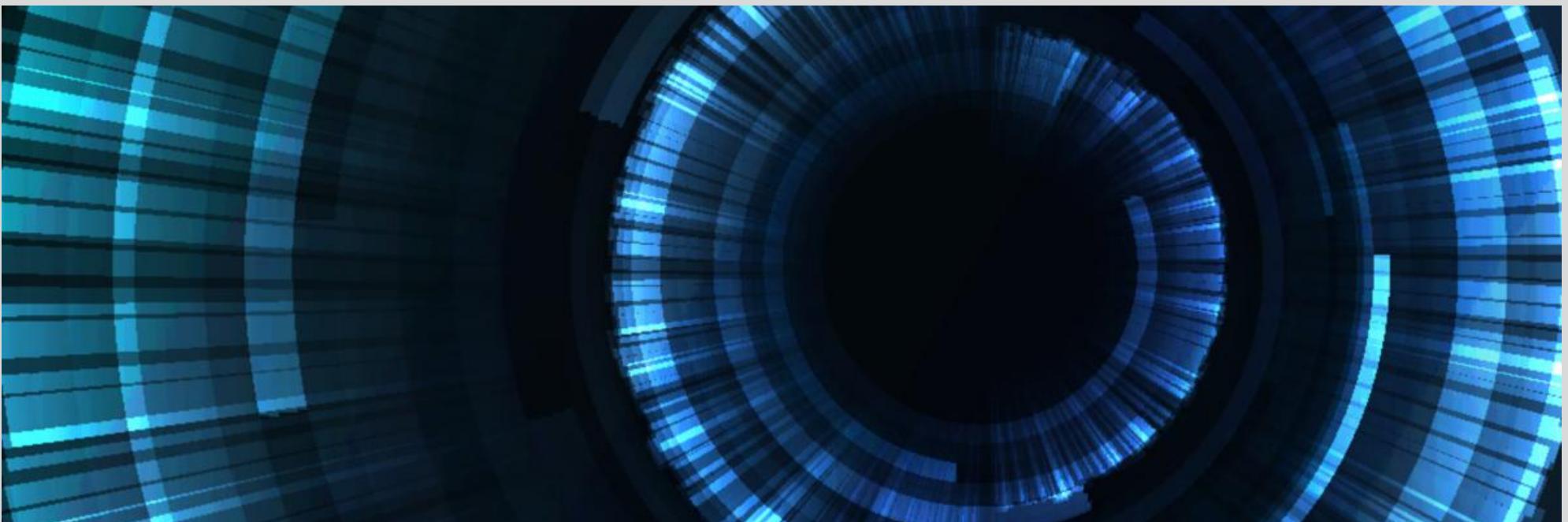


# Human Computer Interaction



Original PPT: Dr Grace Eden  
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Presented by Dr Indrani De Parker  
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This Week– 21 & 23 March

**Monday 21 March**

TEAMS - 07, 38, 46 & 21 after class

**Wednesday 23 March**

NO IN-CLASS PRESENTATION

Next Week – 28 & 03 March

**Monday 28 March**

TEAMS - 09, 20, 49 & 50 after class

**Wednesday 30 March**

NO IN-CLASS PRESENTATION

THIS WEEK – Week 12

This Week – 21 & 23 March

**LECTURE** 21st March  
**HighFidelityPrototyping**

**QUIZ 4** 23rd March  
10:00 to 10:15 am

**GUEST LECTURE** 23rd March  
10:15 to 11:30 am  
**Design Process in Action: Live Industry Examples**

NEXT WEEK – Week 13

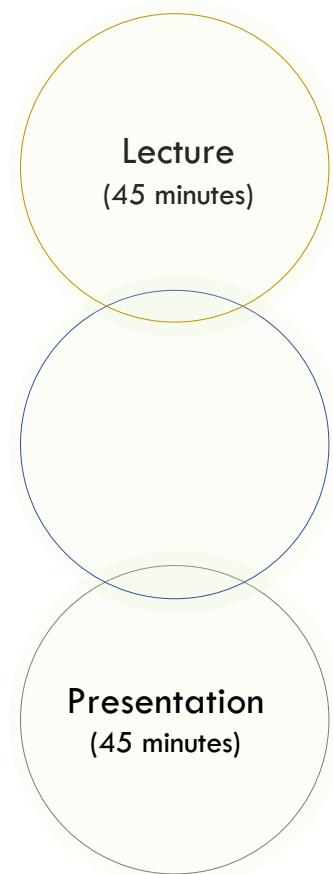
Next Week – 28 & 30 March

**LECTURE** 28th March  
**Prototype Evaluation**

**QUIZ 5** 30th March

**OPEN STUDIO** 30th March  
**Guidelines for Final Project Presentation**

## March 21 Monday

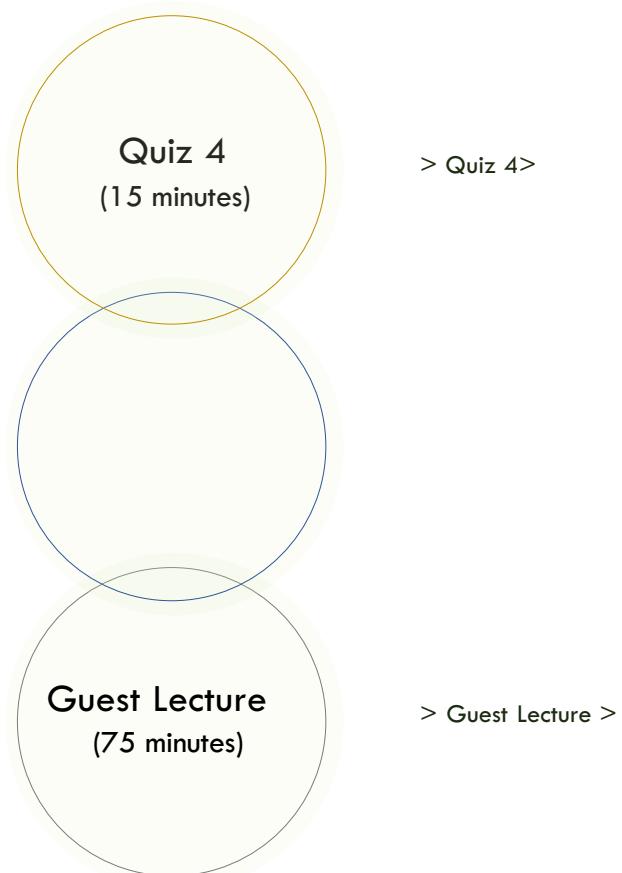


> High Fidelity >

> 10 minutes each team – Groups 07, 38, 46, 21 >

This WEEK

## March 23 Wednesday



March 14, 16 // March 21, 23 // March 28, 30 // April 04, 05, 06

**From Week 10 ... until end of term**

**Lecture topic**

Prototyping & Evaluation Techniques

**Activities**

Low Fidelity	(physical sketches)	Lecture: 09 March	(Due Mar 19)
Medium Fidelity	(digital wireframes)	Lecture: 14 March	(Due Mar 19)
High Fidelity	(realistic design elements)	Lecture: 21 March	(Due Mar 26)
Evaluation	(user feedback)	Lecture: 28 March	(Due Apr 02)

••••• SUBMIT HIGH-FIDELITY PROTOTYPE : 03 APRIL •••••

With a link to clickable prototype on Google Classroom

••• FINAL PROJECT PRESENTATION : 04, 05, 06 APRIL •••

With a link to clickable prototype on Google Classroom

## Assessment

ASSESSMENT PLAN		
Type of Evaluation	Contribution in Grade	Description
Assignments	20 %	(5 Individual Assignments)
Quizzes	20 %	(5 Quizzes)
Mid Semester Examination	10 %	(MCQ)
End Semester Examination	20 %	(MCQ with Negative Marking)
PROJECTS:	30 %	(20% + 10%)
Group Assignments + Final Group Project Presentation	(20%) + (10%)	(20% Group Assignments) + (10% Final Project Group Presentation which is a compilation of all the group assignments which includes the entire systematic design process woven into one final consolidated presentation)
<b>FINAL PRESENTATION:</b> <u>Process:</u> 1. Problem-Solution Statement, 2. Personas, 3. Scenarios, 4. Affinity Diagram 5. Story Board, 6. Information Architecture, 7. Low-fi Prototypes, 8. Mid-fi Prototypes, 9. Hi-fi Prototype, 10. Prototype Evaluation <u>Deliverables:</u> Basic Working Prototype, Prototype Evaluation Plan, Prototype Evaluation Report, Personal Report – Reflections on Design Process		
In-class Group Presentation on any Topic	2%	Bonus - Extra

# *Final Exam*

*(2nd Week April, 2022)*

Overview of the rest of the semester - IHCI

March 14, 16 // March 21, 23 // March 28, 30 // April 04, 05, 06

Week 9 (Feb-March)						Week 10 (March)						Week 11 (March)						Week 12 (March)					
Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat
28	1	2	3	4	5	7	8	9	10	11	12	14	15	16	17	18	19	21	22	23	24	25	26
	Mahashivratri, Dropped GH															Holi						Pre-registration Starts	
					H						H					H							H
Week 13 (March-April)						Week 14 (April)						Week 15 (April)						Week 16 (April)					
Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat	Mon	Tue	Wed	Thur	Fri	Sat
28	29	30	31	1	2	4	5	6	7	8	9	11	12	13	14	15	16	18	19	20	21	22	23
					TT FRI				Last Day of the class	Research Showcase				Mahavir Jayanti	Good Friday						Moderation Meeting		
											End-Sem Examinations (9th April - 13th April 2022)				H	H	H						H

