

Outils et Méthodes du Développeur

OMB-102

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Développeur d'interfaces WEB - X75
Développeur d'applications mobiles - X76

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Précédemment dans OMB

0. Tour de table

1. Méthode : les diagrammes

1.1 Le monde connu

1.2 Internet

1.3 Le nouveau monde

2. Les professions du web

3. WebDev

4. Les langages

0. Résumé cours précédent

1. Les lois du dev

1.1. Murphy, Occam, Pareto

1.2. Conception

1.3. Quality

1.4. Execution

1.5. Maintenance

2. Les principes du design

2.1. Universal Principles

2.2. Gestalt Principles

2.3. Exercices

3. Web Forensics

3.1 Théorie

3.2 Exercices

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Les lois du dev

- 1.1 -

Murphy, Occam, Pareto

« If there is any way to do it wrong, someone will »

« Entities should not be multiplied without necessity »

Analyze each element and remove as many as possible, without compromising the overall function

Less code = Less bugs

OMB-102 | Les lois du dev

« Roughly 80% of the effects come from 20% of the causes »

Pareto Principle

80% of work productivity comes from 20% of the time you put in

80% of errors are caused by 20% of code

80% of revenue comes from 20% of customers

80% of sales come from 20% of sales staff

80% of attention is spent on 20% of the web page

Focus the majority of effort on the areas

that will bring the largest benefits to the most users.

- 1.2 -

Conception

« Inside every large problem
is a small problem struggling to get out »

« Build a program that even a fool can use,
and only a fool will want to use it »

« Users truly don't know what they want
in a program until they use it »

- 1.3 -

Quality

« A carelessly planned project takes
three times longer to complete than expected.

A carefully planned project takes only twice as long »

« Adding programmers to a late project makes it later »

« Any system that relies on computer reliability is unreliable.

Any system that relies on human reliability is unreliable »

« The value of a program is inversely proportional
to the weight of its output »

« Program complexity grows until it exceeds
the capabilities of the programmer
who must maintain it »

« Software bugs are impossible to detect
by anybody except the end user »

« The probability of a flawless demo is inversely proportional to the number of people watching, raised to the power of the amount of money involved »

- 1.4 -

Execution

« Any given program, once deployed, is already obsolete »

« Any given program costs more and
takes longer each time it is run »

« Software expands to consume all available resources »

« Not until a program has been in production
for at least six months
will its most harmful error be discovered »

- 1.5 -

Maintenance

« Any non-trivial program contains at least one bug »

Corollary 1 : A sufficient condition for program triviality is that it has no bugs

Corollary 2 : At least one bug will be observed after the author leaves the organization.

« There's always one more bug »

« Any code of your own
that you haven't looked at in months
might as well have been written by someone else »

Corollary 1 : The effort required to correct an error increases with time

« A hardware failure will cause system software to crash,
and the engineer will blame the programmer »

« A system software crash will cause hardware to act strangely
and the programmers will blame the engineer »

- 2 -

Les principes du design

- 2.1 -

Les lois générales

Serial Position Effect

« Users have a propensity to best remember
the first and last items in a series »

Placing the least important items in the middle of lists can be helpful because these items tend to be stored less frequently in long-term and working memory

Positioning key actions on the far left and right within elements such as navigation can increase memorization

Zeigarnik Effect

« People remember uncompleted or interrupted tasks
better than completed tasks »

Use progress bars for complex tasks to visually indicate when a task is incomplete, and thus increase the likelihood it will be completed

Hick's Law

« The time it takes to make a decision increases with the number and complexity of choices »

Simplify choices for the user by breaking down complex tasks into smaller steps.

Avoid overwhelming users by highlighting recommended options

Use progressive onboarding to minimize cognitive load for new users

Fitt's Law

« The time to acquire a target is a function of
the distance to and size of the target »

touch targets should be large enough, have ample spacing between each other and be placed in areas of an interface that allows them to be easily acquired : the distance between a user's task/attention area and the task-related button should be kept as short as possible.

Miller's Law

« The average person can only keep
7 (plus or minus 2) items in their working memory »

Chunking is an effective method of presenting groups of content in a manageable way. Organize content in groups of 5-9 items at a time

Menus, sidebar, word clouds, categories, filters,..

Jakob's Law

Users spend most of their time on other sites. This means that users prefer your site to work the same way as all the other sites they already know

- Users will transfer expectations they have built around one familiar product to another that appears similar
- By leveraging existing mental models, we can create superior user experiences in which the user can focus on their task rather than learning new models.
- Use progressive onboarding to minimize cognitive load for new users

Doherty threshold

Productivity soars when a computer and its users interact at a pace that ensures that neither has to wait

- Provide system feedback within 400ms in order to keep users' attention and increase productivity
- Use perceived performance to increase response time and reduce the perception of waiting

a research paper that set the requirement for computer response time to be 400 milliseconds, not 2,000 (2 seconds) which had been the previous standard

Peak-End Rule

People judge an experience largely based on how they felt at its peak and at its end, rather than the total sum or average of every moment of the experience

- Pay close attention to the most intense points and the final moments (the “end”) of the user journey.
- Identify the moments when your product is most helpful, valuable, or entertaining and design to make those moments even better
- People recall negative experiences more vividly than positive ones

Aesthetic Usability Effect

Users often perceive aesthetically pleasing design as design that's more usable

- make users more tolerant of minor usability issues
- creates a positive response and leads them to believe the design actually works better

tested on 26 variations of an ATM UI, asking the 252 study participants to rate each design on ease of use, as well as aesthetic appeal

- 2.2 -

La Gestalt

OMB-102 | Gestalt laws of grouping

« the whole is more than the sum of its parts »

the mind has an innate disposition to perceive patterns in the stimulus based on certain rules :

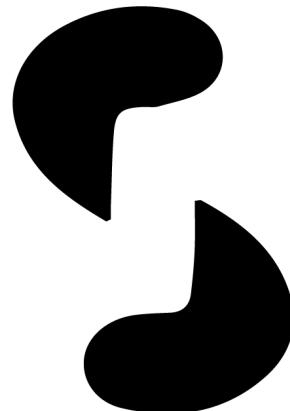
Grouping, Proximity, Similarity, Symmetry, Closure, Continuity, ..

