



Level 4 — Semester 2

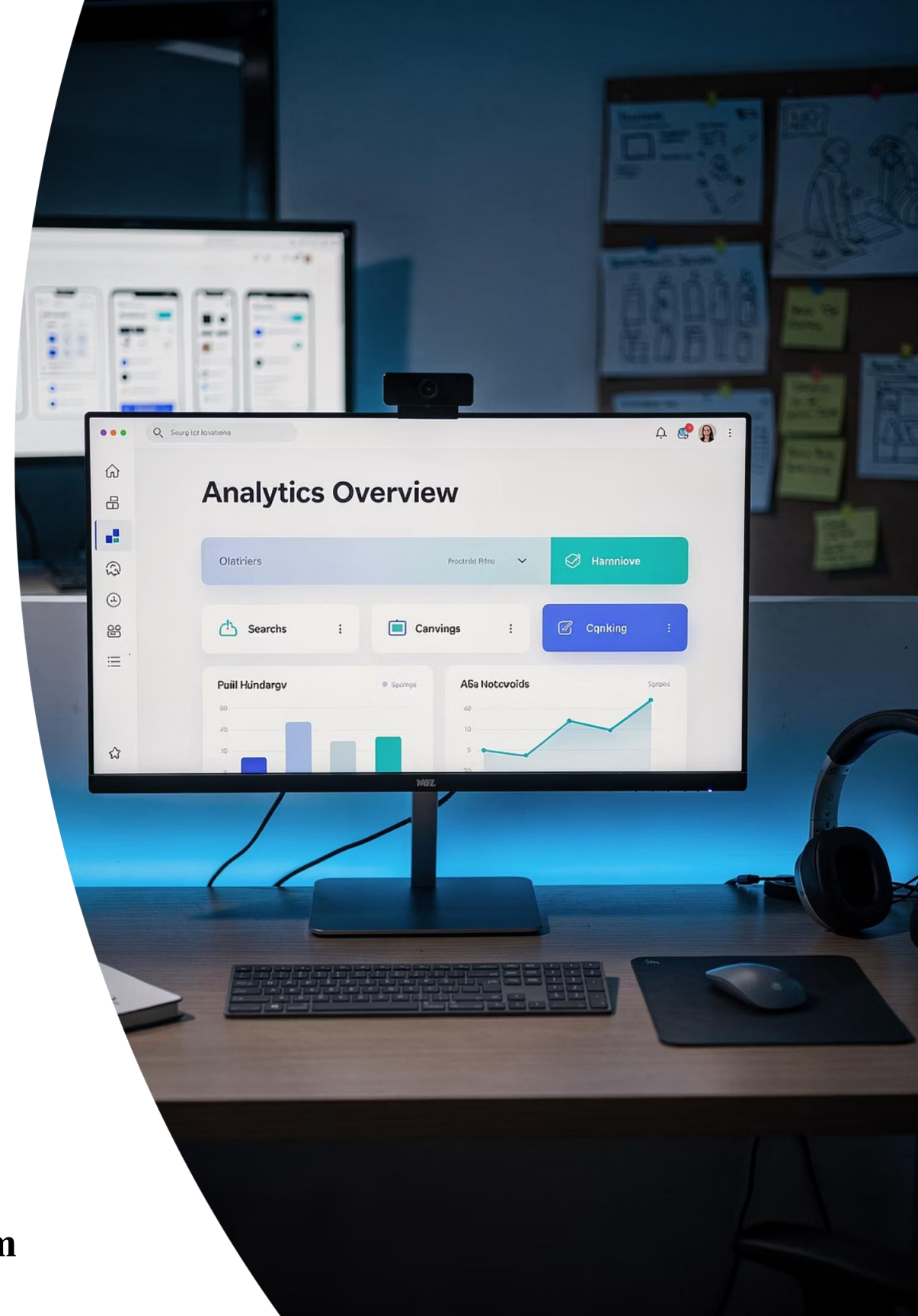
Human Computer Interaction (HCI)

Lecture 4: Visual Design

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Google Class Room



Learning Outcomes

By the end of this lecture, students can:

01

Visual Hierarchy

Explain **visual hierarchy** and why it guides attention

03

Typography

Choose typography for high readability

05

Gestalt Grouping

Apply Gestalt grouping to improve clarity

02

Layout & Alignment

Apply **layout and alignment** to reduce clutter

04

Color with Meaning

Use color with meaning and consistency

06

Accessibility

Improve basic accessibility (contrast + not relying on color alone)

Why Visual Design important in HCI ?

Visual design is not decoration — it is a **usability tool**

It helps users:

- understand information faster
- scan screens with less effort
- reduce mistakes
- build confidence in the system

In healthcare systems: clarity is related to **safety**

What "Visual Design" Means in Interfaces ?