# *Prototyping Techniques*

## Prototype: high-fidelity (working artefact) – learning outcomes

- Ability to define and discuss high-fidelity prototyping
- Understand the principles of visual design
- Gain experience designing high-fidelity prototypes

## Prototype: medium-fidelity (wireframes)

**VMS Video Downloads**

Welcome Guest | Sign In | Create Account | Cart 0 items; Subtotal \$0.00

BROWSE BY CATEGORY

- Action
- Adventure
- Animation
- Classics
- Comedy
- Documentary
- Drama
- Foreign
- Independent
- Music & Performance
- Mystery & Suspense
- Romance
- Sci-Fi & Fantasy
- Special Interest
- Westerns
- [View All Genres](#)

SEARCH:  FIND

**TV Time Machine**

Description goes here - Lorem ipsum dolor sit amet, consectetur adipisciing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Filter by Genre: Comedy Filter by Network: CBS

10's 00's 90's 80's 70's 60's 50's

Select Year: '90 '91 '92 '93 '94 '95 '96 '97 '98 '99 < Previous / Next Year >

**1991**

<a href="#">Show Thumbnail</a>	<b>The A-Team – Season 2</b> Standard format: \$2.99 <a href="#">Preview</a> <a href="#">Add To Cart</a> <a href="#">View Entire Season</a>	<a href="#">Show Thumbnail</a>	<b>B.J. &amp; The Bear – Season 3</b> Standard format: \$2.99 <a href="#">Preview</a> <a href="#">Add To Cart</a> <a href="#">View Entire Season</a>
<a href="#">Show Thumbnail</a>	<b>Knight Rider – Season 1</b> Standard format: \$2.99 <a href="#">Preview</a> <a href="#">Add To Cart</a> <a href="#">View Entire Season</a>	<a href="#">Show Thumbnail</a>	<b>Melrose Place – Season 4</b> Standard format: \$2.99 <a href="#">Preview</a> <a href="#">Add To Cart</a> <a href="#">View Entire Season</a>
<a href="#">Show Thumbnail</a>	<b>Robot Wars – Season 1</b> Standard format: \$2.99 <a href="#">Preview</a> <a href="#">Add To Cart</a> <a href="#">View Entire Season</a>	<a href="#">Show Thumbnail</a>	<b>Wonder Years – Season 2</b> Standard format: \$2.99 <a href="#">Preview</a> <a href="#">Add To Cart</a> <a href="#">View Entire Season</a>

**TV Tool 1** **TV Tool 2**

*Placeholder text for TV Tool 1 and TV Tool 2, mostly identical to the description above.*

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<https://www.smashingmagazine.com/2010/06/design-better-faster-with-rapid-prototyping/>

## Prototype: high-fidelity (working artefact)

The screenshot shows a high-fidelity prototype of a website for "VMS Video Downloads". The interface includes a header with "VMS Video Downloads", a sign-in/click-to-create-account link, a cart icon, and a "Return to VMSVideo" button. On the left, there's a sidebar with "BROWSE CATEGORIES" (Action, Adventure, Animation, Classics, Comedy, Documentary, Drama, Foreign, Independent, Music & Performance, Mystery & Suspense, Romance, Sci-Fi & Fantasy, Special Interest, Westerns, View All Categories) and "BROWSE TV NETWORKS" (HBO, CBS, FOX, WB). The main content area features a "TV Time Machine" section with tabs for 2000's, 1990's, 1980's, 1970's, 1960's, and 1950's. It displays "Most Popular Shows from the 90's" with thumbnails for "DOOGIE HOWARD'S SHOW", "Pee-wee's Playhouse", "KIDS IN THE HALL", and "MARRIED... WITH CHILDREN". Below this is a "Select a Year from the 90's:" dropdown menu showing years from 1990 to 1999, each with a grid of show thumbnails. At the bottom, there's a footer with links to "About Us", "Privacy", "Terms & Conditions", and "Help".

<https://www.smashingmagazine.com/2010/06/design-better-faster-with-rapid-prototyping/>

## Prototype: high-fidelity (working artefact) - definition

- Computer-based interactive representation of a product in its closest resemblance to the final design in terms of details and functionality
- User interface (UI) of the product in terms of the look – visuals
- User experience (UX) aspects in terms of the feel – interactions and user flow

**NOTE:** users may think they have a complete system ... (manage expectations)

## Prototype: high-fidelity (working artefact) - when

- Display visual designs concepts (colour, font, images, etc)
- Detail interactive elements & navigational schemas from a screen to another
- Detail UI layout and content areas
- Conduct prototype evaluation to receive feedback

## Prototype: high-fidelity (working artefact) - why

- Usability testing to validate with target users
- Pitching your idea to an investor
- Give a clearer idea of interaction, features and functionality

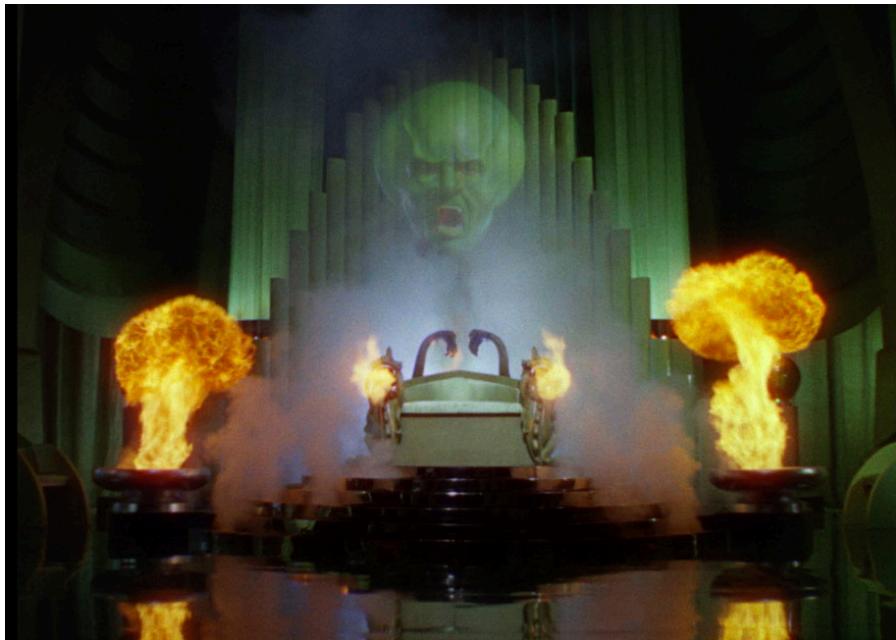
## Prototype: high-fidelity (working artefact) – choosing a prototyping tool

- Publishing capabilities
  - sharing with your clients and other stakeholders (html is a universal sharing platform)
- Ability to preview
  - across different-sized devices and platforms
- Availability of library
  - with common UI elements to create screens quickly
- Compatibility
  - with your favourite tool for creating graphical designs
- Online collaboration
  - that allows for distributed design work and feedback on features
- Learning curve
  - how easy it is to accomplish task the first time and how many repetitions it takes to become efficient at that task

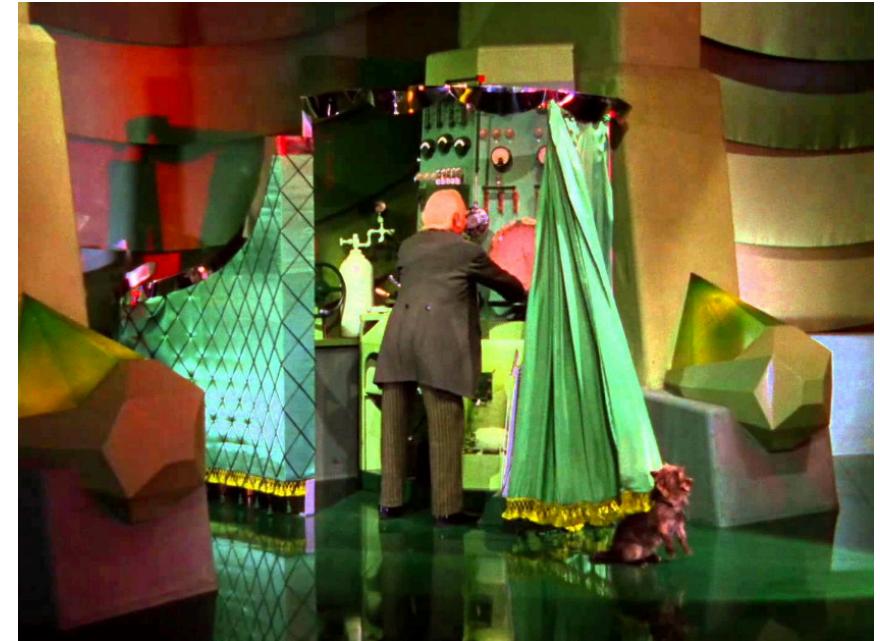
## Prototype: high-fidelity (working artefact) – creating interactivity

- **Scripted**
  - Click-through's replicate proposed behaviour with button actions
- **Fully programmed**
  - Coding exactly the desired interaction, look and feel (proof of concept)
- **Wizard of Oz**
  - Mimic a high degree of interactivity in complex situations where user inputs might be unpredictable.

