ★ Make sure the switch's selection (on or off) is visible at a glance



On this page

### Switch

Availability & resources

Differences from M2

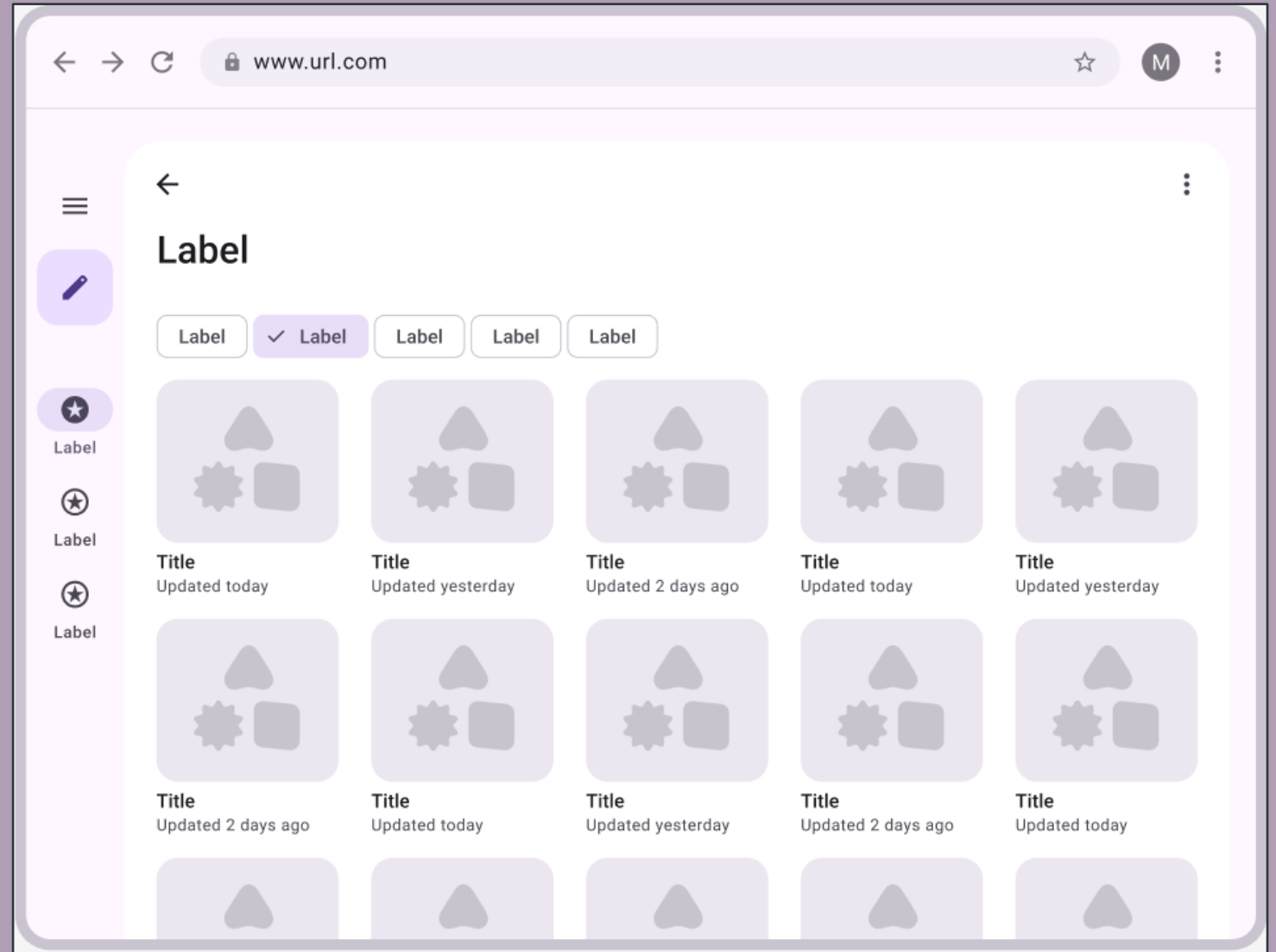
# From static



# to interactive

# Static Figma

## - Sunshine Scenarios



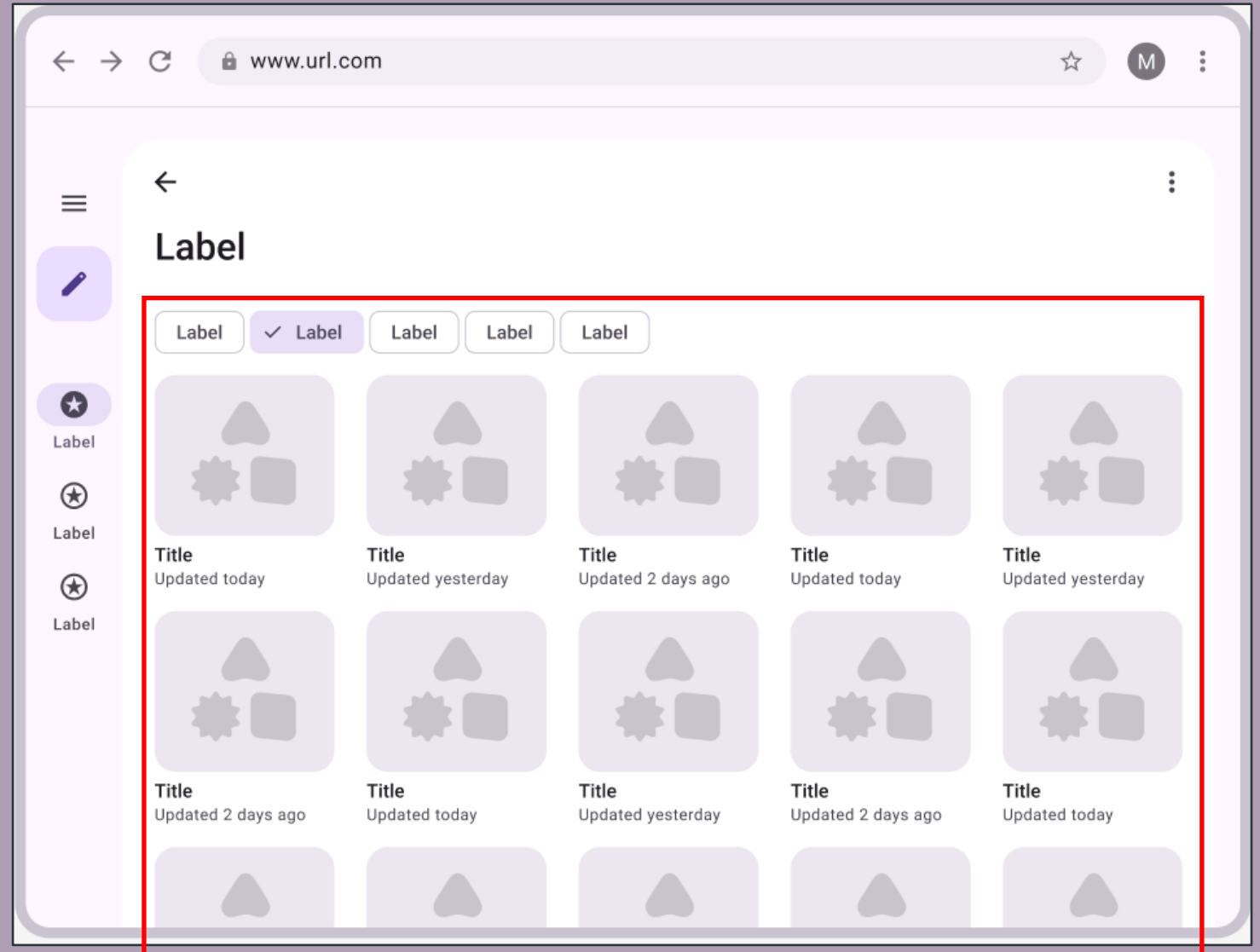


# Static Figma

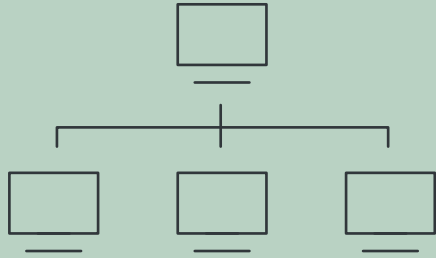
- Sunshine Scenarios

## Dynamic Systems

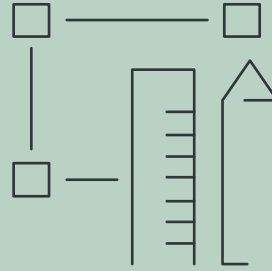
- Empty list ?
- Too many elements ?
- Errors ?
- Loading ?



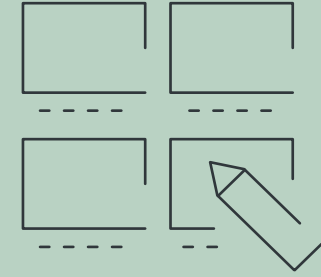
# Visual design & Layouts



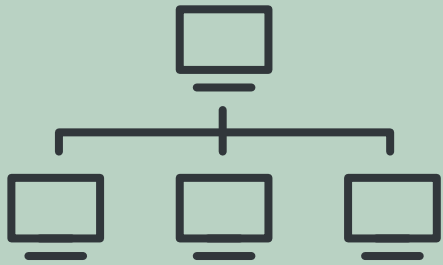
## Visual Hierarchy



## Design Patterns



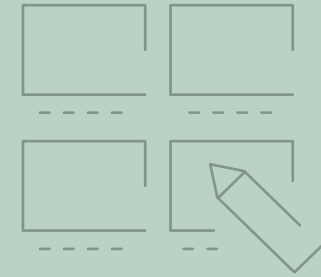
## Gestalt Principles



## Visual Hierarchy

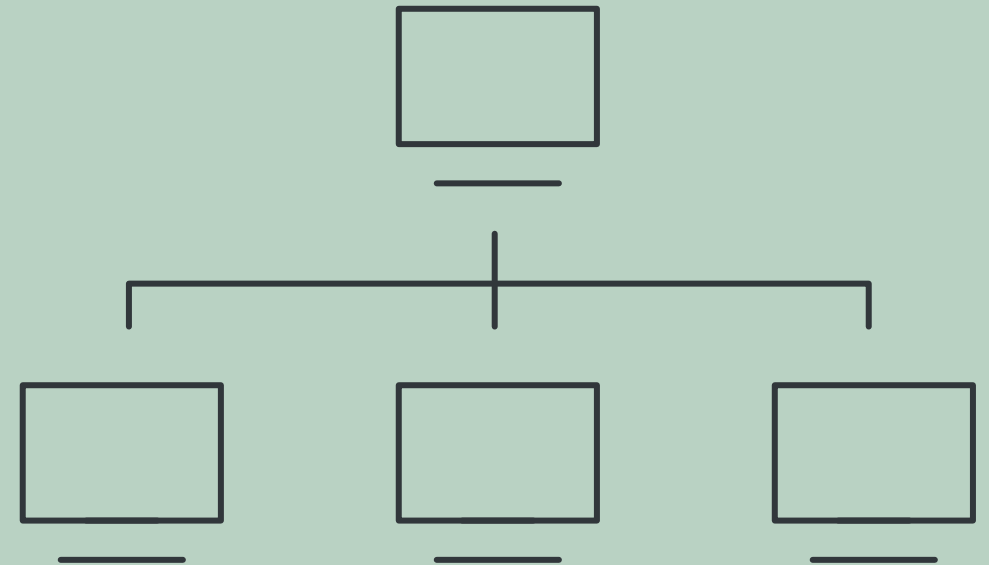