Visual design in interfaces means:

Easy to See

Making information **easy to see**

Easy to Understand

Making structure **easy to understand**

Easy to Find

Making actions **easy to find**

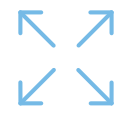
Consistent & Predictable

Making screens **consistent and predictable**

Key idea: **Users scan — they rarely read fully**

PRINCIPLE 1 : Visual Hierarchy

Visual hierarchy = showing what is most important first. Tools that create hierarchy:



Size

Larger stands out



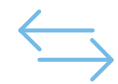
Weight

Bold vs regular



Contrast

Dark vs light, strong vs weak



Position

Top/left areas often seen first



Spacing

Isolated items look important

❑ Rule: If everything is emphasized → nothing is emphasized.

Hierarchy Example (Healthcare Screen)

Scenario: Patient summary screen needs priority order:

- 1 Patient identity + critical alerts
- 2 Current diagnosis + vital signs
- 3 Medications
- 4 Notes and history

Better hierarchy decisions:

Alerts

Strong contrast + icon + clear label near patient name

Vitals

Grouped card with clear labels and units

Notes

Lower emphasis section with readable layout

❏ **notes: "Prioritize safety-critical content."**



Ahmed Abdulla

65 years old | Male | ID: 0012345679

Blood Type: A+ Room: 305

Allergy: Penicillin >

Fall Risk >

Current Diagnosis

Pneumonia

Medications

Medication	Dosage	Schedule
Amoxicillin 500 mg	1 tablet, 3 times daily	
Paracetamol 500 mg 	1 tablet as needed for pain, max 4 per day	
Metformin 500 mg	1 tablet, twice daily	

Vital Signs

Updated 10 mins ago

Heart Rate	92 bpm	>
Blood Pressure	135/88 mmHg	>
Temperature	38.2°C	>
Oxygen Sat	94%	>

Updated 10 mins ago >

Clinical Notes

[Add Note](#)



Sara Hassan, 27 April 2024 a 10:15 AM

Patient showing improvement in lung function. Continue antibiotics and monitor for any signs of relapse.

[Details >](#)

PRINCIPLE 2: Gestalt Grouping (How Users See Structure)

People don't read interfaces element-by-element — they perceive groups first.

What “Grouping” Means in UI

Your brain quickly asks:

- **What belongs together?**
- **Where should I focus first?**
- **What is the structure of this screen?**

Gestalt principles help designers **make relationships obvious** using spacing, similarity, alignment, and contrast.

The 5 Most Useful Gestalt Rules (UI Examples)

People don't read interfaces element-by-element — they perceive groups first.

1) Proximity (Distance)

Items placed **close together** are perceived as one group.

- Label + input should be close.
- Increase spacing between different sections.

2) Similarity (Same Look = Same Type)

Items that look similar (color/shape/size) feel related.

- Primary buttons look consistent.
- Don't style "Delete" like "Save".

3) Common Region (Cards / Boxes)

Elements inside the same card/box are seen as one unit.

- ✓ "Vital Signs" card: HR, BP, Temp together.

4) Alignment & Continuity

Aligned elements create a clean scanning path.

- ✓ Forms should align labels/inputs in a clear grid.

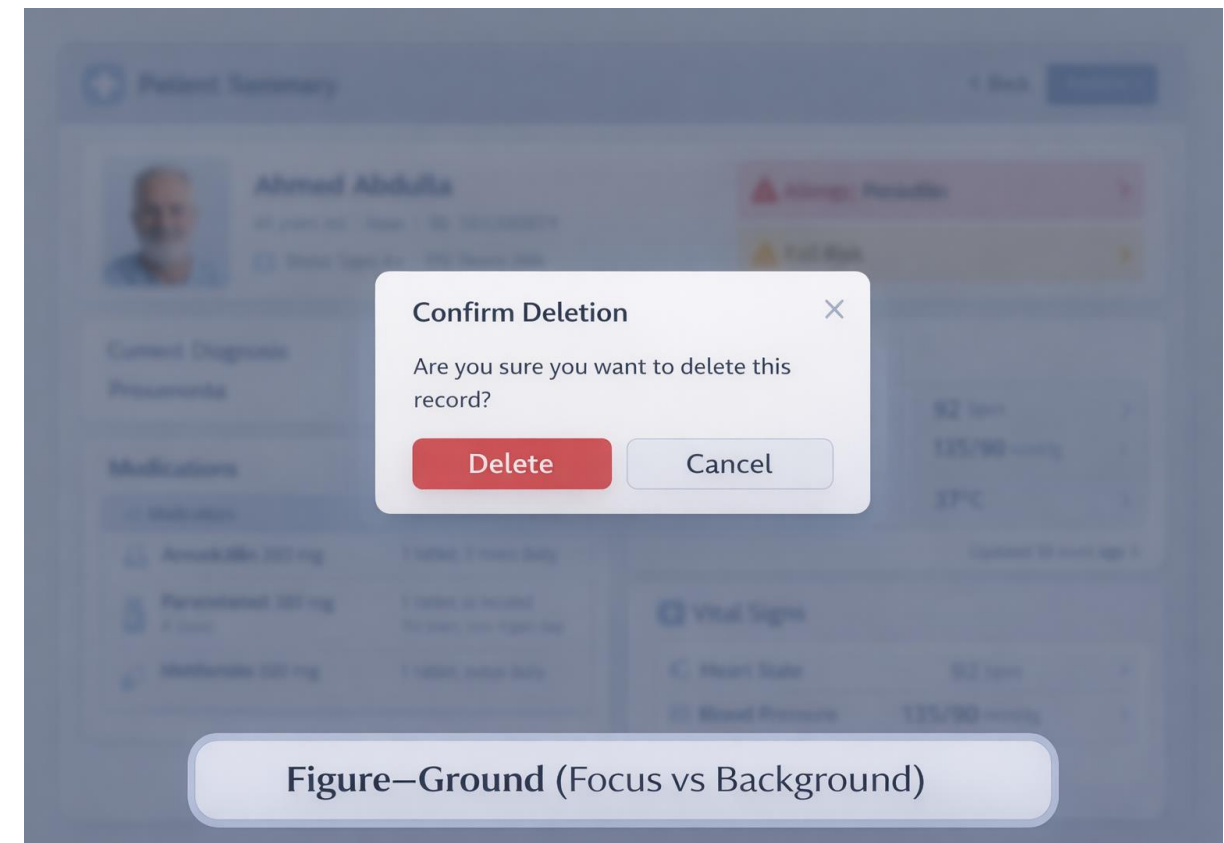
The 5 Most Useful Gestalt Rules (UI Examples)