OMB-102 | Gestalt laws of grouping

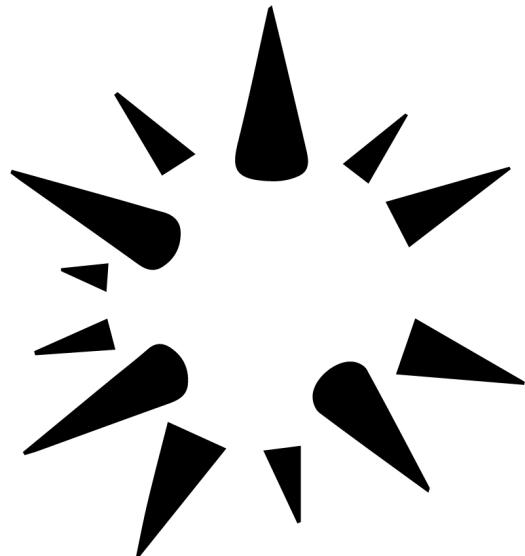
A



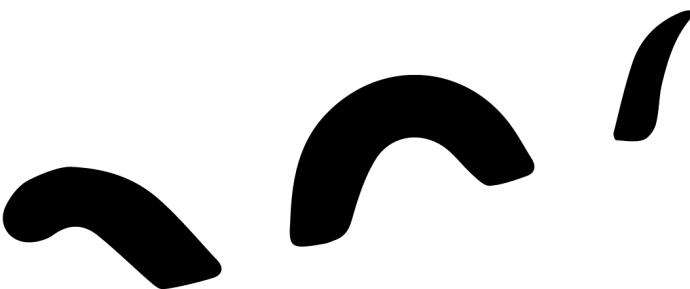
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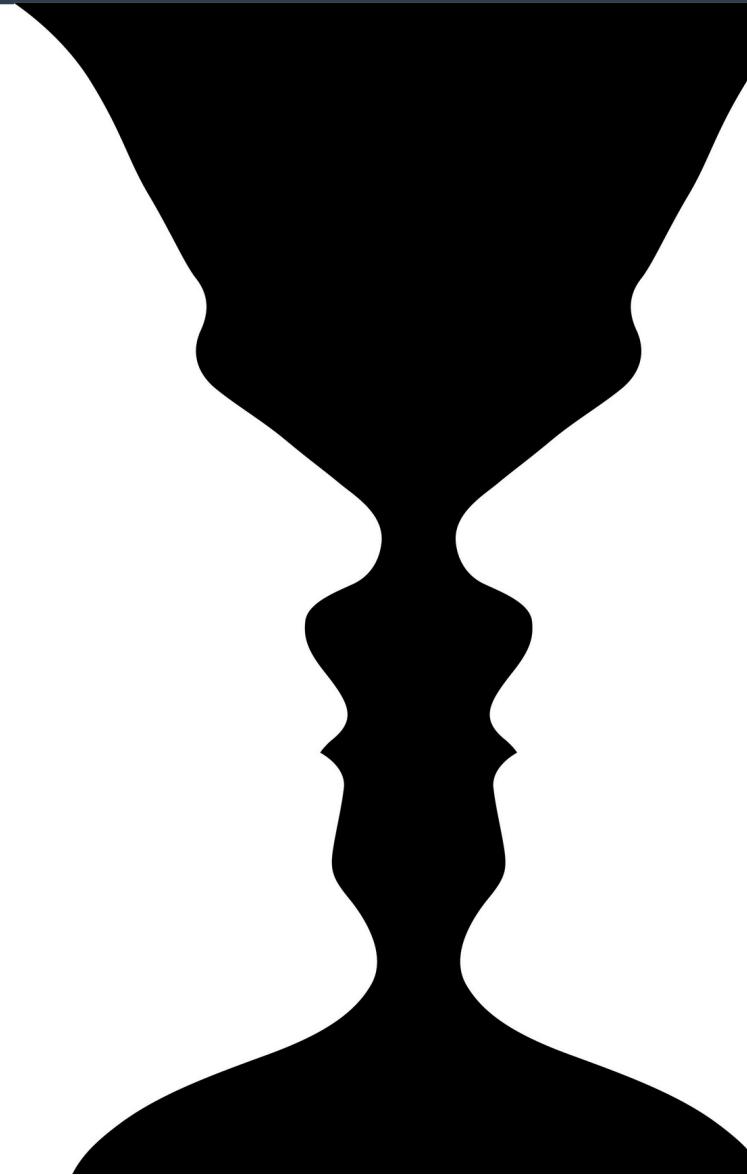
C