**Prototype:** high-fidelity (working artefact) – creating interactivity, wizard of oz



What Dorothy and her friends experienced



What was actually happening

**Prototype:** high-fidelity (working artefact) – creating interactivity, wizard of oz



Ghost driver: A field study investigating the interaction between pedestrians and driverless vehicles.  
Rothenbücher, et al. In Robot and Human Interactive Communication (RO-MAN), 2016 25th IEEE International Symposium on. IEEE, 795–802.

**Prototype:** high-fidelity (working artefact) – creating interactivity, wizard of oz



# *Visual Design*

## Prototype: high-fidelity (working artefact) – visual design

- Five principles of visual design

1. Scale
2. Visual hierarchy
3. Balance
4. Contrast
5. Gestalt

“

Visual-design principles inform us how design elements go together to create well-rounded and thoughtful visuals. Graphics that take advantage of the principles of good visual design can drive engagement and increase usability.

”

## Prototype: high-fidelity (working artefact) – visual design > scale

- Using relative size *to signal importance and rank in a composition*
- The *most important elements in a design are bigger than the ones that are less important*
- Why? when something is big, it's *more likely to be noticed*
- Rule of thumb: A visually pleasing design generally uses no more than 3 different sizes.

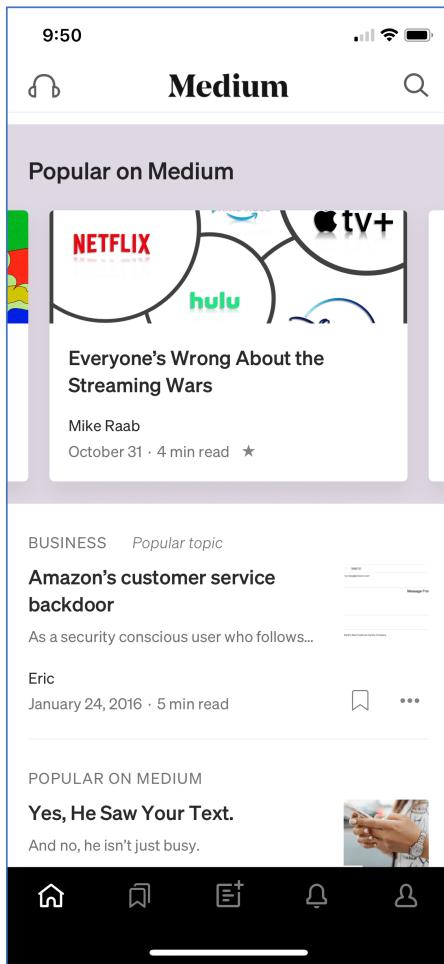
### SCALE

The principle of scale refers to using relative size to signal importance and rank in a composition.



## Prototype: high-fidelity (working artefact) – visual design > scale, examples

1.



2.



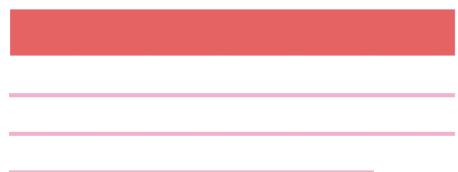
<https://www.nngroup.com/articles/principles-visual-design/>

## Prototype: high-fidelity (working artefact) – visual design > **visual hierarchy**

- *Guiding the eye on the page so that it attends to different design elements in the order of their importance*
- *Variations in scale, value, colour, spacing, placement, and other signals*
- *Layout controls the delivery of the experience*
  - Use 2–3 typeface sizes to indicate what content is most important
  - Consider using bright colours for important items and muted colours for less important ones
- *Scale can also help define the visual hierarchy*

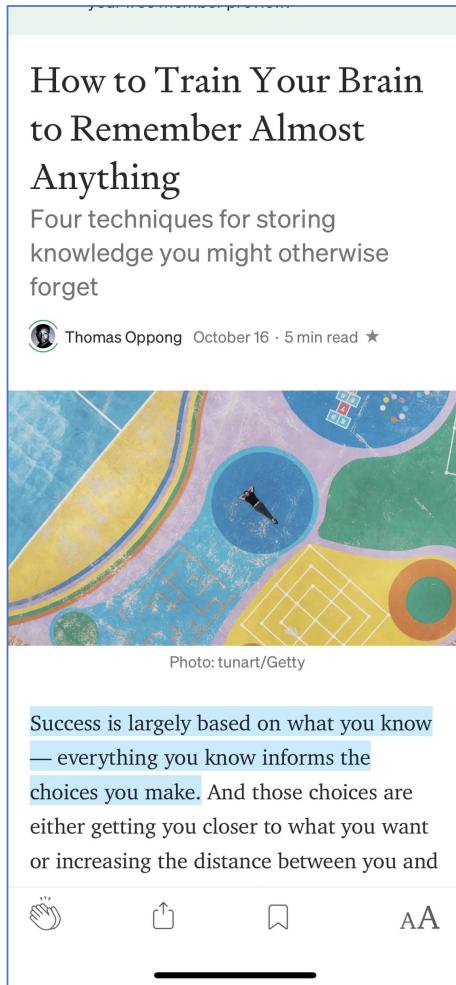
### VISUAL HIERARCHY

The principle of visual hierarchy refers to guiding the eye on the page so that it attends to design elements in the order of their importance.

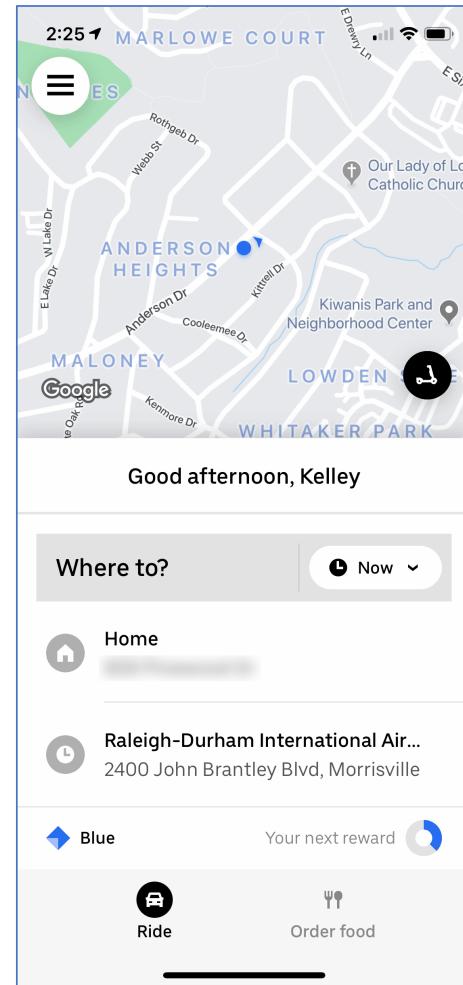


## Prototype: high-fidelity (working artefact) – visual design > visual hierarchy, examples

1.

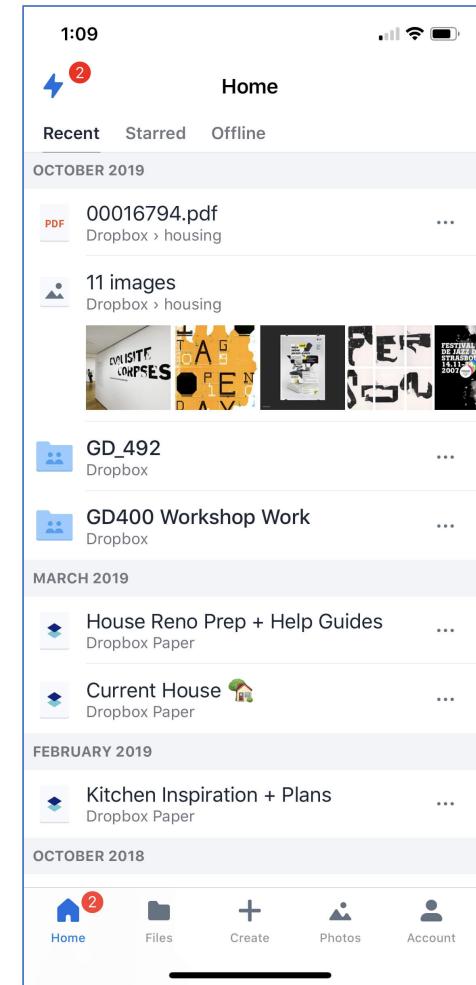


2.



<https://www.nngroup.com/articles/principles-visual-design/>

3.