People don't read interfaces element-by-element — they perceive groups first.

5) Figure–Ground (Focus vs Background)

Users must instantly know what is important (figure) vs background.

- Pop-up/modal stands out; background fades.



PRINCIPLE 3: Layout, Grids, and Alignment

Why alignment important:

- faster scanning
- fewer interpretation mistakes
- looks organized and professional

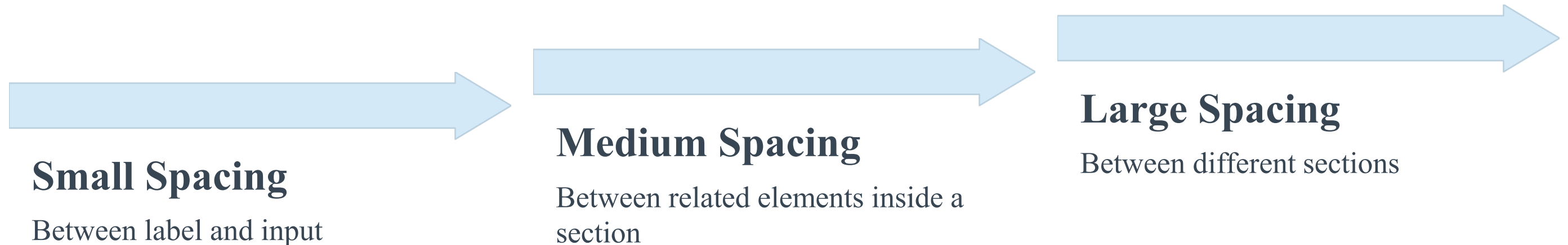
Rules:

- **Align text and components to consistent columns**
- **Keep spacing consistent (don't mix random gaps)**
- **Use whitespace to separate groups**
- **Avoid crowded screens (density increases errors)**



Spacing Strategy (Simple System)

Use a simple spacing system (example):



Consistency makes screens predictable.

PRINCIPLE 4: Typography for Interfaces

Effective typography is crucial for intuitive interfaces and enhanced usability:

A Choose Fonts Wisely

Select legible fonts to maximize readability.

T Optimize Font Size

Ensure critical info is readable; avoid tiny text.

🐾 Adjust Line Height

Prevent cramped paragraphs with suitable spacing.

B Control Font Weight

Apply bold sparingly, primarily for structural emphasis.

🧠 Simplify Styles

Restrict variations to maintain clarity and prevent clutter.

Establish Typographic Hierarchy:

- **Title:** Main page identity
- **Section Heading:** Organizes content blocks
- **Body Text:** Primary content readability
- **Caption/Help Text:** Supplementary guidance
- **Error Message:** Critical user feedback

Design Dashboard

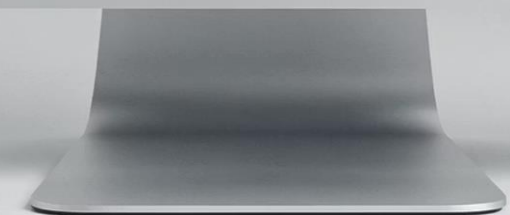
Overview

Use the design tool to create and manage your design system. It provides a central location for all your design assets, including colors, typography, and components. This makes it easy to maintain consistency across your entire product.