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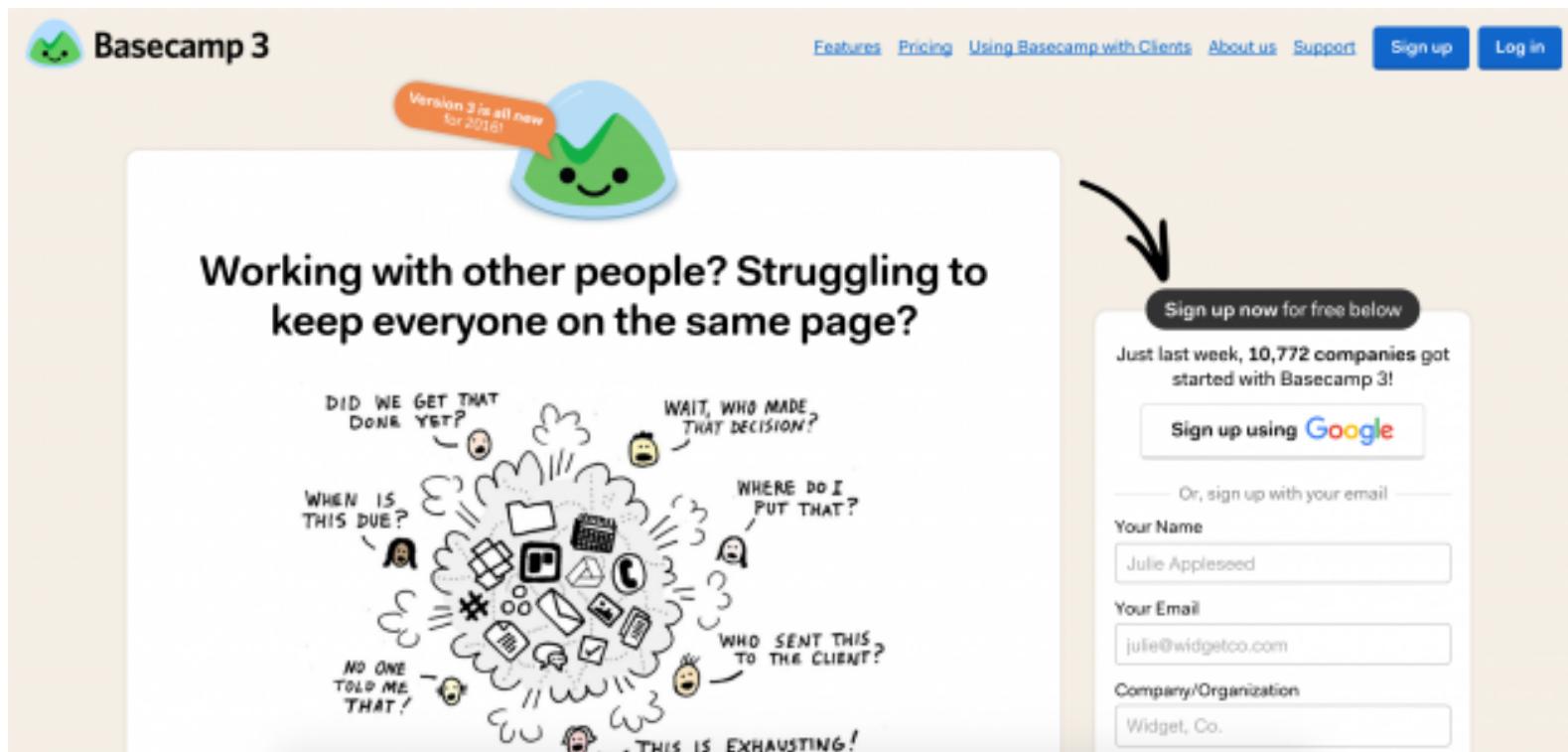


OMB-102 | The figure-ground principle



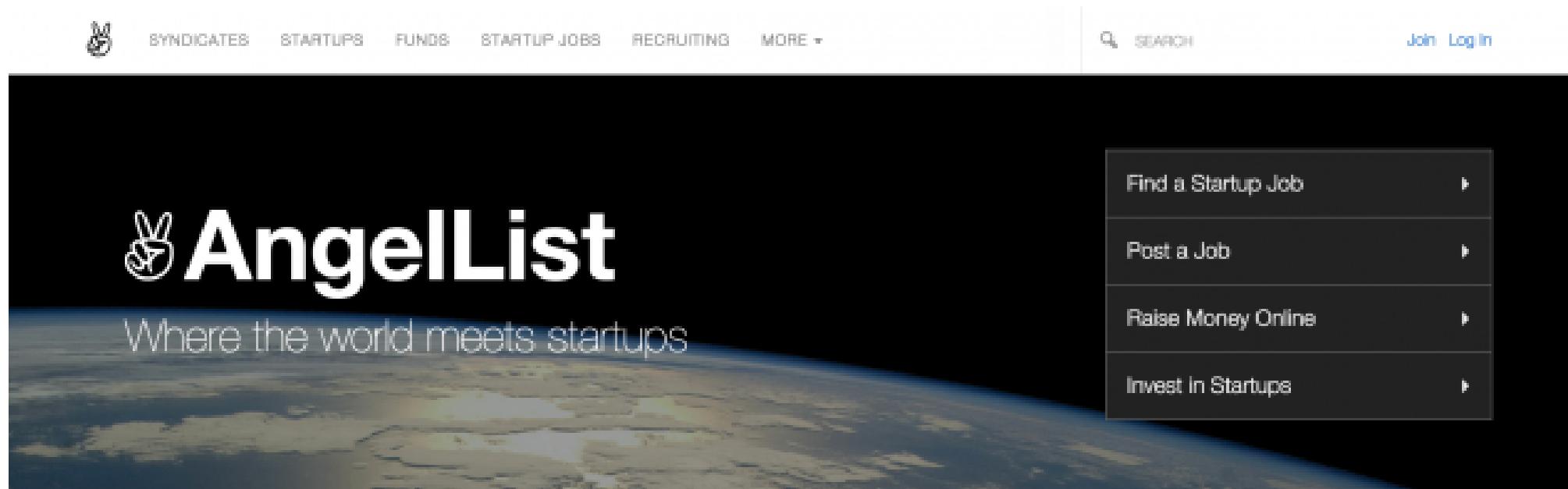
OMB-102 | The figure-ground principle

People instinctively perceive objects as either being in the foreground or the background