## Design Patterns



## Gestalt Principles

# Visual Hierarchy

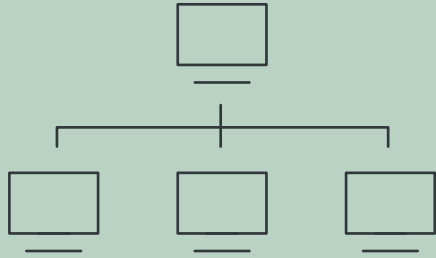


And you will read this last

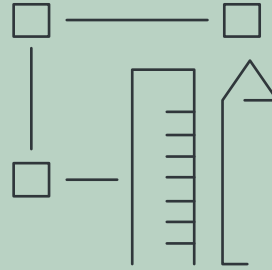
**You will read  
this first**

And you will read this second

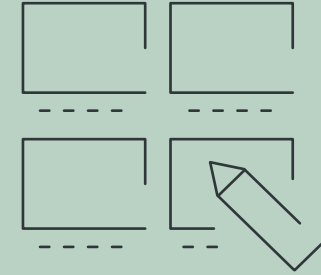
Then this one third



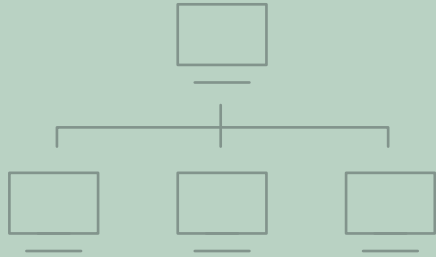
Visual  
Hierarchy



Design  
Patterns



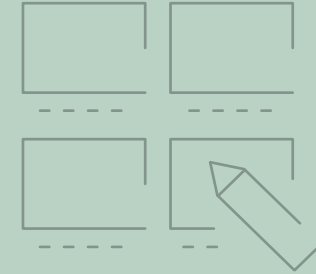
Gestalt  
Principles



Visual  
Hierarchy



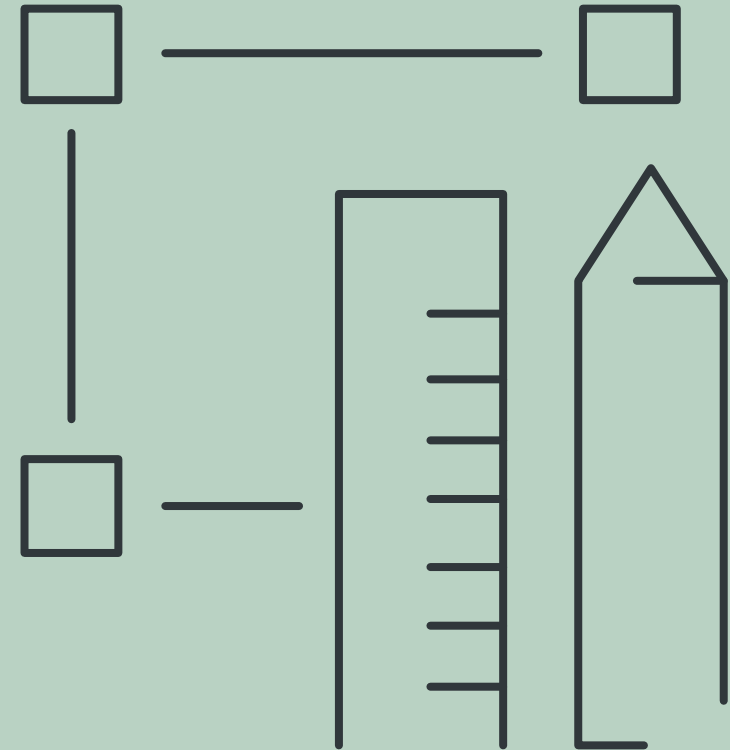
**Design  
Patterns**



Gestalt  
Principles



# Design patterns



# Table Filters

Design Patterns / Dealing with data / Tables / Table Filter

68%  
of 554 votes  
liked this

## Problem summary

The user needs to categorically filter the data displayed in tables by the columns.