Insights

Design insights help you understand how your design system is being used. You can see which components are most popular, which colors are used most often, and which typography is most common. This information can help you make data-driven decisions about your design system.

Last updated 5 minutes ago



Common Typography Mistakes

Too many fonts and font sizes

Low contrast text
Light gray on white

Long paragraphs with no headings

All caps for long sentences

Tiny form labels
Users miss them

Error messages unclear or hidden

📄 *Healthcare note: misreading numbers is a risk (dose, lab value, time).*

PRINCIPLE 5: Color With Meaning

Color should communicate meaning:

Status

Success / warning / error

Category

Labs vs meds vs imaging

Priority

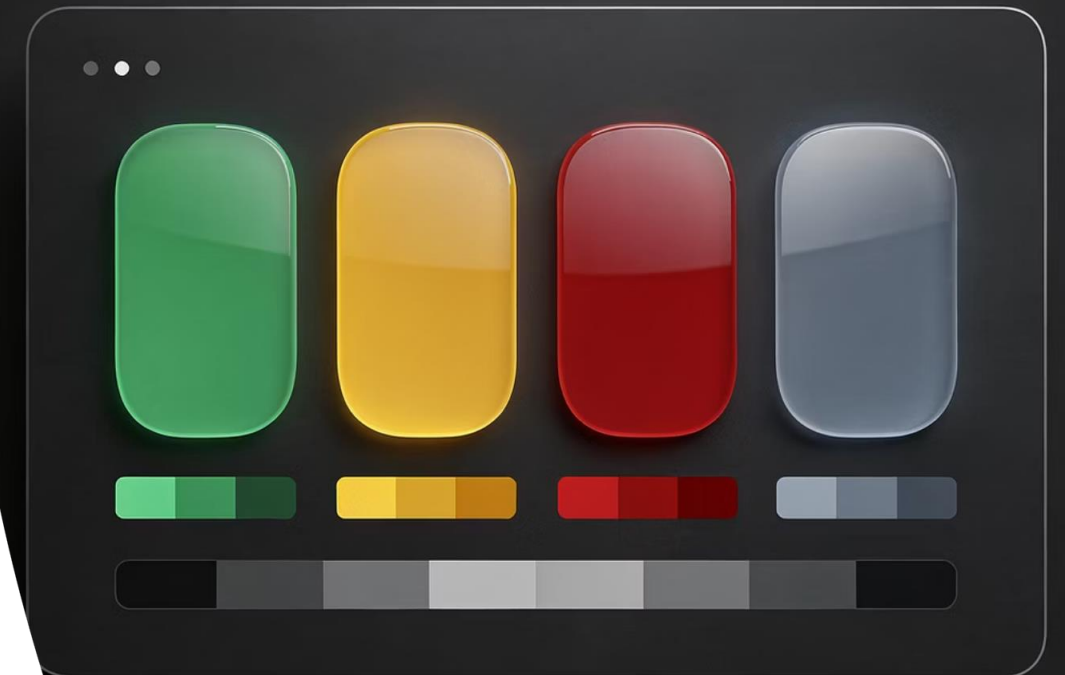
Critical vs normal

Interaction

Enabled/disabled states

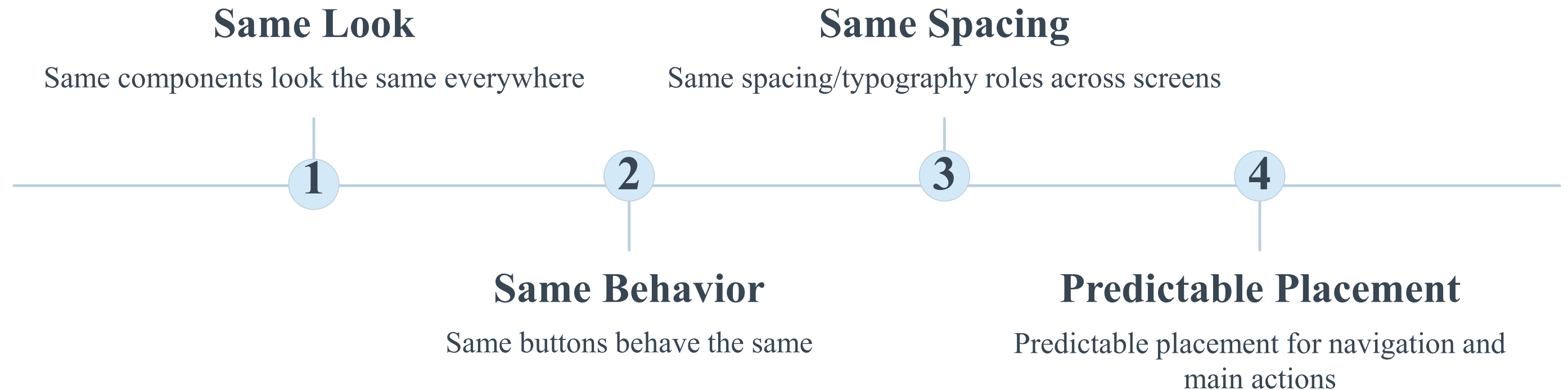
Rules:

- Use a limited palette
- Keep meaning consistent across screens
- Do not rely on color alone (use icon + text too)



Consistency and UI Patterns

Consistency reduces learning time:



Introduce the idea of a **design system**:

Reusable components + rules (colors, spacing, typography)

Design System

A single source of truth for your UI

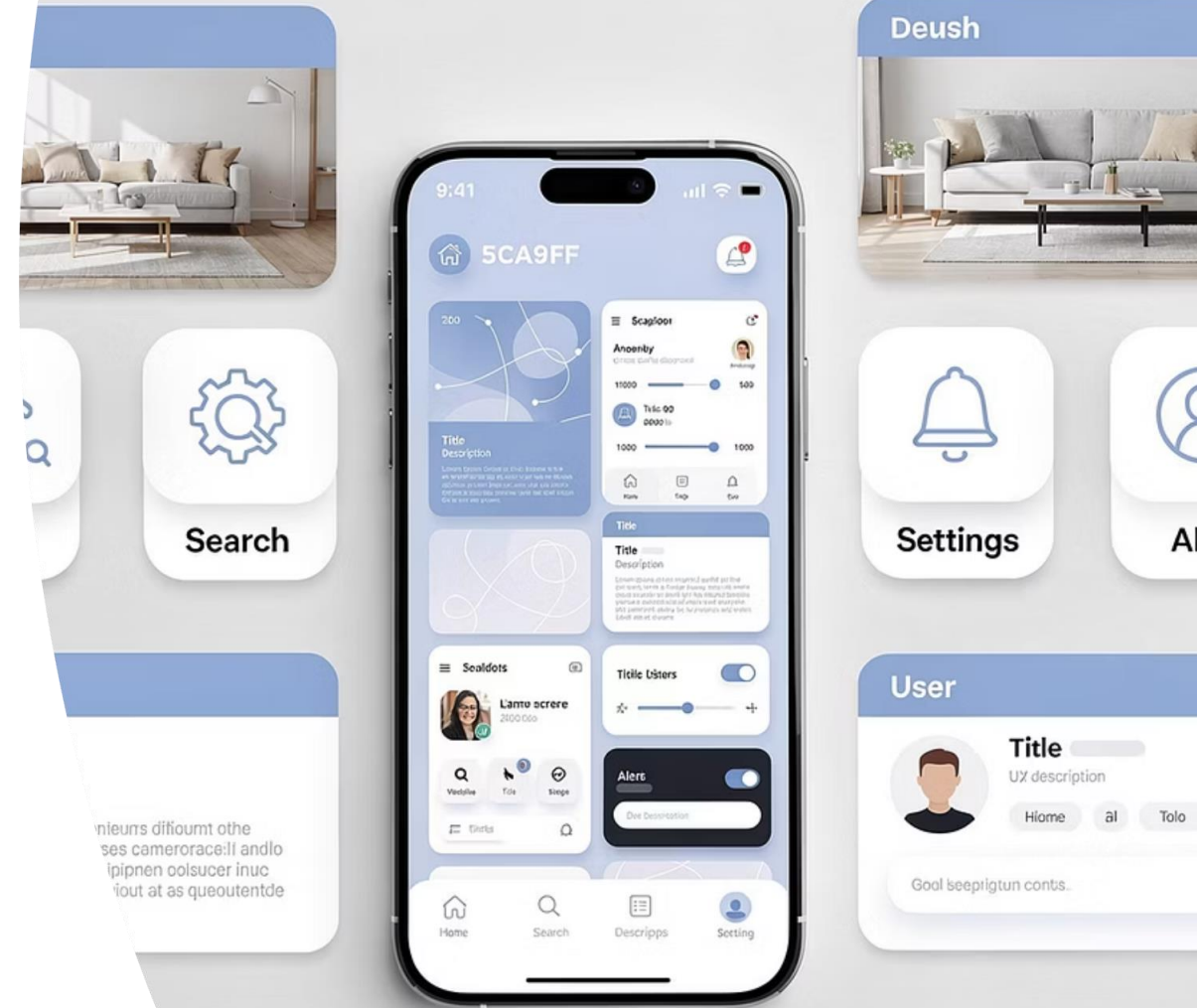
Icons and Images

Icons should:

- | Be familiar
- | Be consistent style and size
- | Be paired with text if meaning might be unclear

Images should:

- | Support understanding
- | Not distract
- | Not replace important text



"Red Flags" in Healthcare Visual Design

1

Patient Identity

Can the user confirm the patient identity fast?

2

Critical Alerts

Are critical alerts clearly different from normal messages?