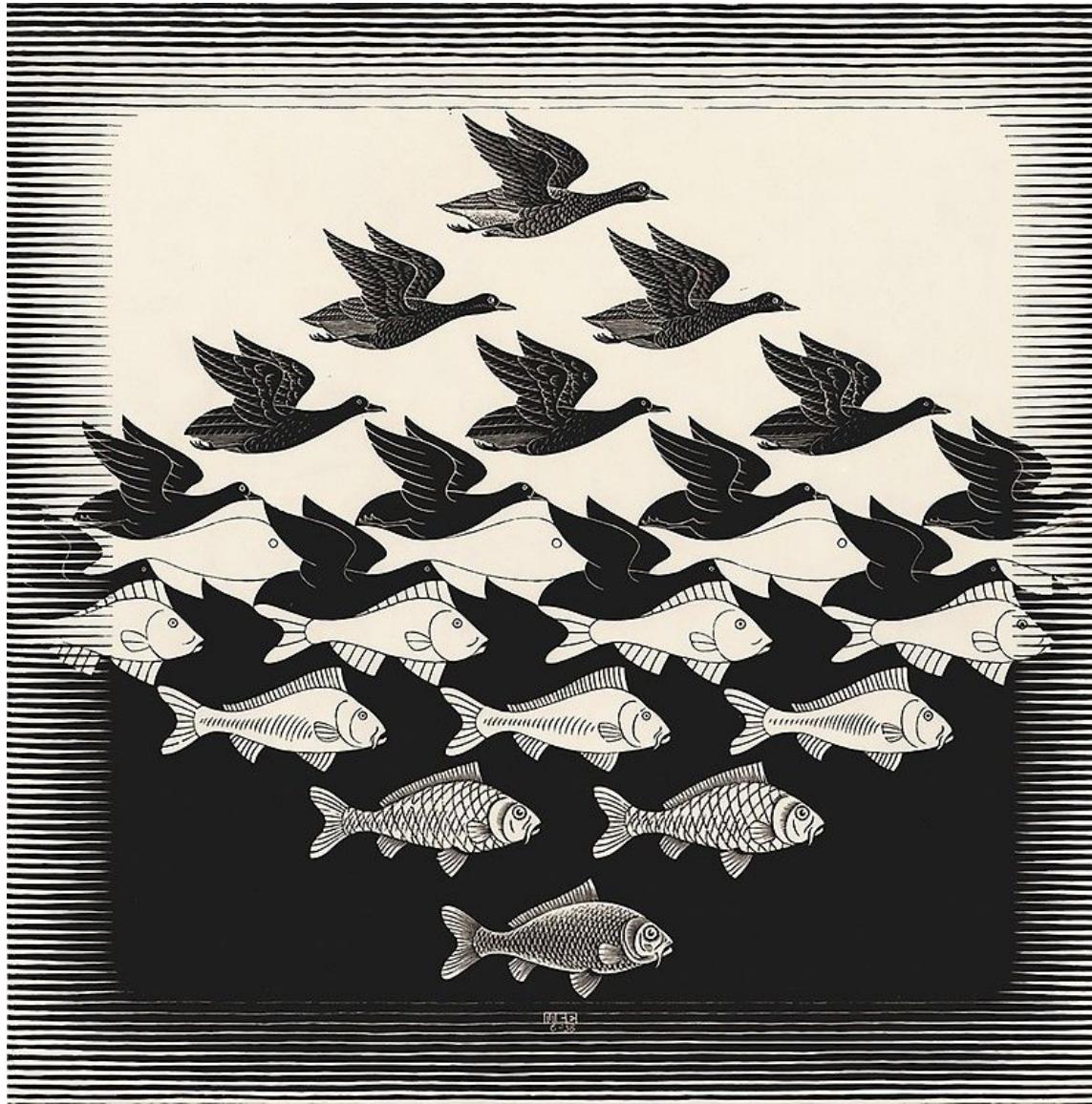
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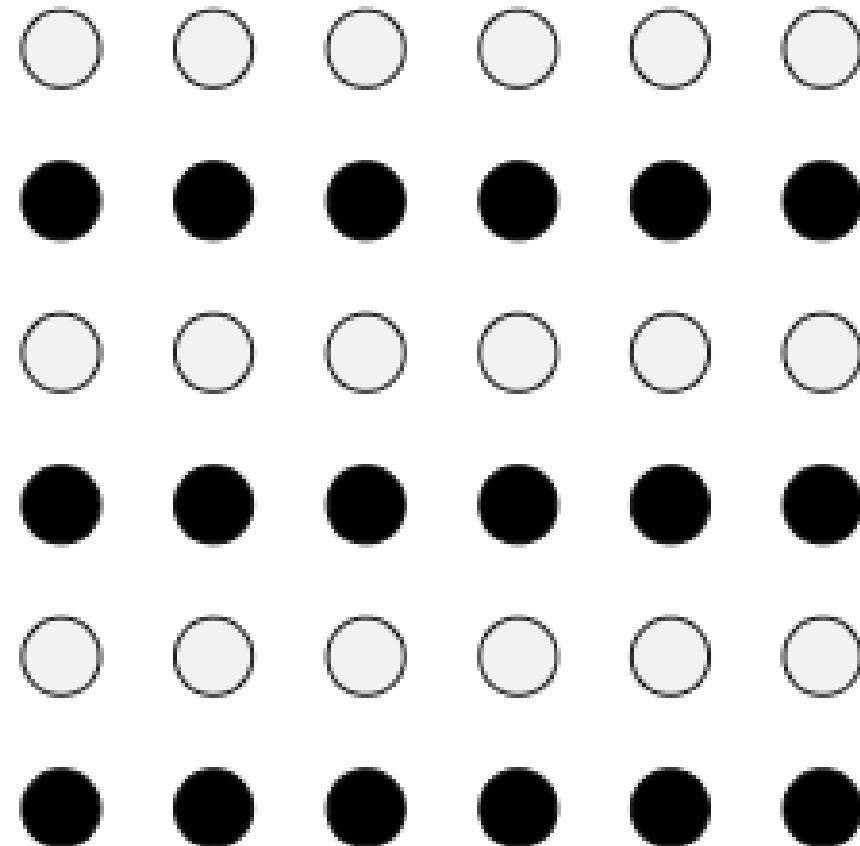


OMB-102 | The figure-ground principle

?