## Example

Showing: 1-10 of 294 | [Next 10](#)

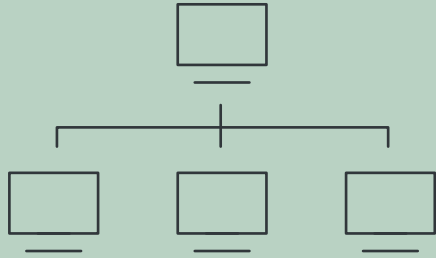
Filter by	All OSs	Free	less than 5 MB	All categories	Filter
Name		All licenses Free Free to try Purchase	Ratings 1 Editors   Users	Date added	Total downloads
Sponsored					
Rad Upload Lite 3.12				06/13/2007	9,593
Category: Applets					
Provide your Web site with file uploading functionality with progress monitor.					
Core FTP LE 2			User rating: 	08/10/2007	1,483,094
Category: FTP Software					
Manage your files remotely and securely via FTP with SFTP and SSL.					

## Usage

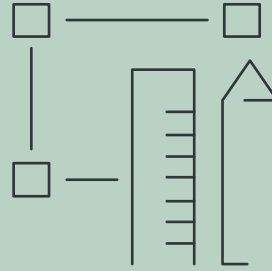
- Use when you have a very large data set of results that is too large to show in one page
- Use when one or more table columns can easily be summarized into categories to filter by.

## More examples

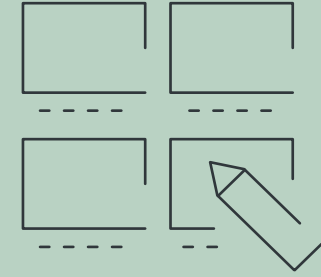




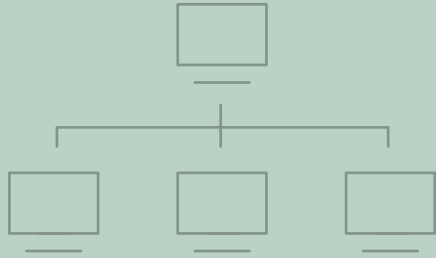
## Visual Hierarchy



## Design Patterns



## Gestalt Principles



Visual  
Hierarchy

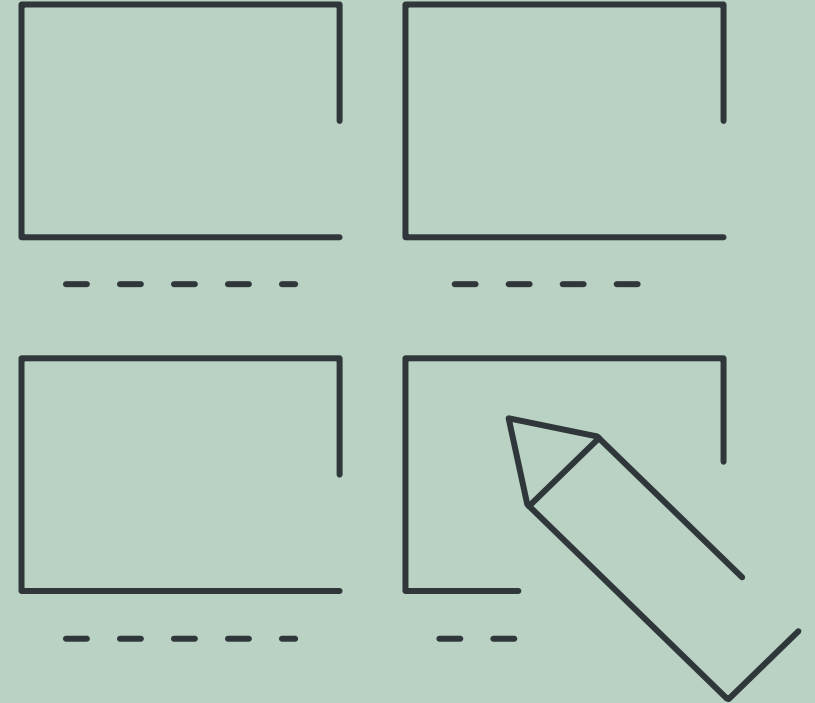


Design  
Patterns



**Gestalt  
Principles**

# Gestalt Principles



"Gestalt" is German for "**unified whole**".

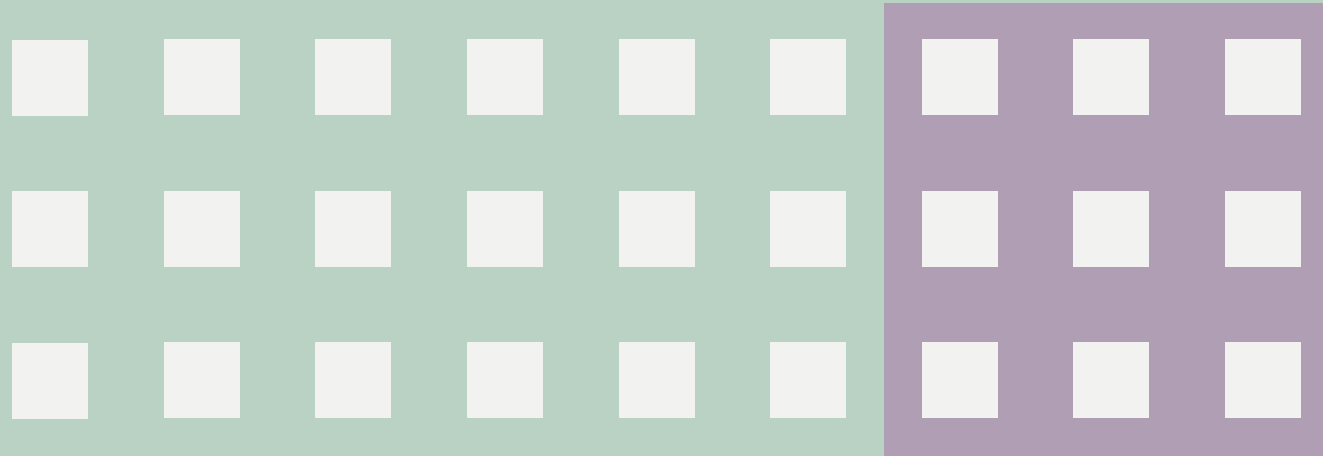
Coined in the 1920's by German psychologists Max Wertheimer, Kurt Koffka, and Wolfgang Kohler. They identified **a set of laws that address the natural compulsion to find order in disorder.**

According to this, the mind "informs" what the eye sees by perceiving a series of individual elements as a whole.