3

Readable Numbers

Are numbers readable with clear units?

4

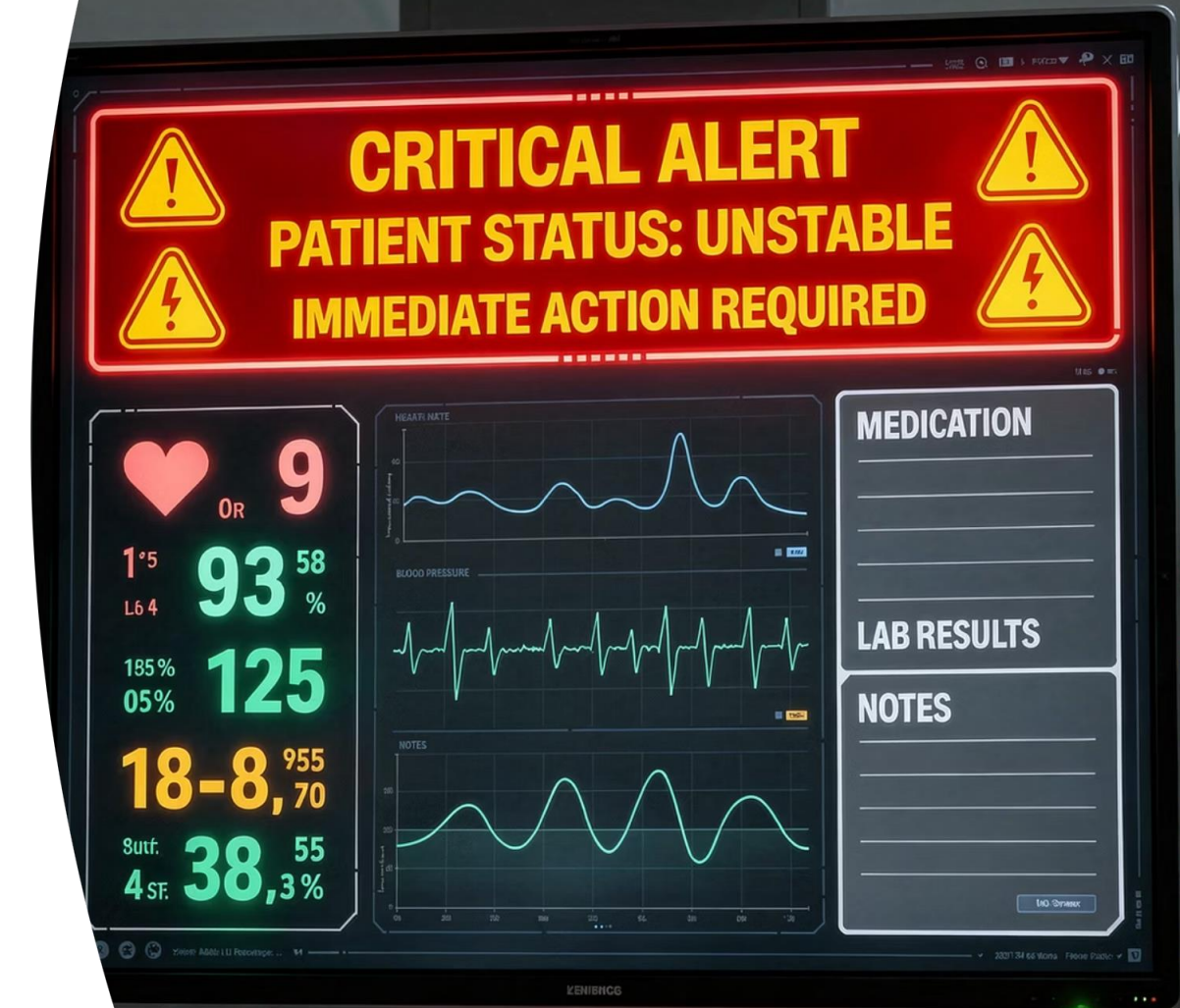
Stress Usability

Is it usable under stress, fatigue, and fast workflow?