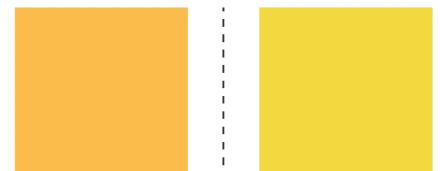


## Prototype: high-fidelity (working artefact) – visual design > balance

- Arrangement & proportion of design elements
- Equally distributed (but not necessarily symmetrical) visual elements on both sides of an *imaginary axis going through the middle of the screen*
  - *axis is often vertical but can also be horizontal*
- Imaginary axis is a reference point for how to organize layout
  - It will guide the state of balance on your visual
- Types of balance
  - Symmetrical
  - Asymmetrical
  - Radial

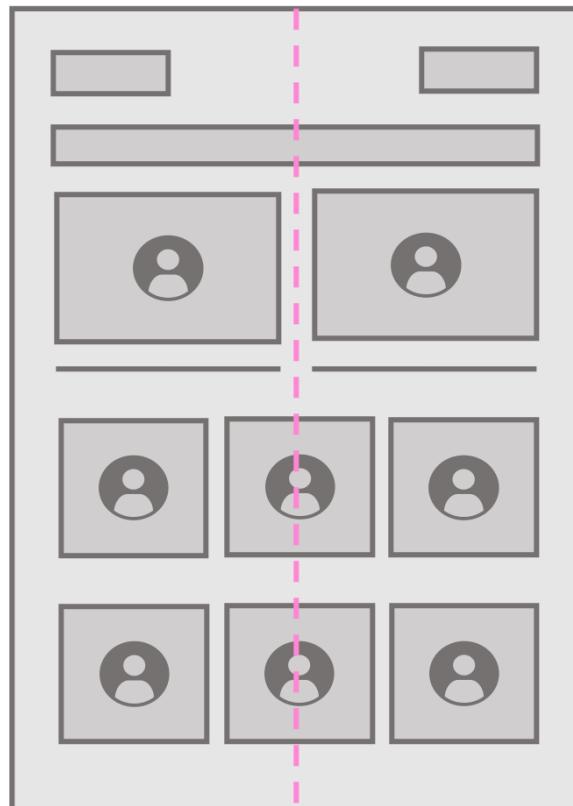
### BALANCE

Balance occurs when there is an equally distributed amount of visual signal on both sides of an imaginary axis.



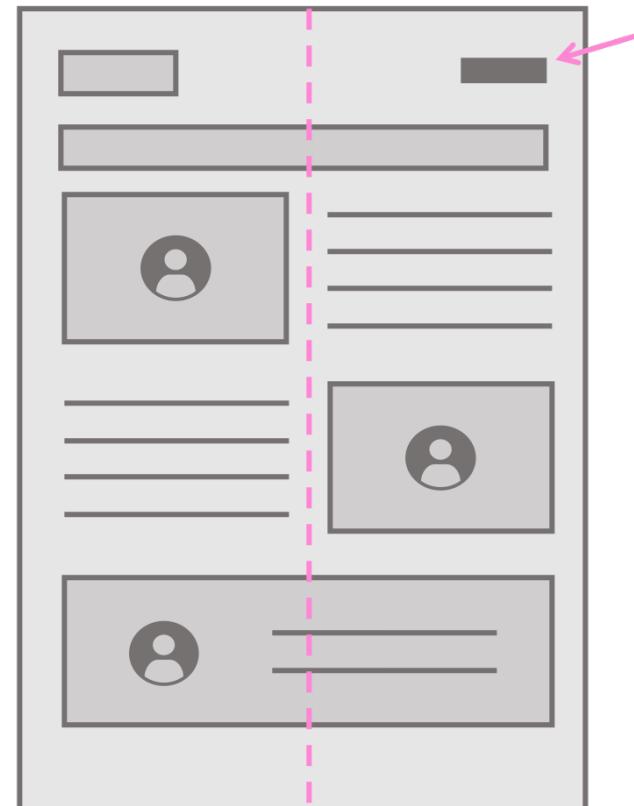
**Prototype:** high-fidelity (working artefact) – visual design > balance, (a)symmetrical

1.



Symmetrical Balance

2.

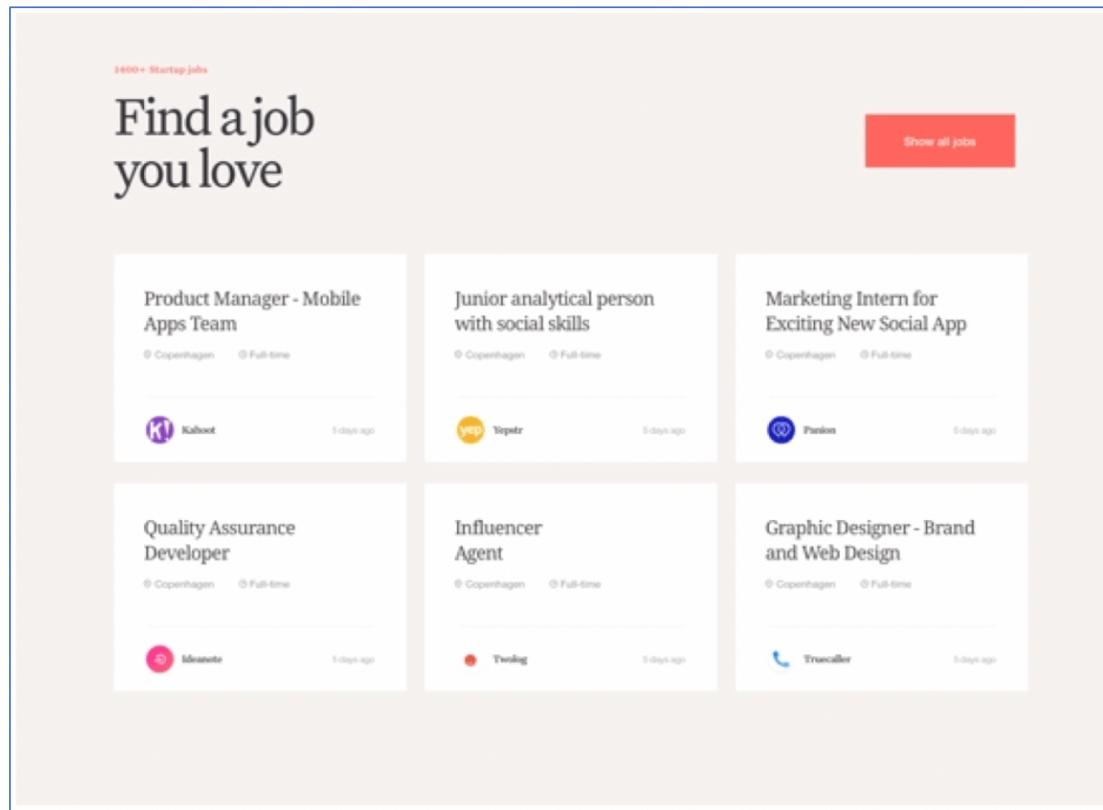


Asymmetrical Balance

Prototype: high-fidelity (working artefact) – visual design > balance, asymmetrical



**Prototype:** high-fidelity (working artefact) – visual design > balance, symmetrical



Prototype: high-fidelity (working artefact) – visual design > balance, radial

1.



2.

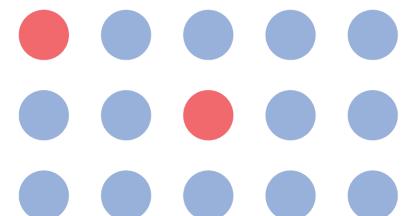


## Prototype: high-fidelity (working artefact) – visual design > contrast

- Juxtaposition of visually dissimilar elements to convey that they are different
  - Belong in different categories, have different functions, behave differently
- Provides a noticeable difference between objects to emphasize that they are distinct
- The principle of contrast is often applied through colour
- I.E. red is frequently used to signify deleting
  - Signals that it is different from other element

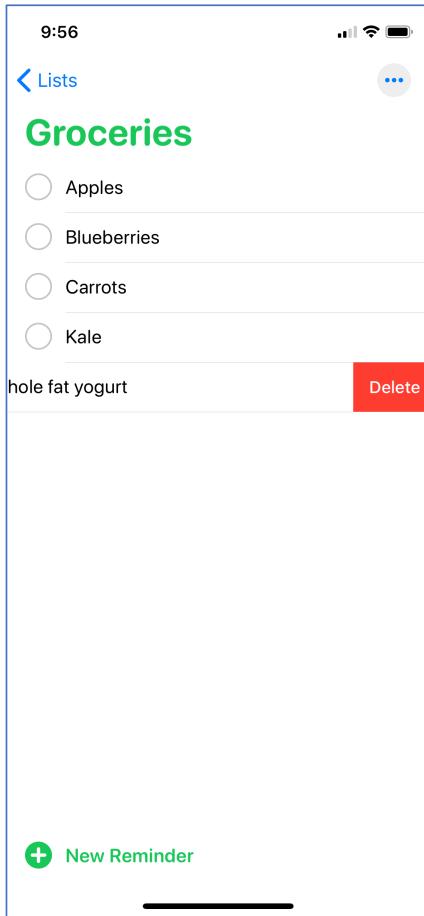
### CONTRAST

The principle of contrast refers to the juxtaposition of visually dissimilar elements in order to convey the fact that these elements are different.



## Prototype: high-fidelity (working artefact) – visual design > contrast, examples

1.



2.