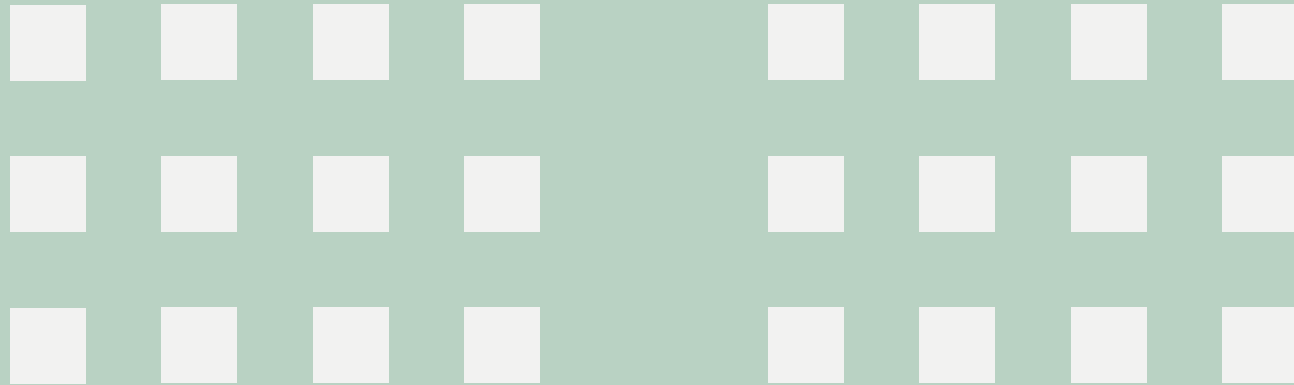
*Interaction Design Foundation* *explains 12 different Gestalt principles, but we selected 3.*



# 3: Common Region

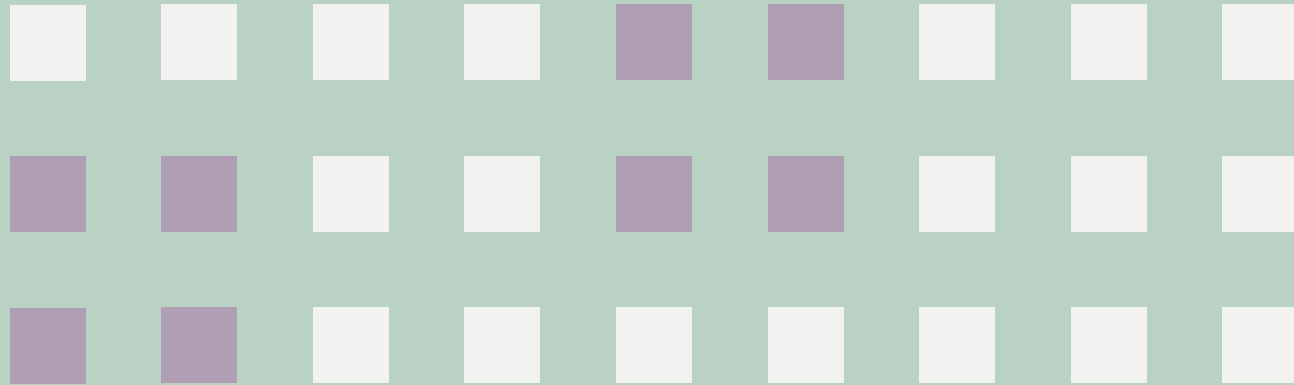


# 5: Proximity

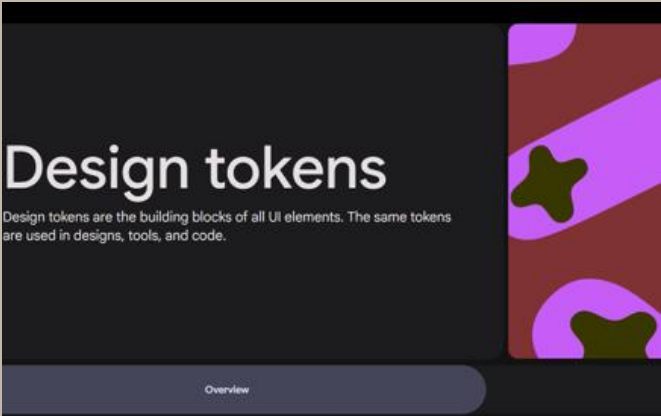




# 10: Similarity



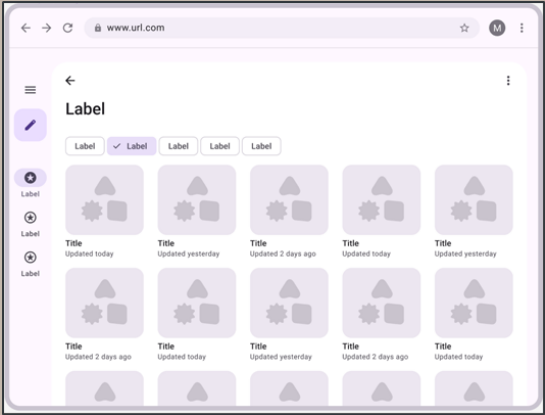
## DESIGN SYSTEMS



## VISUAL HIEARCHY

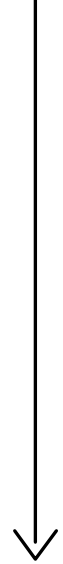


## INTERACTIVE DESIGN



## GESTALT PRINCIPLES

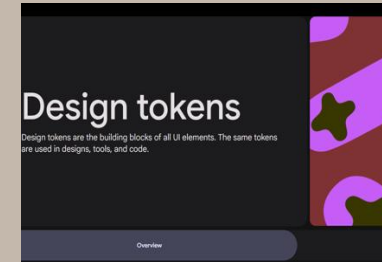




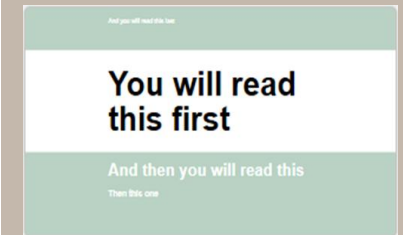
# Looking back

- Any of these seem useful?
- Do you use some of them already?