OMB-102 | Gestalt | Similarity



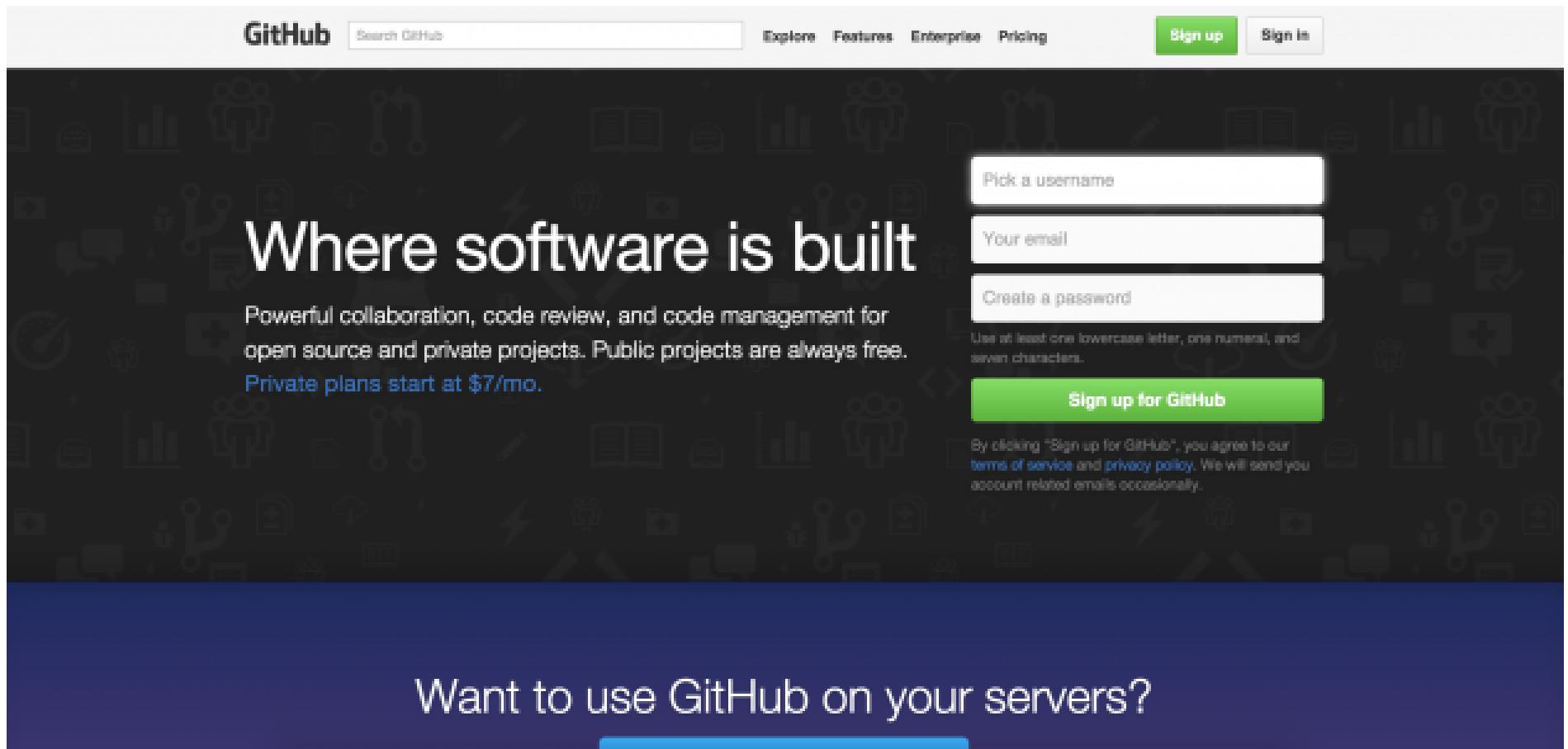
OMB-102 | Gestalt | Similarity

« The human eye tends to perceive similar elements in a design
as a complete picture, shape, or group,
even if those elements are separated »

Ensure that links and navigation systems are visually differentiated from normal text elements, and are consistently styled

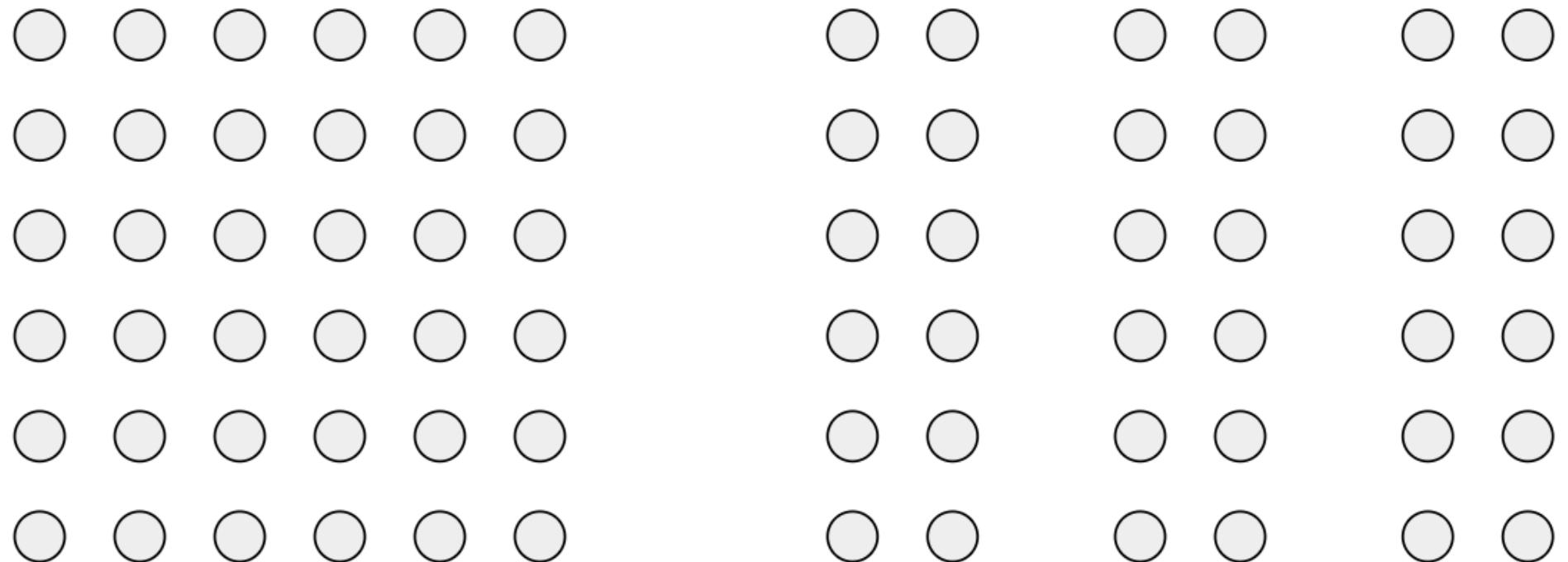
OMB-102 | Gestalt | Similarity

3 sections + links



The screenshot shows the GitHub sign-up page. At the top, there is a navigation bar with the GitHub logo, a search bar, and links for Explore, Features, Enterprise, Pricing, Sign up (in a green button), and Sign in. Below the navigation, the main heading "Where software is built" is displayed, followed by a description of GitHub's features: "Powerful collaboration, code review, and code management for open source and private projects. Public projects are always free." It also mentions "Private plans start at \$7/mo." To the right, there is a form for creating a new account, consisting of three input fields: "Pick a username", "Your email", and "Create a password". Below the password field is a note: "Use at least one lowercase letter, one numeral, and seven characters." A large green "Sign up for GitHub" button is centered below the password field. At the bottom of the page, a purple banner asks "Want to use GitHub on your servers?" with a blue button below it.