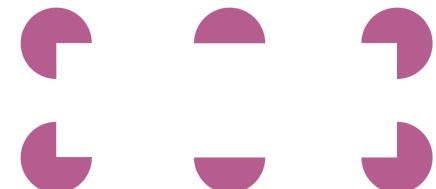
<https://www.nngroup.com/articles/visual-design-cheat-sheet/>

## Prototype: high-fidelity (working artefact) – visual design > Gestalt

- Simplifying and organizing a complex perceptual field consisting of many elements
  - Subconscious arranging parts into an organized system that creates a whole, rather than interpreting them as a series of disparate elements
- Focus on how we perceive the whole as opposed to the individual elements
- Types of Gestalt
  1. Figure-ground
  2. Similarity
  3. Proximity
  4. Continuity
  5. Closure
  6. Focal point

### GESTALT PRINCIPLES

Gestalt principles capture our tendency to perceive the whole as opposed to the individual elements.



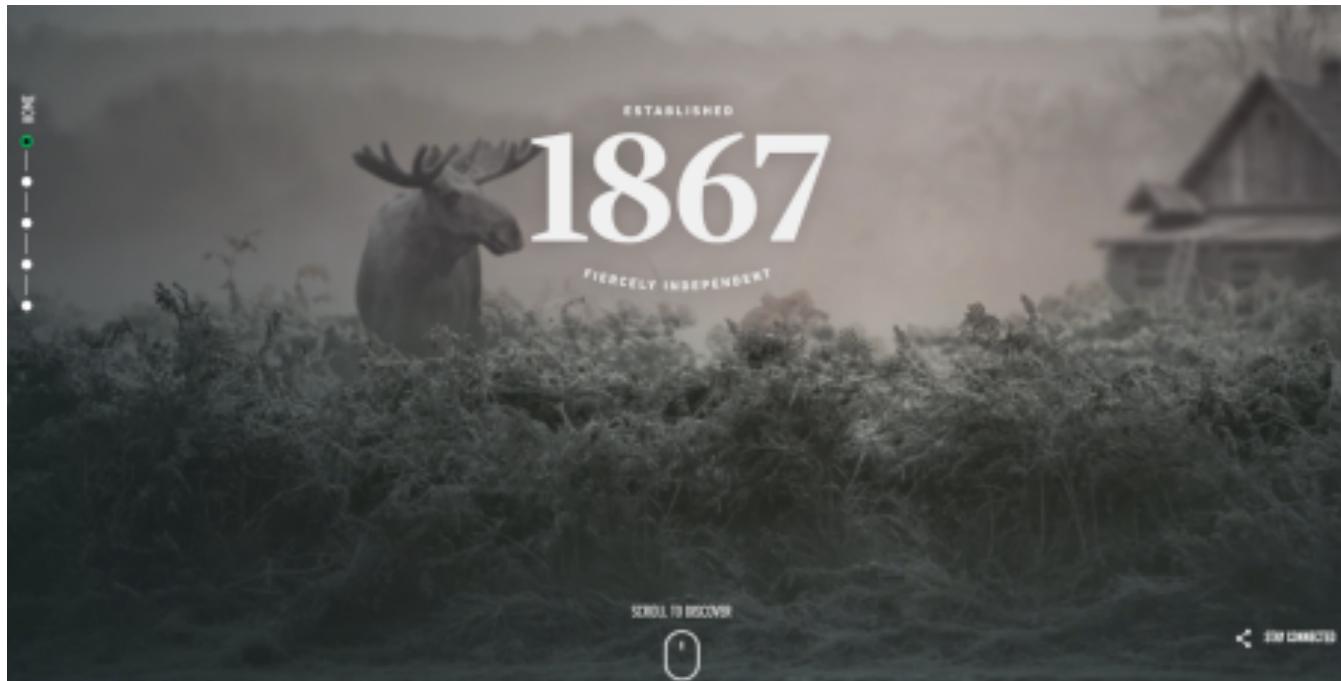
**Prototype:** high-fidelity (working artefact) – visual design > **Gestalt**, figure-ground

We perceive objects being in the foreground or the background. They either stand out prominently in the front (the figure) or recede into the back (the ground)



**Prototype:** high-fidelity (working artefact) – visual design > **Gestalt**, figure-ground

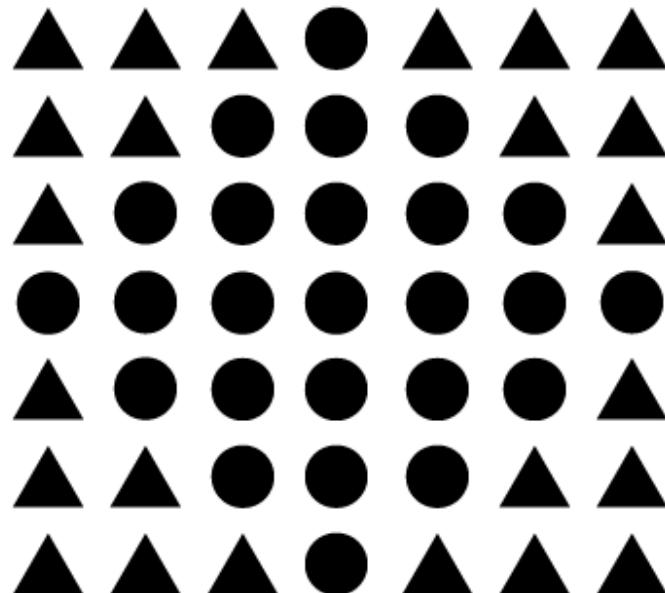
We perceive objects being in the foreground or the background. They either stand out prominently in the front (the figure) or recede into the back (the ground)



**Prototype:** high-fidelity (working artefact) – visual design > **Gestalt**, similarity

When things appear to be similar to each other, we group them together. And we tend to think they have the same function.

1.



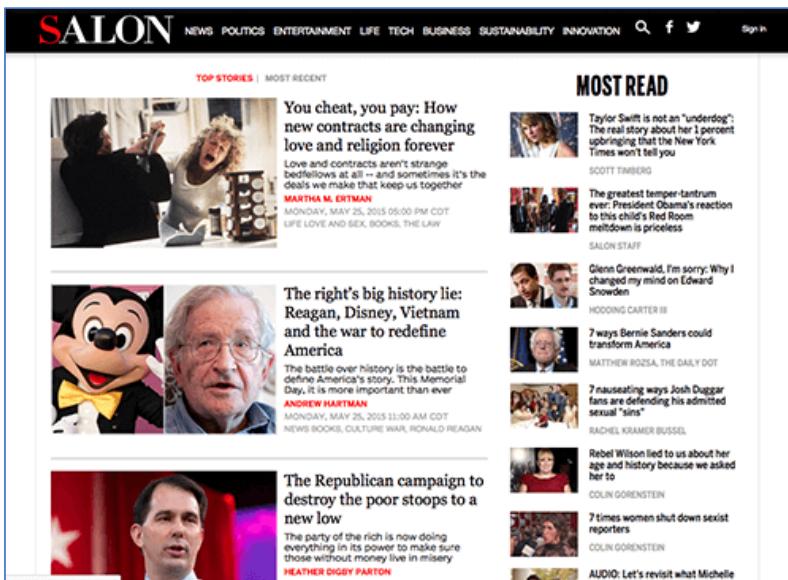
2.



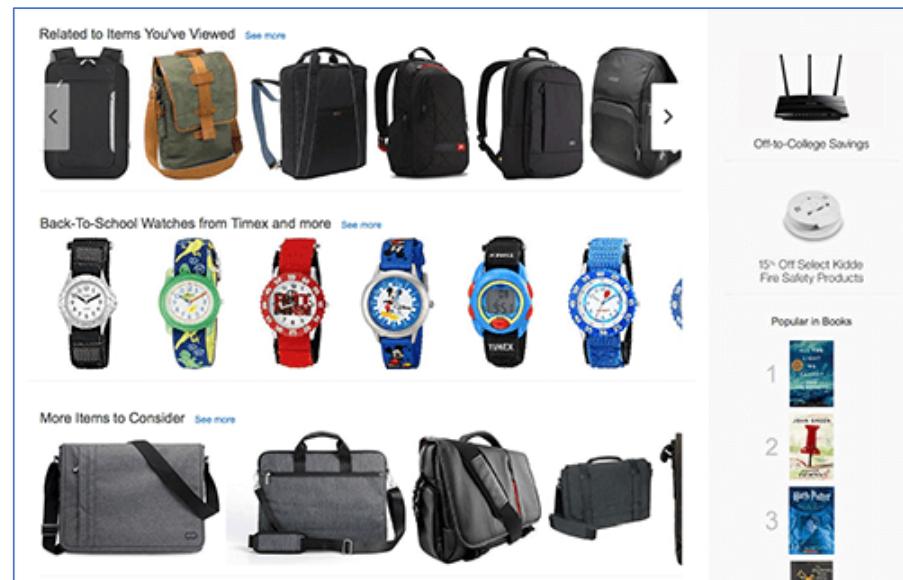
## Prototype: high-fidelity (working artefact) – visual design > Gestalt, similarity

When things appear to be similar to each other, we group them together. And we tend to think they have the same function.

1.