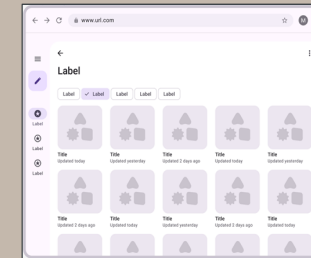
## DESIGN SYSTEMS



## VISUAL HIEARCHY



## INTERACTIVE DESIGN



## GESTALT PRINCIPLES



# Design Details

“

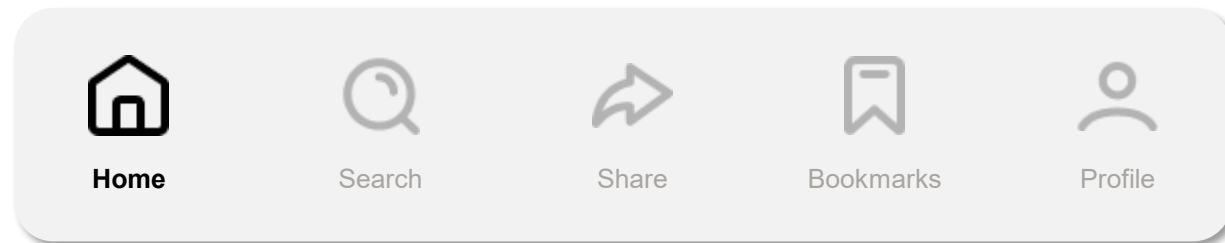
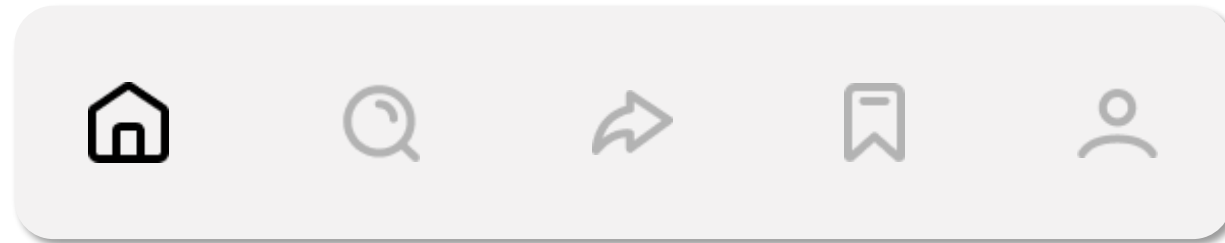
*I know this looks terrible,  
but I have no idea why..*

”

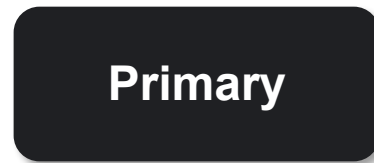
Adam Wathan

# Don't confuse minimalism with simplicity

A



Use a single primary button  
for the most important action



Tertiary

# Don't rely on color alone as an indicator



**Articles**

Activities

About us



**Articles**

Activities

About us



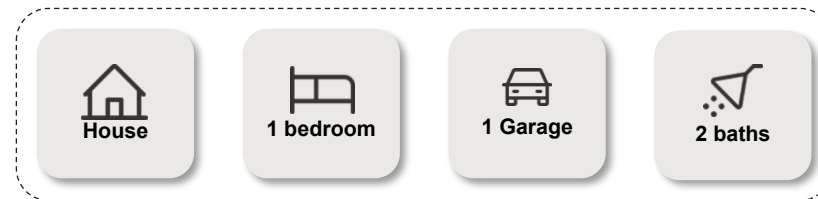
# D

## Space elements based on how closely related they are

Use 8pt spacing grid:



# Similar looking elements function similarly

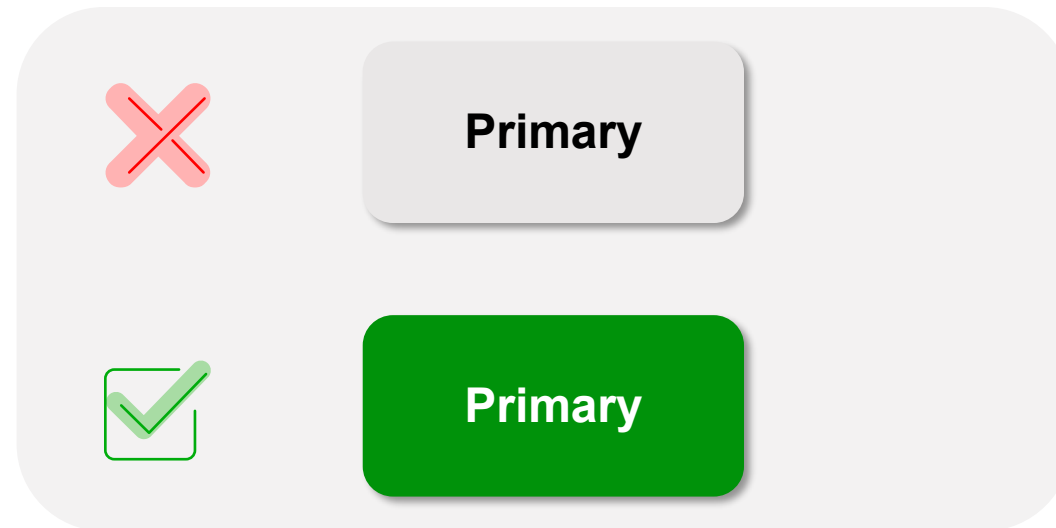


**Primary**



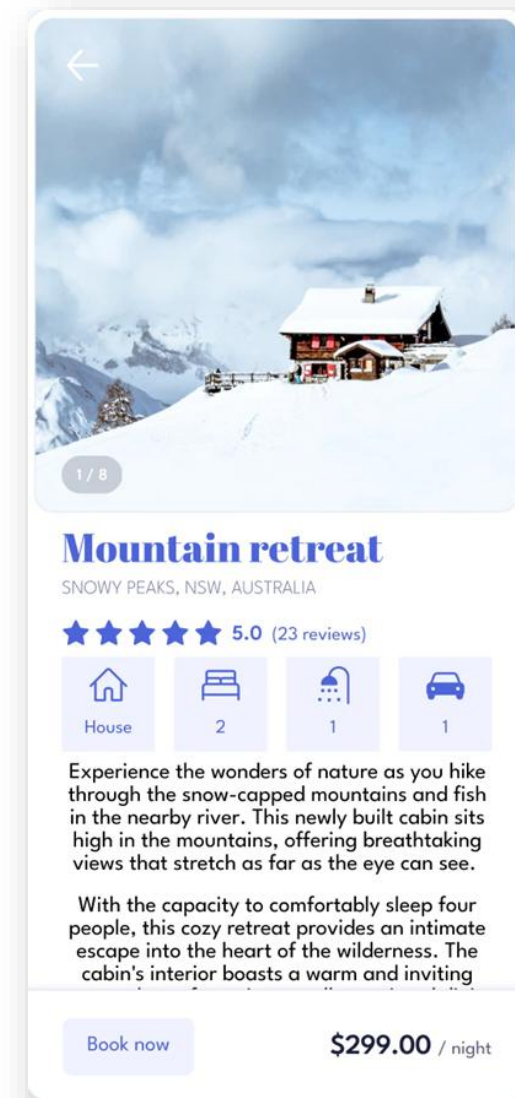
**Primary**

## Use contrasts for accessibility



# Applied Design Tips

## What can we do?



# Steal design ideas

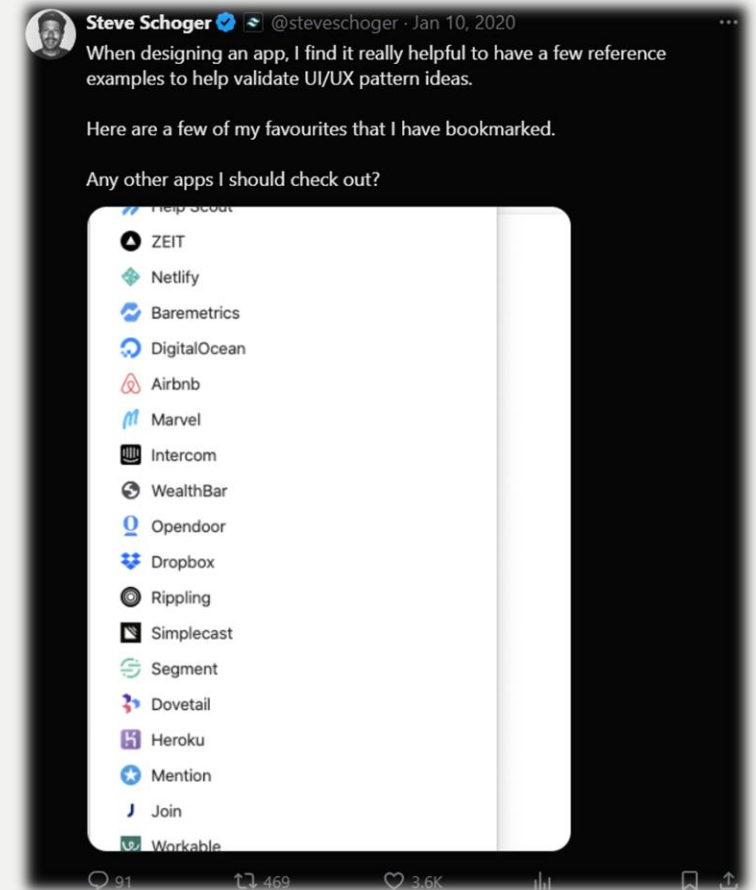
# Steal design ideas! *(But be careful..)*

## Similar Sites & Problems

- [sentry.io](https://sentry.io)
- [port.io](https://port.io)
- *Add your own..*

## The UX industry

- [UX Booth](https://uxbooth.com)
- [UX Collective](https://uxcollective.com)
- [UX Planet](https://uxplanet.org)
- [Awwwards](https://awwwards.com)



Steve Schoger on X

A close-up photograph of a person's torso and hands. They are wearing a dark blue, textured button-down shirt. Their right hand is holding a clear glass filled with a light-colored, frothy beverage, likely coffee with milk or cream. The background is dark and out of focus.