OMB-102 | Gestalt | Proximity



OMB-102 | Gestalt | Proximity

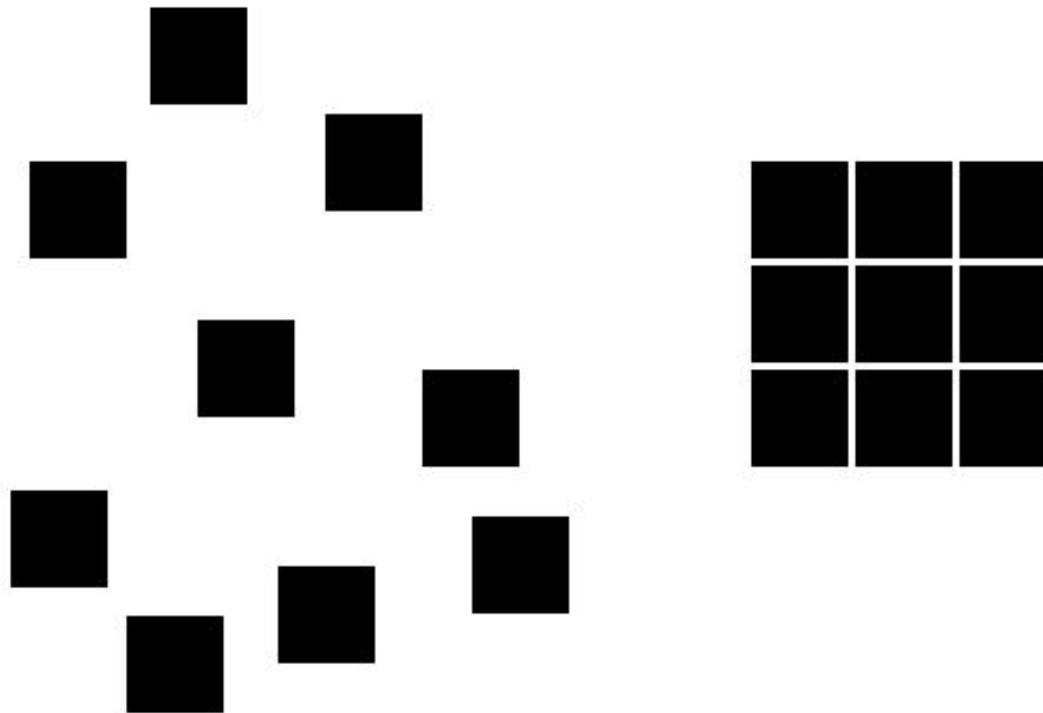
« Objects that are near, or proximate to each other,
tend to be grouped together »

Proximity helps to establish a relationship with nearby objects

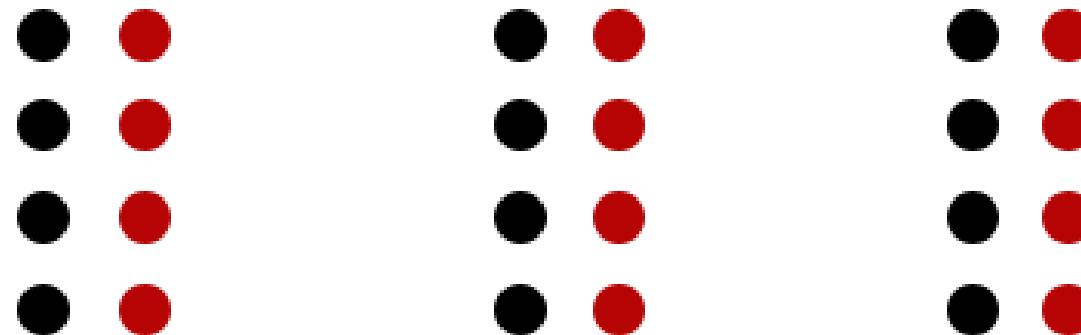
Proximity helps users understand and organize information faster and more efficiently

OMB-102 | Gestalt | Proximity

Proximity has thresholds



Proximity takes precedence on similarity



OMB-102 | Gestalt | Proximity

Text & images

The screenshot shows the Walmart homepage with various product categories and promotional banners. The categories are arranged in a grid-like structure, demonstrating how proximity creates visual groups:

- Row 1:** Electronics (tablet), Home (juicer), Exercise & Fitness (person on treadmill), Health (vitamin bottle), Clothing & Jewelry (outfit), Furniture (blue armchair).
- Row 2:** Cold Weather Prep (snowmobile), Tax Preparation (TurboTax logo, H&R Block logo, Jackson Hewitt logo), Auto & Tires (tire), Office Supplies (paper shredder), Home Improvement (drill), Outdoor Sports (tent).
- Row 3:** Baby (Paw Patrol character, baby in bouncer, baby's face), Technology (TV screen), Snacks (Tostitos chips), Games (Call of Duty game cover).

Each category is represented by a small image and a label below it. The overall layout uses color and grouping to organize the information.