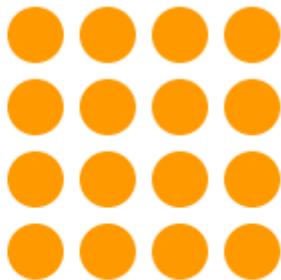
2.



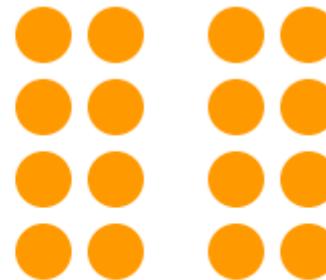
**Prototype:** high-fidelity (working artefact) – visual design > **Gestalt**, proximity

Things that are close together appear to be more related than things that are spaced farther apart.

*This is perceived to be one group and the components somehow related to each other.*

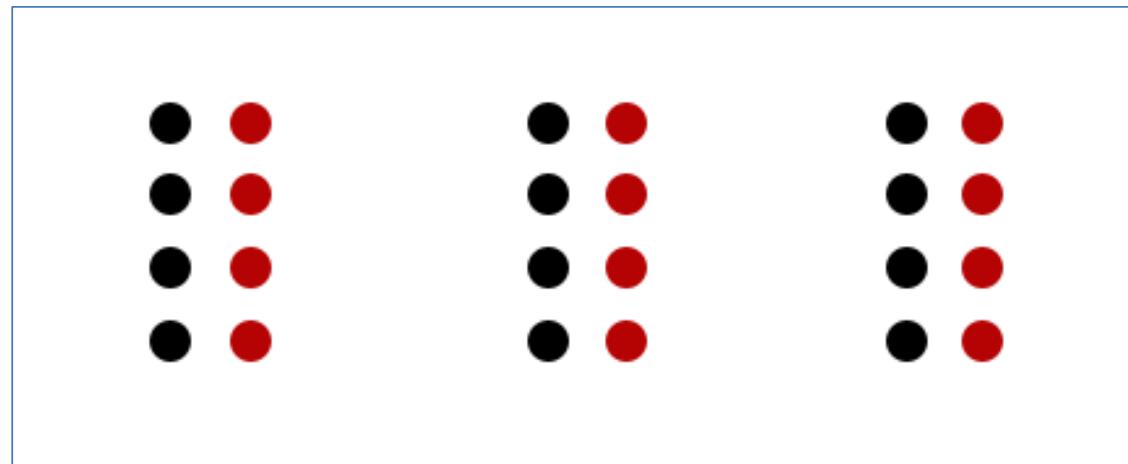


*We perceive two groups here, and understand that there are differences between them.*



**Prototype:** high-fidelity (working artefact) – visual design > **Gestalt**, proximity

Proximity is so powerful that it overrides similarity of color, shape, and other factors that might differentiate a group of objects



## Prototype: high-fidelity (working artefact) – visual design > Gestalt, proximity

The first step to properly implementing the principle of proximity is understanding the importance of white space in design

The screenshot shows a web page from w3avenue. At the top, there's a navigation bar with links: HOME, ARTICLES, COMPONENTS, DESIGN, LIBRARIES/FRAMEWORKS, SITES, SOCIAL WEB, SOFTWARE, and TOOLS. The 'HOME' link is highlighted in green. Below the navigation is the w3avenue logo with the tagline 'advice & resources for rapid web development'. A search bar with a magnifying glass icon is on the right.

The main content area features a blog post titled 'MopSlider jQuery Plugin'. The post includes a small thumbnail image of a slider with various items like 'jpg', 'png', and 'mp3'. Below the thumbnail is a brief description of the plugin: 'MopSlider is a jQuery plugin that allows you to create slider, which can contain any type of items. All you need to do is specify its height and width of the container. MopSlider is a cross browser plugin that has been tested with Safari4, Firefox3, Opera9, IE6, IE7, IE8 and Google Chrome.' A 'Continue Reading' button is at the bottom of the post.

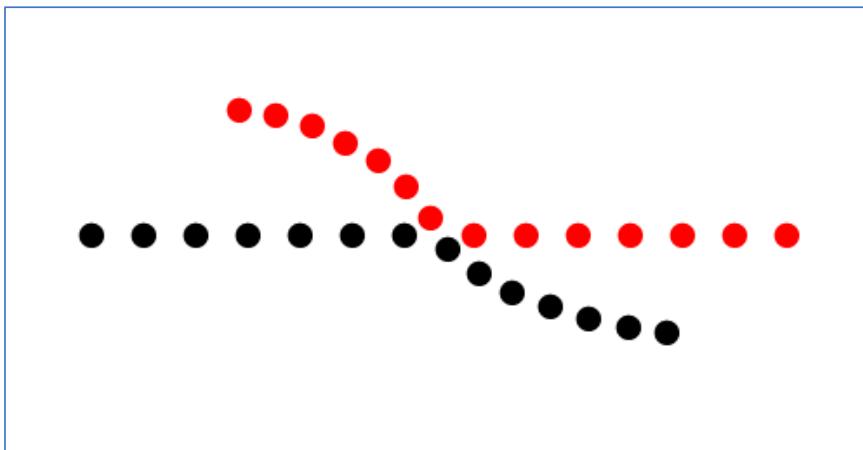
To the right of the post, there's a sidebar with a heading 'SPONSORS'. It contains several sponsor logos and links:

- STUDIOPRESS professional wordpress themes
- How smart is your theme? THESIS How good is your support?
- @ MAIL professional solutions
- PHP/MYSQL Email Server
- WORDPRESS FORMS HAVE BEEN PWNED
- P2H.COM DESIGN TO XHTML BRILLIANTLY AFFORDABLE
- Expired Domains PHP Script. Create your own Expired Domains website today! www.cacheologic.net

**Prototype:** high-fidelity (working artefact) – visual design > **Gestalt**, continuity

A tendency to perceive a line as a continuation of its established direction. It suggest that we should direct our attention to a specific place or direction

1.



2.



**Prototype:** high-fidelity (working artefact) – visual design > **Gestalt**, continuity

A tendency to perceive a line as a continuation of its established direction. It suggest that we should direct our attention to a specific place or direction



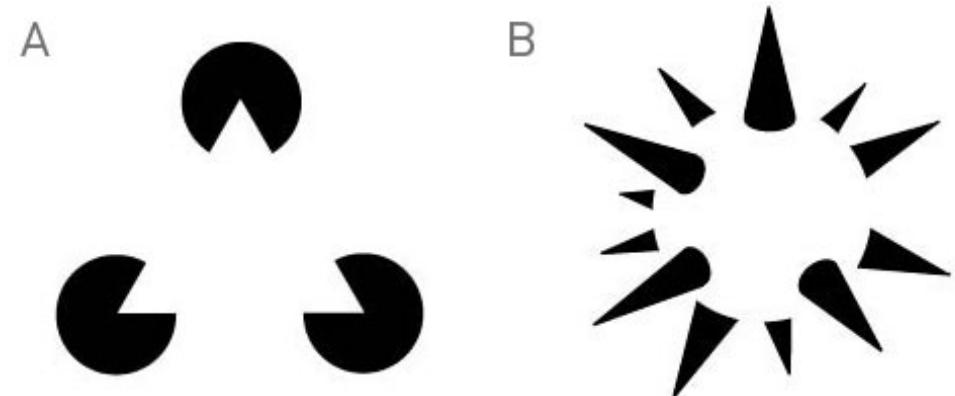
**Prototype:** high-fidelity (working artefact) – visual design > **Gestalt**, closure

When we look at a complex arrangement of visual elements, we tend to look for a single, recognizable pattern.

1.

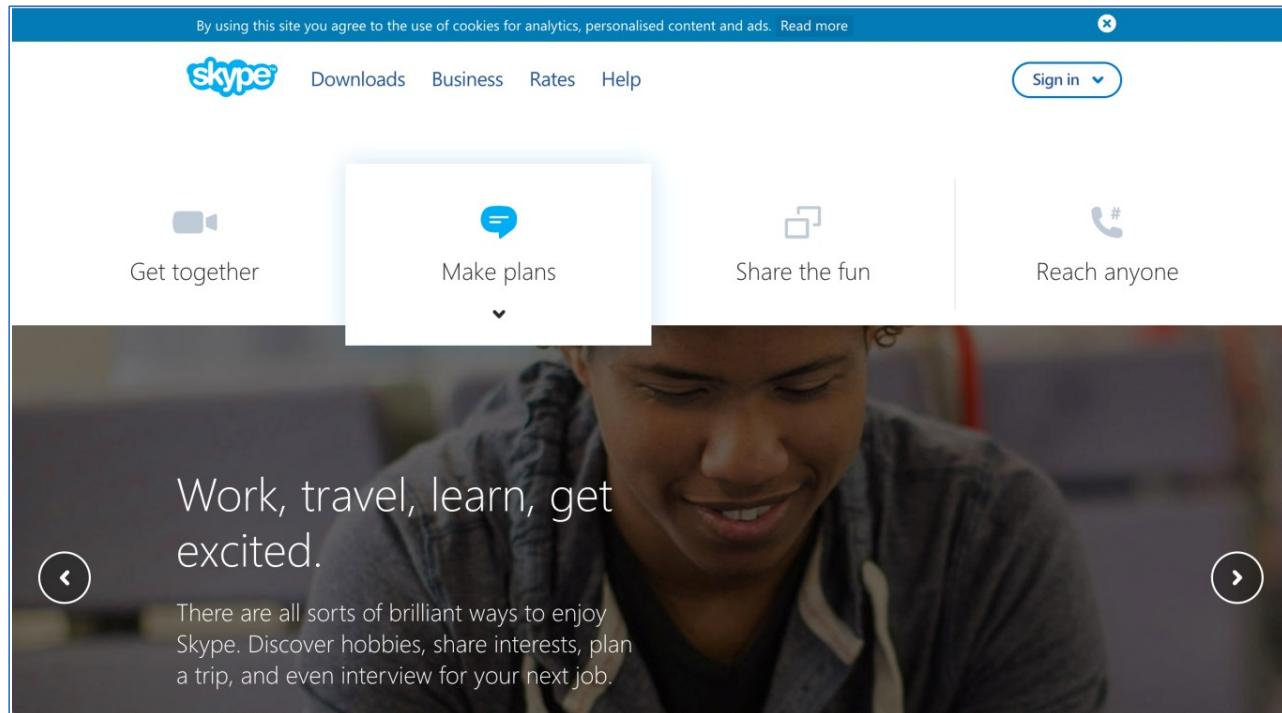


2.