# GRAB A COFFEE AND STRETCH YOUR LEGS

Be back in 10 minutes

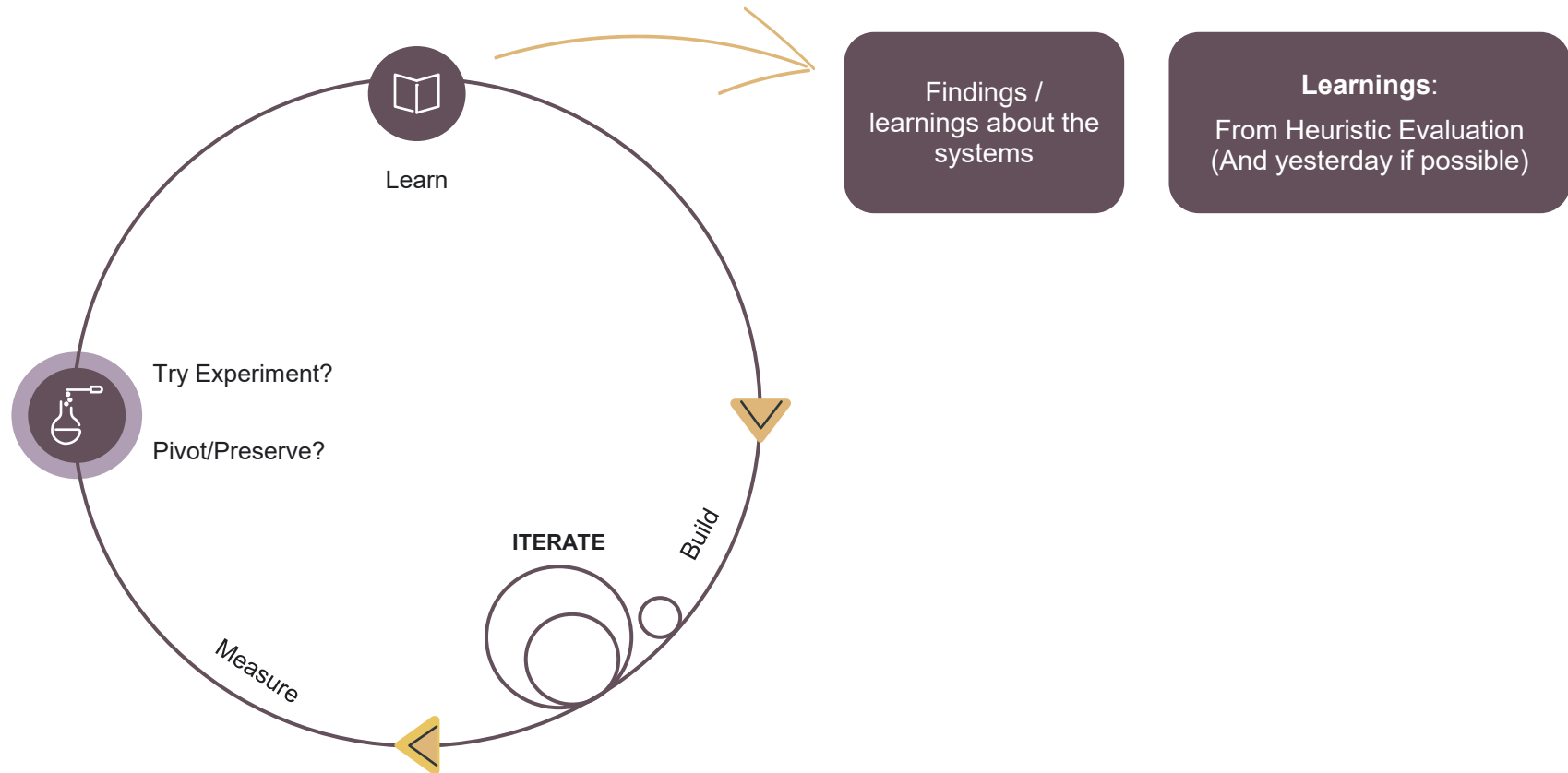
# BOOTCAMP

Rapid prototyping



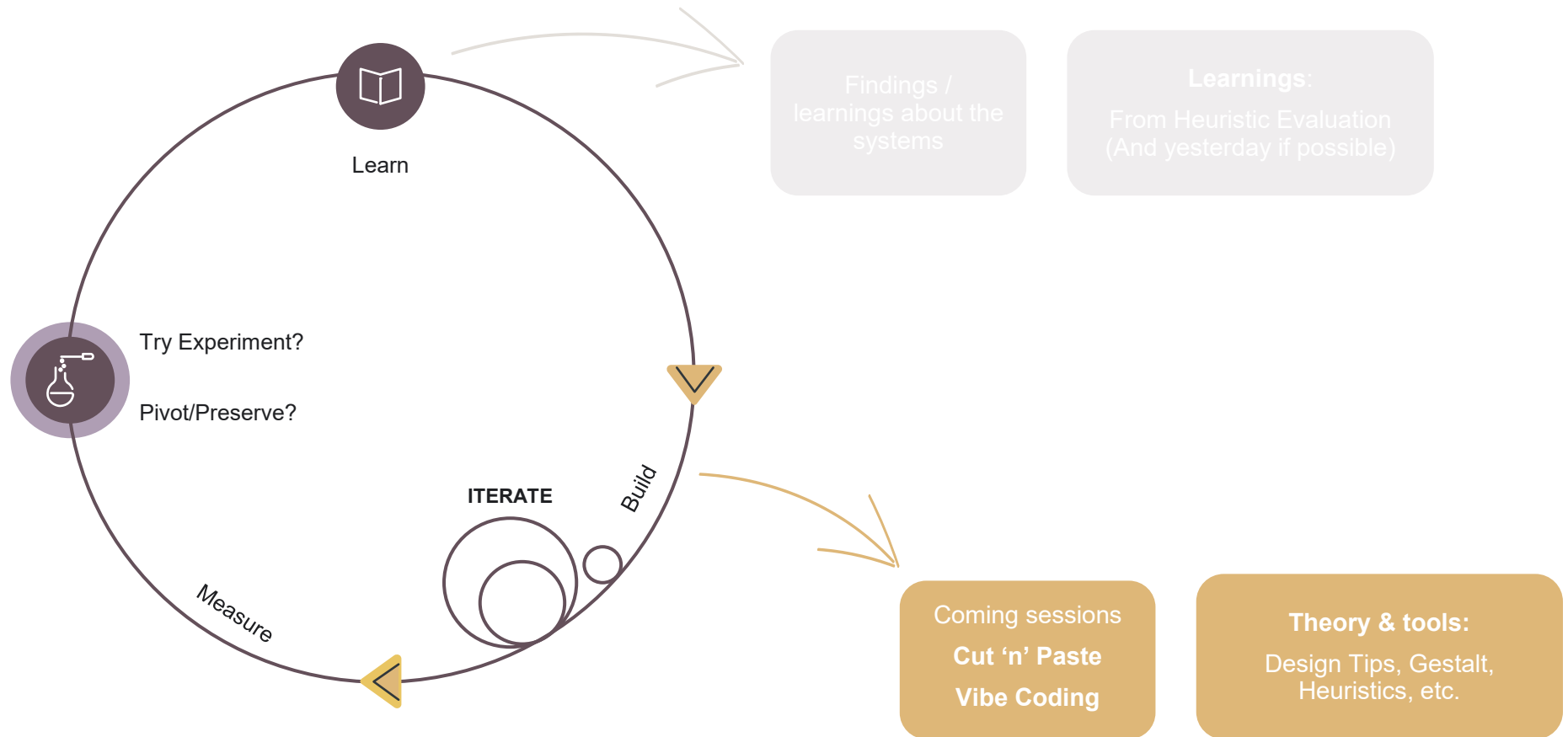
# The bootcamp concept

The time has come to combine all the new theory and tools, with the new findings and learnings about your systems. - **To try and ideate and create potential solutions**



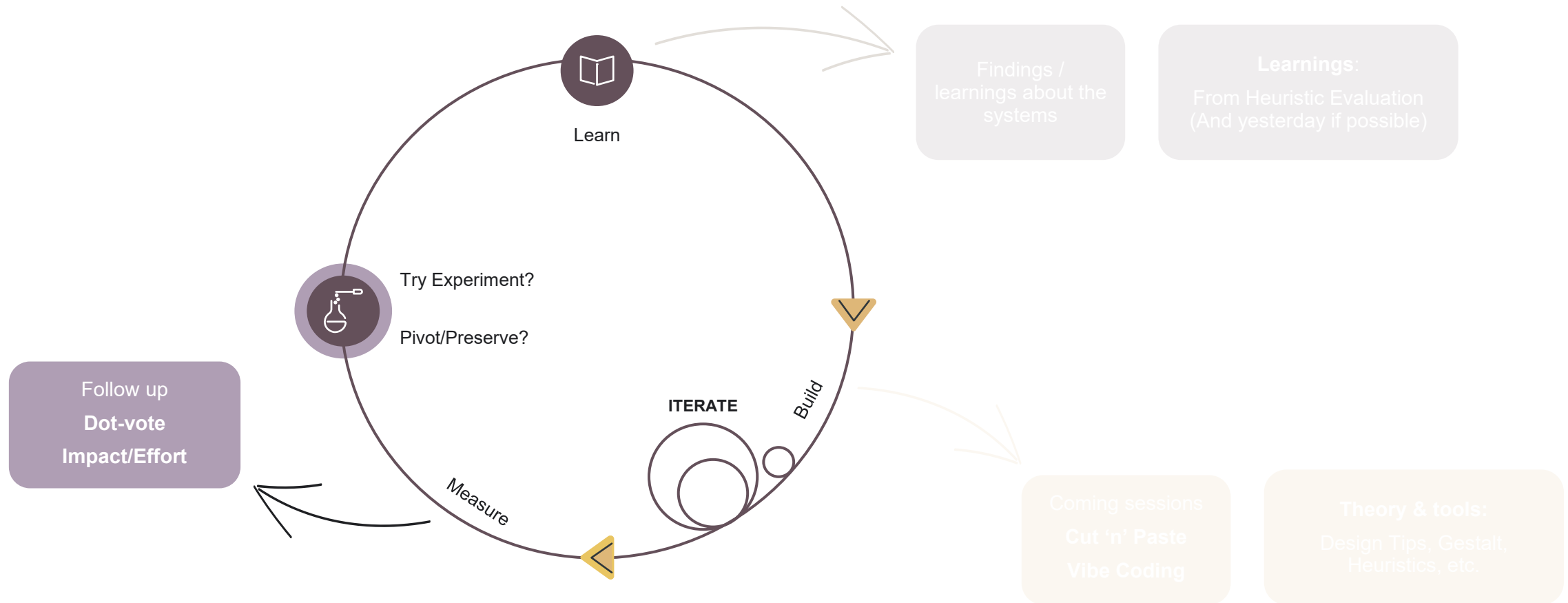
# The bootcamp concept

The time has come to combine all the new theory and tools, with the new findings and learnings about your systems. - **To try and ideate and create potential solutions**



# The bootcamp concept

The time has come to combine all the new theory and tools, with the new findings and learnings about your systems. - **To try and ideate and create potential solutions**



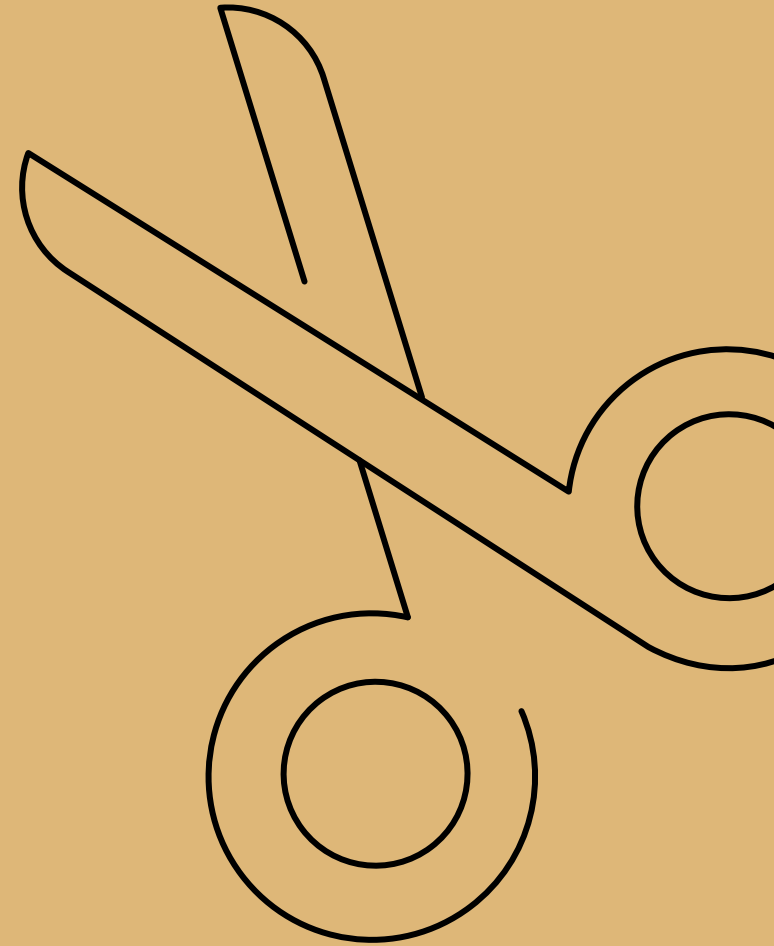
We'll do this through 2 sessions with 2 different variations of “Rapid Prototyping”.