OMB-102 | Gestalt | Proximity

Text & images

VICE

WATCH ▾ SECTIONS ▾ PHOTOS ▾ MAGAZINE TOPICS CITY GUIDES ELECTION 2016 OPINION MORE ▾ 🔎 S+ f v t = ↻

<p>Feb 24, 2016</p>  <p>Manisha Krishnan</p> <h2>Medical Marijuana Users in Canada Can Legally Grow Their Own Weed Now</h2> <p>A Federal Court judge says former prime minister Stephen Harper's law restricting patients from growing is unconstitutional.</p>	<p>Feb 24, 2016</p>  <p>Josh Andreatsy</p> <h2>Broadly. Broadly</h2> <h2>The Women Who Love Ted Cruz</h2> <p>There's one place Ted Cruz doesn't finish third: in these ladies' hearts.</p>	<p>Feb 24, 2016</p>  <p>Grace Wyler</p> <h2>How Donald Trump Won Nevada's Cliven Bundy Vote</h2> <p>If Ted Cruz can't win Bunkerville, where can he win?</p>
<p>Feb 24, 2016</p>  <p>STUFF</p>	<p>Feb 24, 2016</p>  <p>NEWS</p>	<p>Feb 24, 2016</p>  <p>MOTHERBOARD</p>

« Elements tend to be perceived into groups
if they are sharing an area with a clearly defined boundary »

Adding a border around an element or group of elements is an easy way to create common region

Common region can be created by defining a background behind an element or group of elements

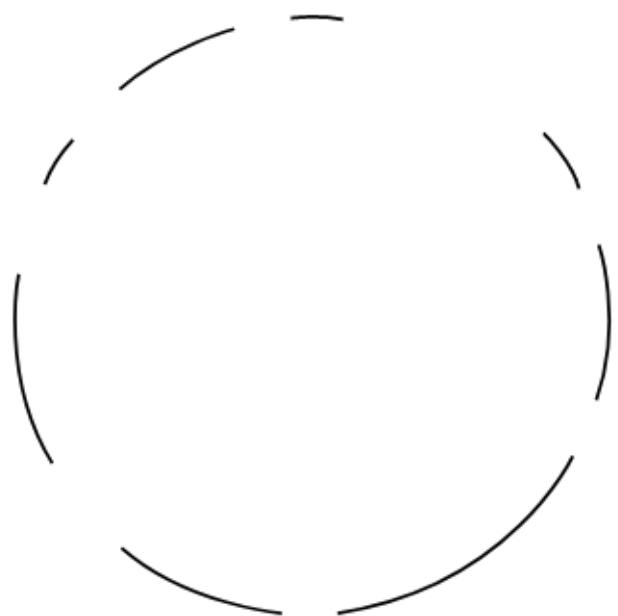
OMB-102 | Gestalt | Common region

Text & images

Screenshot of a Pinterest search results page for "architecture". The search bar at the top shows "architecture". The results are displayed in a grid format.

- Grotto Sauna by Partisans, Toronto [Future Architecture: futuristionnews.co...]**
A photograph of a wooden sauna interior featuring a large, curved wooden wall and a circular window looking out onto a body of water.
- Maple**
handmade real wood macbook skin covers shipping worldwide from usa
from artjan
Promoted by artjan goods
- Naman Spa / MIA Design Studio**
Me encanta la idea de jardín de este Spa. Parece que las plantas llevan.
from Platorma Arquitectura
- Ayelen Cayarga promenade**
- Parisa**
from KNSTRCT
Travel #Instagame Reveal
Ribbon Chapel by Hiroshi Nakamura & NAP Co., Ltd.
from Blog MyHome.pl - Nowoczesne inspiracje
Fontanny w ogrodzie - wodne inspiracje
Pinterest: XYeezySIX #architetture #design #projekte @Mundo das Casas www.mundodascasas...
from Sophie Crouch architecture

OMB-102 | Gestalt | Closure



OMB-102 | Gestalt | Closure

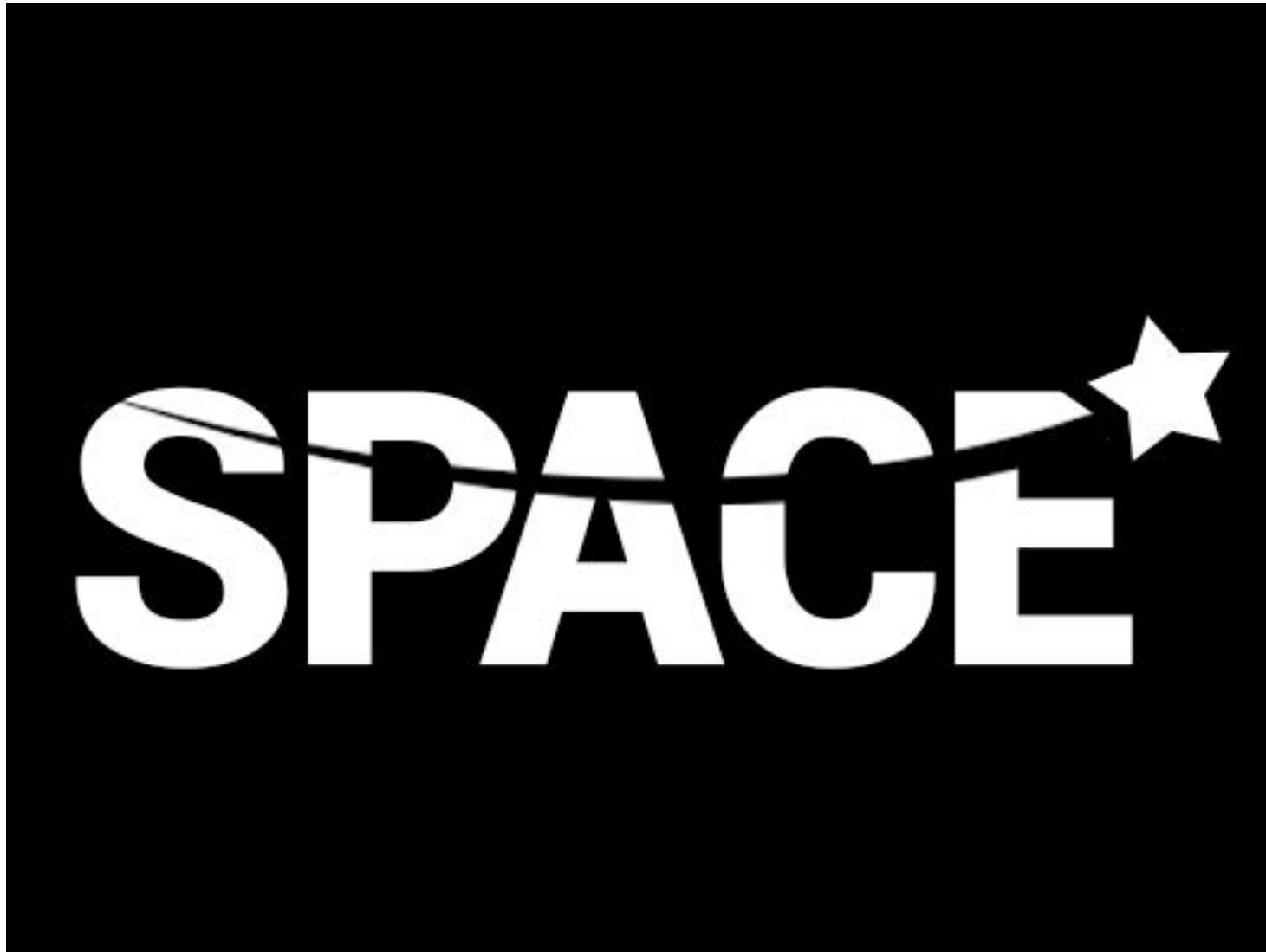
« The human eye tends to perceive similar elements in a design
as a complete picture, shape, or group,
even if those elements are separated »