## Prototype: high-fidelity (working artefact) – visual design > Gestalt, closure

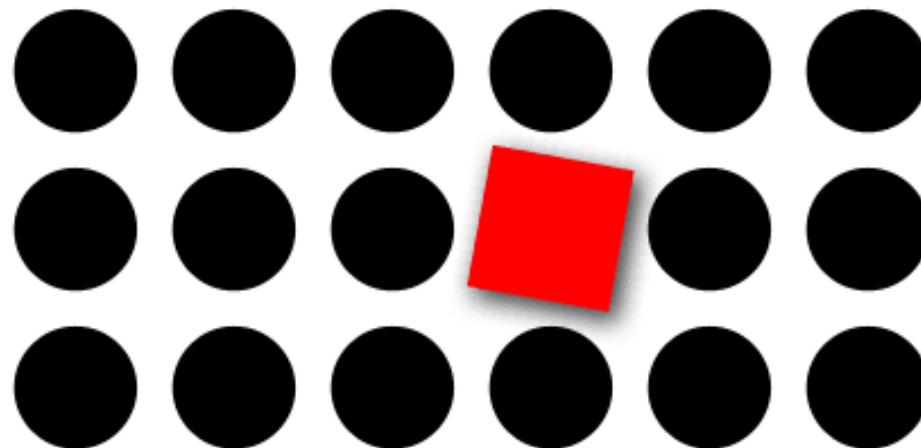
When we look at a complex arrangement of visual elements, we tend to look for a single, recognizable pattern.



<https://www.templatemonster.com/blog/gestalt-continuity-law-templatemonster-templates/>

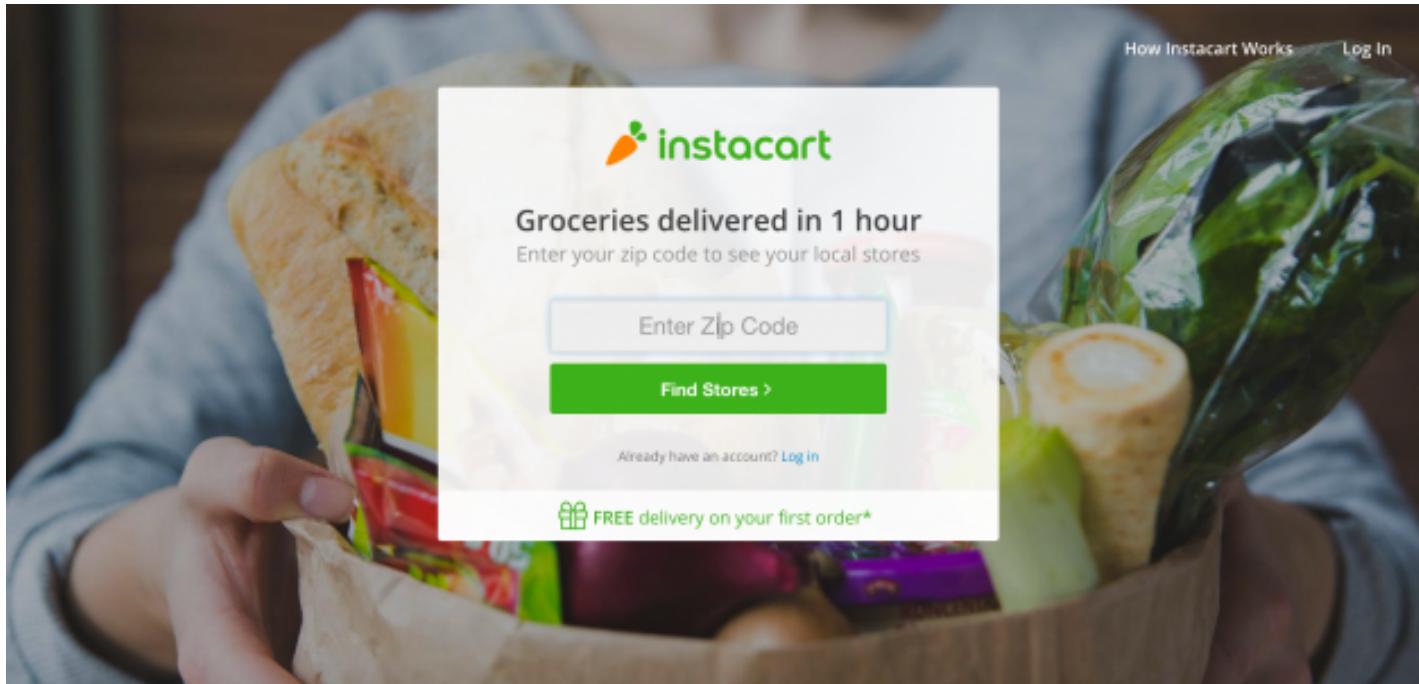
**Prototype:** high-fidelity (working artefact) – visual design > **Gestalt**, focal point

Whatever stands out visually will capture and hold the viewer's attention first



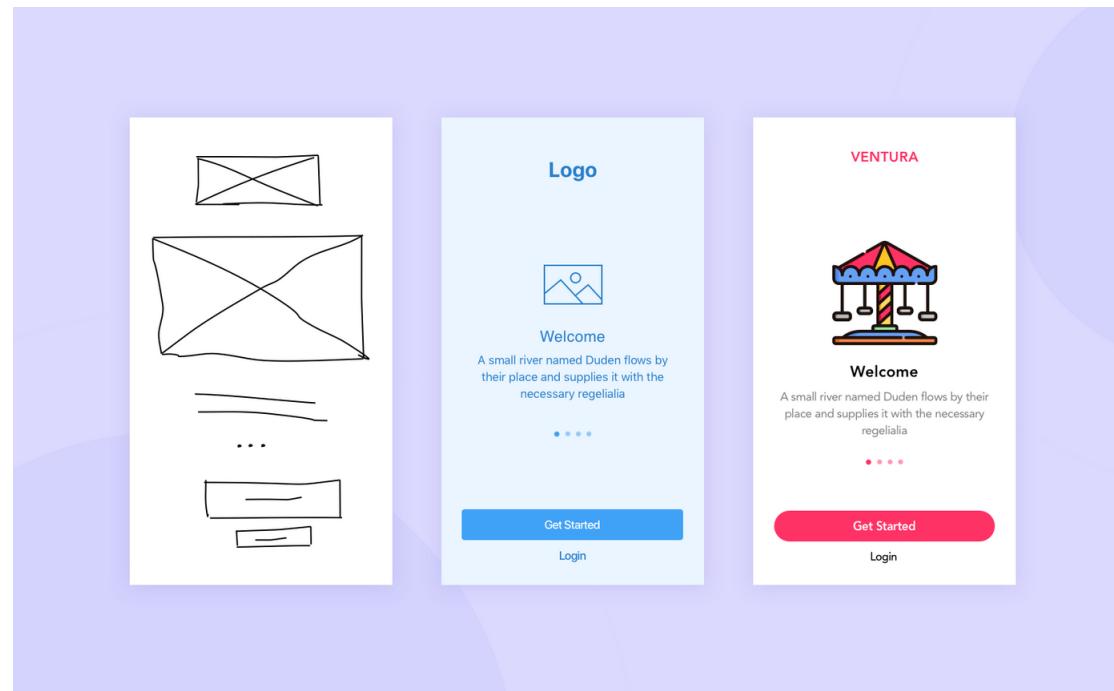
**Prototype:** high-fidelity (working artefact) – visual design > **Gestalt**, focal point

Whatever stands out visually will capture and hold the viewer's attention first (eg:Modal)