5

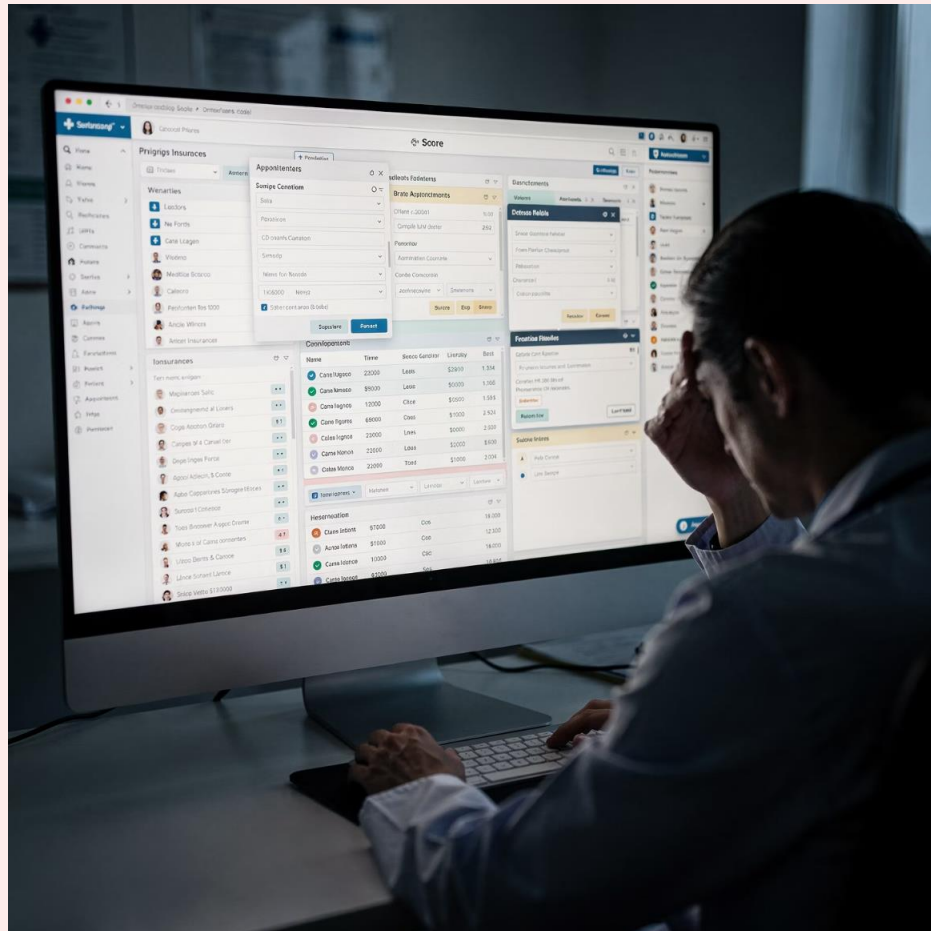
Safety

Is it safe against accidental taps or missed warnings?



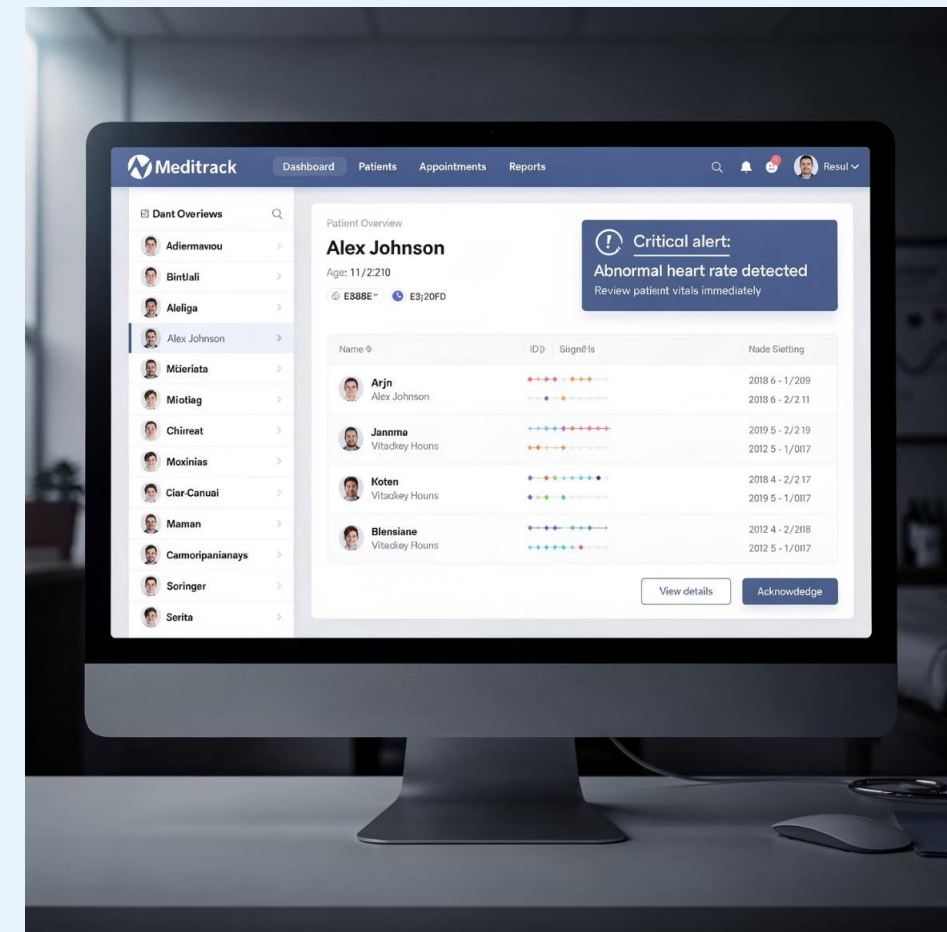
Mini Case Study: Before vs After

Before (bad screen):



