UCI University of California, Irvine

# Informatics 134

Software User Interfaces
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# Agenda

1. Upcoming

2. Visual Perception and UI Design

3. References

# Upcoming

# Upcoming

- Today:
  - Visual Perception
- User Evaluations:
  - Due May 14th
  - Testable interface ready by 5/9
- Development Check-in:
  - Due May 21st

# Visual Perception and UI Design

## Gestalt

**Psychological theories that describe how humans perceive visual elements as unified wholes (e.g., gestalts) rather than just as a collection of separate parts.**

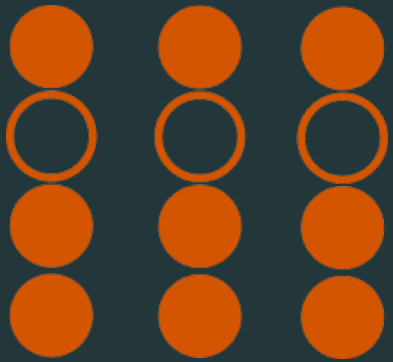
# Visual Perception

**Gestalt Principle: Proximity**

The relative distance between visual objects affects how we perceive the organization and relationships of those objects.

**Gestalt Principle: Similarity**

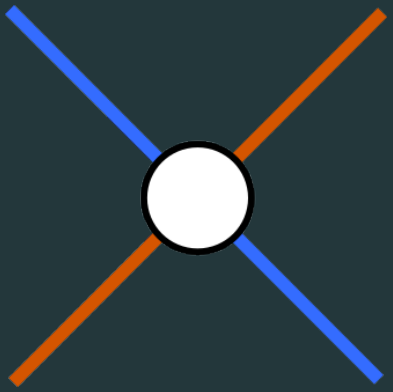
Objects that look similar appear as if they belong together.



# Visual Perception

**Gestalt Principle: Continuity**

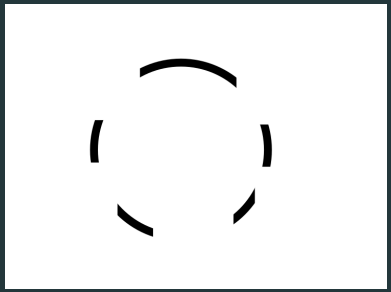
Human visual perception is biased to perceive continues forms rather disconnected segments [Johnson, 2020].



# Visual Perception

**Gestalt Principle: Closure**

Human visual perception tends to see complete figures rather than separate pieces.



**Gestalt Principle: Symmetry**

Humans tend to parse complex scenes in a way that reduces their complexity [Johnson, 2020].

The data in our visual field typically has more than one possible interpretation, but our brain seeks the simplest [Johnson, 2020].

**Gestalt Principle: Figure/Ground**

Human minds separate aspects of complex scenes into foreground (figure) and background (ground).

The figure/ground effect is influenced by certain characteristics like the relative size of objects and the color contrast between them.

Examples observed in UI?

# Visual Perception

**Gestalt Principle: Common Fate**

Human visual perception interprets objects perceived to be moving together as grouped.

Examples observed in UI?

## Combined Gestalt Principles

**In practice, well designed UI's tend to make use of many gestalt principles within the same basic layout. We know that when combined and adhered to that a UI informed by gestalt will generally be easier to use for most people.**

## Visual Structure

**The gestalt principles demonstrate that humans are adept at seeking out and making effective use of objects that have visual structure.**

# Visual Perception

What time will the flight arrive?

You are booked on United flight 1371, which departs from Santa Ana at 5:00 PM on Thursday May 9th and arrives at Chicago at 11:02 PM on Thursday, May 9th.

Flight: United 1371, Santa Ana to Chicago

- Depart: 05:00 PM Thursday, May 9th
- Arrive: 11:01 PM Thursday, May 9th

**Visual Structure**

When possible (and where appropriate) optimize for terse and structured presentation of textual information over unstructured prose text [Johnson, 2020].

# Visual Perception

What is the 12th digit in the following number (both are same number)?

5043 2098 1917 8902

5043209819178902

**Visual Structure**

Segmenting large amounts of data improves scanning ability and supports perceptual seeking behavior.

**Importance of Clear Visual Hierarchy in UI Design**

A clear visual hierarchy is essential in UI design because it organizes and prioritizes information efficiently, guiding users through a user interface intuitively. By defining a visual hierarchy, designers can control the sequence in which the human eye perceives what it sees, highlighting what is most important while still offering access to secondary options. This structured presentation helps reduce cognitive load by making the interface easier to navigate, enabling users to understand options and take desired actions quickly. ...

**Importance of Clear Visual Hierarchy in UI Design**

Enhances User Navigation

- **Guides User Interaction**: Organizes information to guide users intuitively through the interface.
- **Prioritizes Content**: Controls the sequence of visual perception to highlight key elements first.
- ...

**Visual Hierarchy**

Organize complex information hierarchically to support scan seek behavior.

# Activity: Design a Low-Fidelity Prototype UI

# UI Design Activity

## Use graphical primitives to create a low-fidelity UI using gestalt and other principles discussed today.

1. Copy the template slide on the Google Slides deck shared in class.
2. Add your name(s) to the slide in the notes section.
3. Follow the specification prompts at the top of the deck to create your UI.

# References

# References i


Johnson, J. (2020).
***Designing with the mind in mind: simple guide to understanding user interface design guidelines.***
Morgan Kaufmann.