« The mind perceives objects as being symmetrical
and forming around a center point »

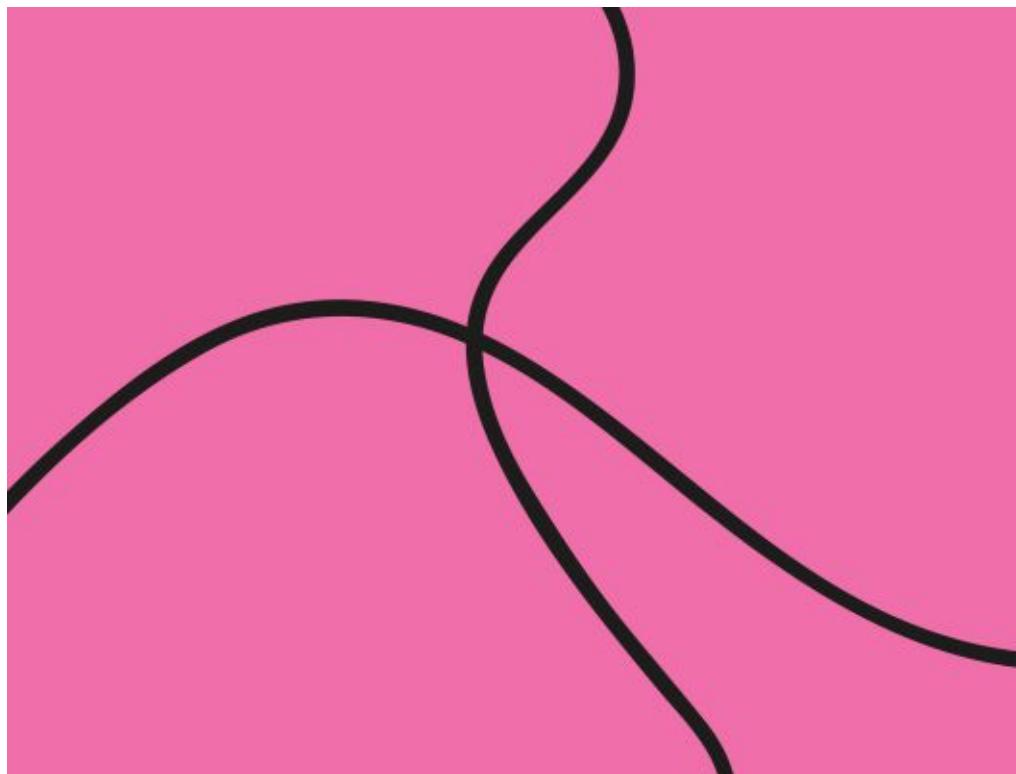
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OMB-102 | Gestalt | Continuity



OMB-102 | Gestalt | Continuity

The eye is drawn along a path, line or curve,
preferring to see a single continuous figure than separate lines



4 lines or 2 ?

- 2.3 -

Exercices



OMB-102 | Gestalt | Maps

- similarity allows the reader to selectively isolate cities, rivers, or state boundaries;
- closure allows the dashed boundary lines to be perceived as continuous borders;
- proximity makes the collection of river segments appear as a single watershed;
- continuity helps the reader "see" whole states even when boundaries are obscured under rivers.

Comparez ces paires de sites, quelles lois sont appliquées et pourquoi ?

- Amazon vs Wikipedia
- Google vs Yahoo

- 3 -

Web Forensics

UX evaluation is based on 3 key factors

- Loading
- Interactivity
- Stability

PageSpeed Insights

- Key factors
- Data, Opportunities, Diagnostics

OMB-102 | Web Forensics

Loading

(Loading)

LCP

Largest Contentful Paint



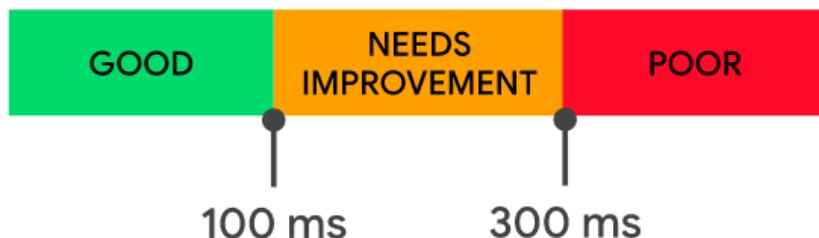
The Largest Contentful Paint (LCP) metric reports the render time of the largest image or text block visible within the viewport

Interactivity

(*Interactivity*)

FID

First Input Delay



FID measures the time from when a user first interacts with a page (clicks a link, a button, or any controller) to the time when the browser is actually able to begin processing event handlers in response to that interaction

Stability

(Visual Stability)

CLS

Cumulative Layout Shift



A layout shift occurs any time a visible element changes its position from one rendered frame to the next.

score = impact * distance

<https://web.dev/cls/>

OMB-102 | Web Forensics

Exercice : analyser ces sites, quelles sont les problèmes les plus courants ? Les solutions recommandées ?

- <https://www.spike.be/>
- <https://bigsmile.be/>
- <https://www.indnamur.be/>
- <https://www.efp.be>

OMB-102 | Web Forensics

Pour aller plus loin

- uitest.com

Des questions ?