- Same font size everywhere
- Random alignment
- Weak contrast
- Crowded text and controls

After (improved screen):



- Clear hierarchy (title → headings → body)
- Strong grouping using spacing
- Consistent alignment grid
- Alerts visible with icon + label
- Readable typography and good contrast

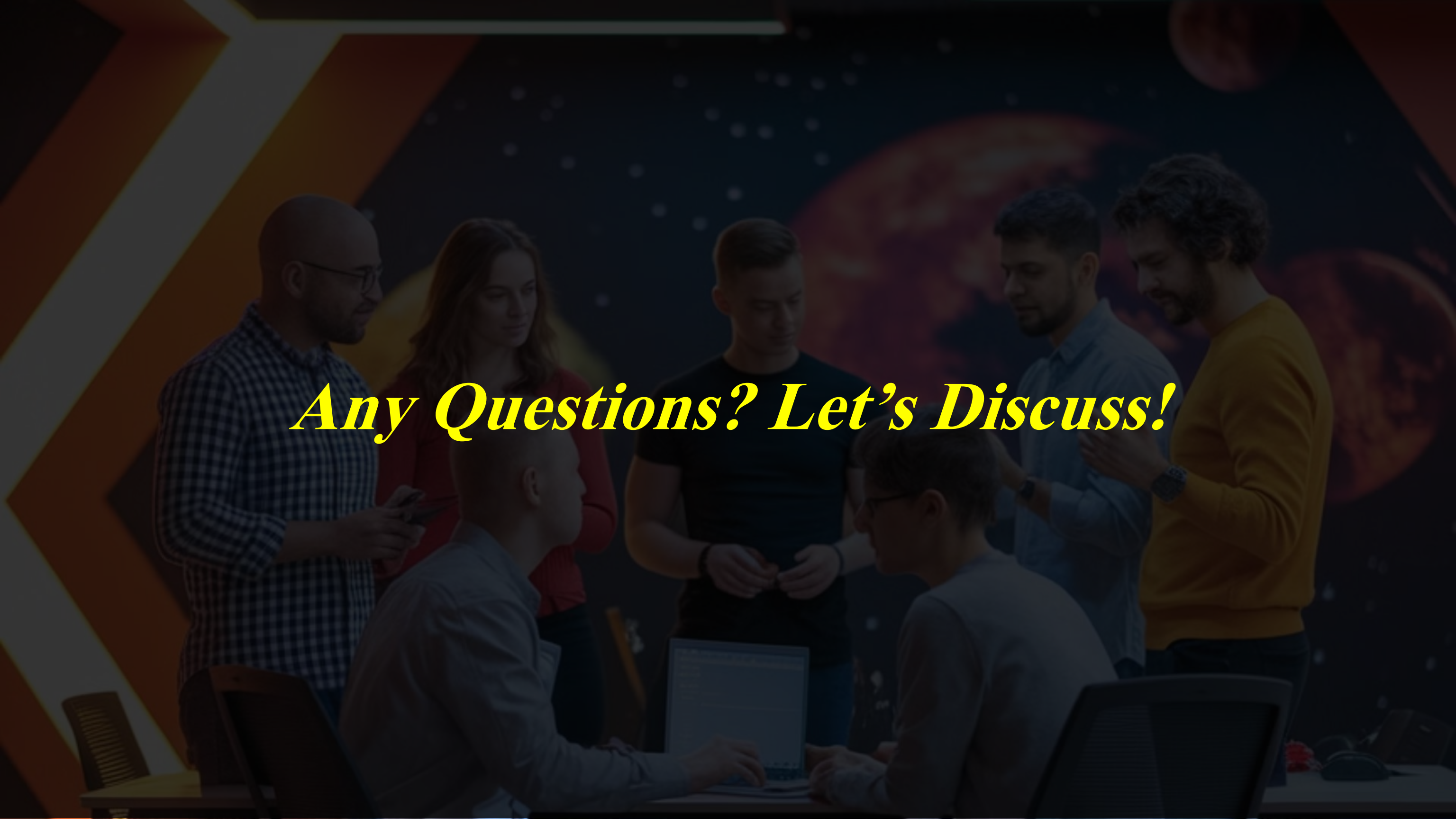
Homework

Visual Design Critique (1 page maximum)

Choose one UI screen (preferably healthcare-related) and do:

- 1 Identify 3 visual design problems**
(hierarchy, spacing, typography, color, contrast)
- 2 Propose specific fixes**
(what you change and why)
- 3 Add 1 accessibility improvement**
(contrast or non-color indicator)



A group of people in a meeting or office setting, with a large text overlay. The background is dark with a starry pattern and a large red planet. The text is in a bold, italicized, yellow font.

Any Questions? Let's Discuss!