# Prototyping Techniques

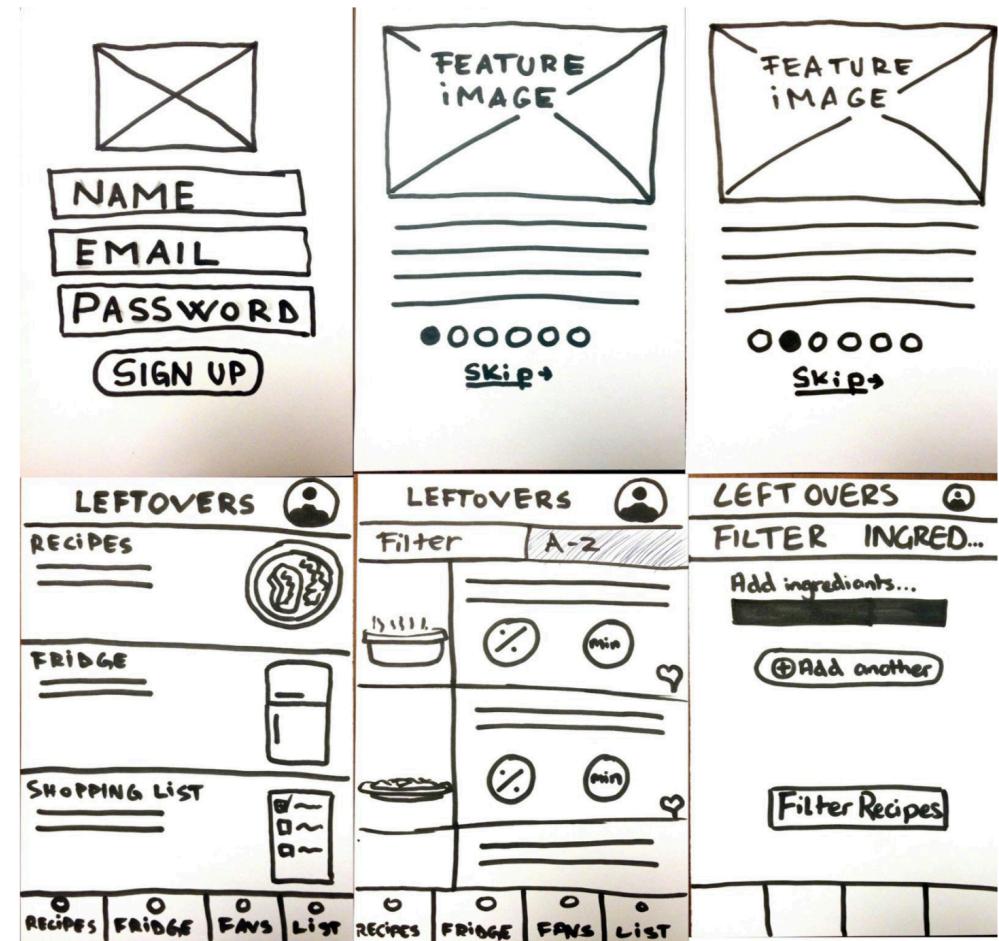
(Review: low, medium, high)



## Prototype: low fidelity

Get all your **high-level ideas** on paper to collaborate with the project team. The goal is to generate many ideas to set the groundwork for the next phase.

- Sketches (hand drawn)
- Sticky Notes
- Whiteboard



## Prototype: medium fidelity

Have a wide range of ideas and begin the **reduction phase**. This means the removal of any ideas that didn't work, and refining the best ones on your list. Remember, this is a process that will be repeated throughout design phase.

- Storyboard
- Scenario tasks
- Wireframe



## Prototype: high fidelity

Design are developed and integrated. Should include the **details and aesthetics** of your visual and UX designs. The level of fidelity is usually very close to final product.

- Clickable
- Brand
- Colour

The image displays a collection of high-fidelity prototypes for a calendar application, likely Calendly. It includes:

- REGISTRATION PAGE:** A mobile phone screen showing a dark-themed sign-in form with fields for 'USERNAME' and 'PASSWORD', and a 'SIGN IN' button.
- HOME PAGE:** A mobile phone screen showing a vibrant homepage with event listings for 'JUMP AROUND MON 14<sup>TH</sup>' at 'FIFTH NIGHTCLUB' and 'P.A.R.T.Y THU 17<sup>TH</sup>' at 'SANKEYS', along with search and user icons.
- DESKTOP LANDING PAGE:** A large screenshot of the desktop landing page. It features a central call-to-action 'Schedule your next meeting without the back-and-forth emails' with a placeholder for 'Email address' and a 'Create account' button. Below this is a section titled 'IT SHOULD'VE ALWAYS BEEN THIS EASY.' with a sub-section 'Send a single email and then you're done'.
- HOW CALENDLY WORKS:** A detailed section titled 'How Calendly works' with several sub-sections: 'It's basically like magic', 'Send a single email', 'Smart Scheduling', 'Beautiful interface', and 'Group events'.

## Visual Design Guidelines for High Fidelity Prototype

The screenshot shows the Material Design homepage. At the top, there's a navigation bar with links for "GET STARTED" and "WATCH VIDEO". Below the navigation, a section titled "Design guidance and code" is displayed, featuring six cards:

- Material Design guidelines**: Material Design principles, styles, and best practices.
- Components**: Design guidance and developer documentation for interactive UI building blocks.
- Icons**: Access to five sets of stylized system icons.
- Material Components for the web**: Implement and customize Material web apps.
- Accessibility guidelines**: Learn how to help users of diverse abilities.
- Developer tutorials**: Implement Material with Java, Kotlin, Objective C, Swift, the web, or Flutter.

material.io



lawsofux.com

## Assignment 11

Submission Date: Saturday, 26th March 2022

### High Fidelity Prototype:

#### **GROUP PROJECT:**

#### **Objectives:**

- This week's assignment is for your team to produce high fidelity prototypes that display the content, visual design and the interaction elements of your technology.
- Build upon previous work.
- ITERATE, do not start from a blank sheet of paper

#### **11. High Fidelity Prototype**

- a. Based upon your GROUP medium fidelity digital wireframes:
  - . Create realistic design elements of how people will interact with your technology
    - include working interaction (link to different screens)
    - create a 'clickable' prototype
    - create a visual identity or a brand image for the name of the product you have designed

Submission - Send a PDF with a link to a clickable prototype

# *High Fidelity User Feedback*

## Prototype : Evaluation – ‘quick and informal’

## REPORT YOUR FINDINGS

### Introduce

- your project – ‘we are designing a prototype of ...’
- the session – ‘only 10 minutes’, ‘we are not testing you’

### Preliminaries

- background information – ‘do you use’ (similar product or service)
- first look – ‘what is your general impression of the landing page’

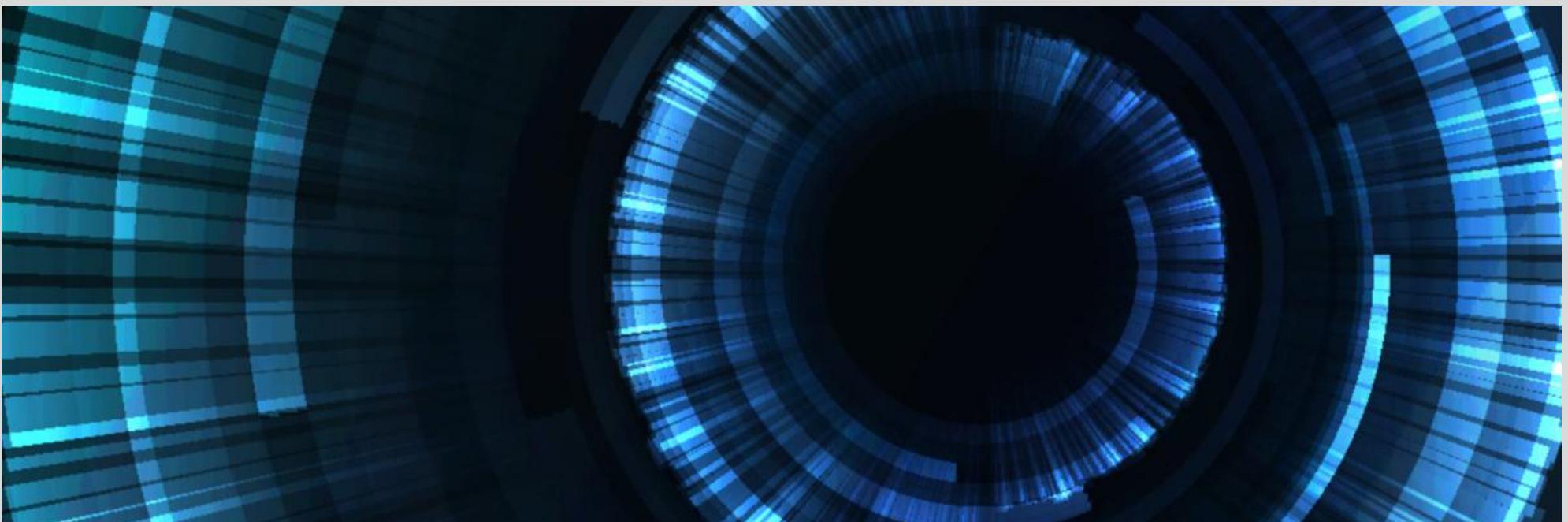
### Evaluate

- introduce the exercise – Now we would like you to ....
- make notes – while the participant performs the exercise

### Wrap-up

- thank them and offer a small gift if possible – ‘Thank you, that was helpful’, etc

# Human Computer Interaction



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