***The first variation is analog, with sketching***

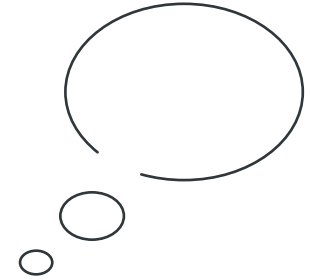
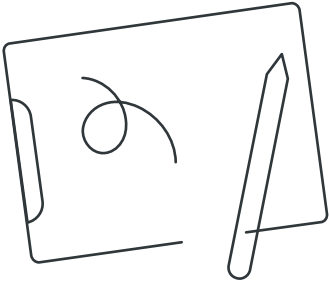


# Variation 1

- Cut ‘n’ paste (Analog)



## → What is going to happen



### Sketching

Is a very free form of prototyping method, allowing a lot of creativity from the participants to design and draw as they desire. **It is low fidelity.** Sketching is good for ideating on structural or layout related problems.

### Printed GUI's

You are free do whatever you can, cut and re-arrange parts, draw new components, to try and propose solutions for your selected problem.

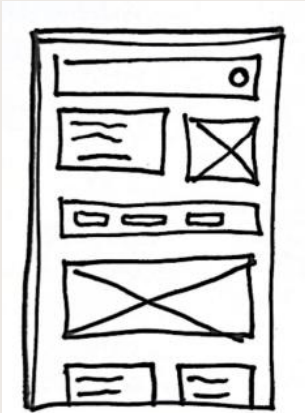
### Consider

Which of your findings/learnings can be related to this ?  
Which of the Heuristics comes in to play and should be considered?  
Which Design tips categories can you use ?

## IDENTIFIED PROBLEM

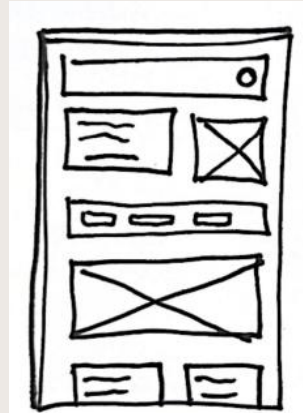
Frame the problem based on usability heuristics:  
"The users struggle to..."

## PROPOSED SOLUTION



"Suggestion 1,  
to help users with ..."

## PROPOSED SOLUTION



"Suggestion 2,  
to reduce ..."

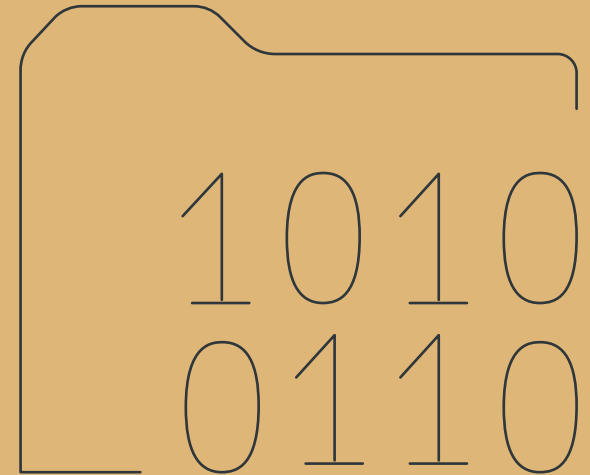
## SUGGESTED METHOD OF EVALUATION

We think a \_\_\_\_ test would be good, because \_\_\_\_\_



# Variation 2

– Vibe Coding (digital)





## Gen-AI Tools

A very new and modern approach. It can be a **good creative partner**, or a **source of inspiration**.

Usage example: Aggregate and summarize all your findings and ask it to find common solutions to these problems.

**But please do be mindful, about your AI-generated content, before you put it into production**

## Mid-stage / High fidelity

Gen-AI is useful for creating **quick and interactive mock-ups** of the potential solutions or detailed components, when you have an overall description and idea for the desired solution.

Can create a lot of *boilerplate* and “*low hanging fruit*”-UI.

### Consider:

- Which of your findings/learnings can be related to this ?
- Which of the Heuristics comes in to play and should be considered?
- Which Design tips categories can you use ?



I'm in workshop on UX design and aesthetic heuristics.

We've given a real app, that monitors system alarms in a complex (50.000 hp). boat engine. The current system shows an excell-sheet-like page of (a lot of) potential alarms (ID, Description, Cause, Effect and Action), and it has a tab underneath it where one can set parameters and output variables of each alarm (thresholds, descriptions etc).

There is only one app, which is used to define, adjust and monitor alarms, so if an alarm goes off, were in the "same excel sheet hell"

I'm supposed to come up with a better design (a low-hanging fruit) to what I identified as the biggest heuristic problem: "Lack of visibility of system status.

I'm thinking more or less keeping the app I have now as a peek into the advanced feature settings and then just create a dashboard overlay on the actual alarm status. It could be the app splash screen:

E.g. three gauges: number of data points (potential alarms). The overall current state (no alarms - hopefully). If an alarm is on it should be clear which one and what to do about it. Maybe also some historical data (when was the last alarm, historical health status)

Please don't spend too much time on the excel sheet-like view - but shown me your best shot at what a splash screen/dash board for something could look like.

And please argue for some of your design choices (from a UX standard/heuristics perspective).



# SaaS Vibes

## - A Short story



**leo**

@leojr94\_ · 15. mar.



my saas was built with Cursor, zero hand written code

AI is no longer just an assistant, it's also the builder

Now, you can continue to whine about it or start building.

P.S. Yes, people pay for it



80



44



613



98 t





leo



@leojr94\_



guys, i'm under attack

ever since I started to share how I built my SaaS using Cursor

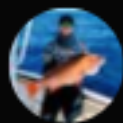
random thing are happening, maxed out usage on api keys, people bypassing the subscription, creating random shit on db


as you know, I'm not technical so this is taking me longer that usual to figure out

for now, I will stop sharing what I do publicly on X

there are just some weird ppl out there

2:34 PM · Mar 17, 2025 · **372.5K** Views



**leo**  @leojr94\_ · 20. mar.

i'm shutting down my app 🙄

Cursor just keeps breaking other parts of the code

you guys were right, I shouldn't have deployed unsecured code to production


I'll just rebuild it with Bubble, a more user friendly and secure platform for non techies like me


I appreciate everyone

[Vis mere](#)

 574

 471

 4 t

 938 t



# Evaluation

## — By Everllence



# Key take ways - Reflection

**Your favorite new method**, you think you can start using tomorrow

**A potential improvement or learning** you discovered about your system(s), you can start working on

**What** could be improved on this course?



# THANK YOU



**Mathias Nikolaj Nielsen**  
mnin@thetechcollective.eu



**Nanna Lundbæk Sørensen**  
nals@thetechcollective.eu