

Visual Design and Fluid Navigation

Human Computer Interaction

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Academic Year 2025/2026

Hall of Fame or Shame?



Visual Design

Aesthetics for helping users in understanding and navigating the UI

Visual Design

- **Guiding:** conveying structure, relative importance, relationships
- **Pacing:** drawing people into your app, orienting them, and showing where to go, providing hooks to dive deeper
- **Messaging:** expressing meaning and style, breathing life into your content
- Both at the conscious and sub-conscious levels
- And also...
 - Making everything look aesthetically beautiful (but this is not the goal)

Visual Design vs. Art and Artistic Skills

- A.k.a. «Help, I'm not an artist!»
- Artistic skills help a bit but are neither necessary nor sufficient
- Art does not need to be practical; design does
- Real design skills take years to master
- Widely-accepted heuristics are a good and easy start



The Basics of Visual Design

Basic visual design involves text, layout, and colors. First let's start with text. Gracefully using whitespace helps separate out logical chunks of content. Next, font size and style differences convey hierarchy. Finally, alignment is crucial for helping readers scan quickly.

Whitespace

Basic visual design involves text, layout, and colors. First let's start with text.

Gracefully using whitespace helps separate out logical chunks of content.

Next, font size and style differences convey hierarchy.

Finally, alignment is crucial for helping readers scan quickly.

Hierarchy

Basic visual design involves ...

Text

Gracefully using whitespace helps separate out logical chunks of content.

Next, font size and style differences convey hierarchy.

Finally, alignment is crucial for helping readers scan quickly.

Layout

Colors

Alignment

BASIC VISUAL DESIGN

Text

- **Whitespace**: helps separate out logical chunks of content
- **Font**: size and style differences convey hierarchy
- **Alignment**: crucial for helping readers scan quickly

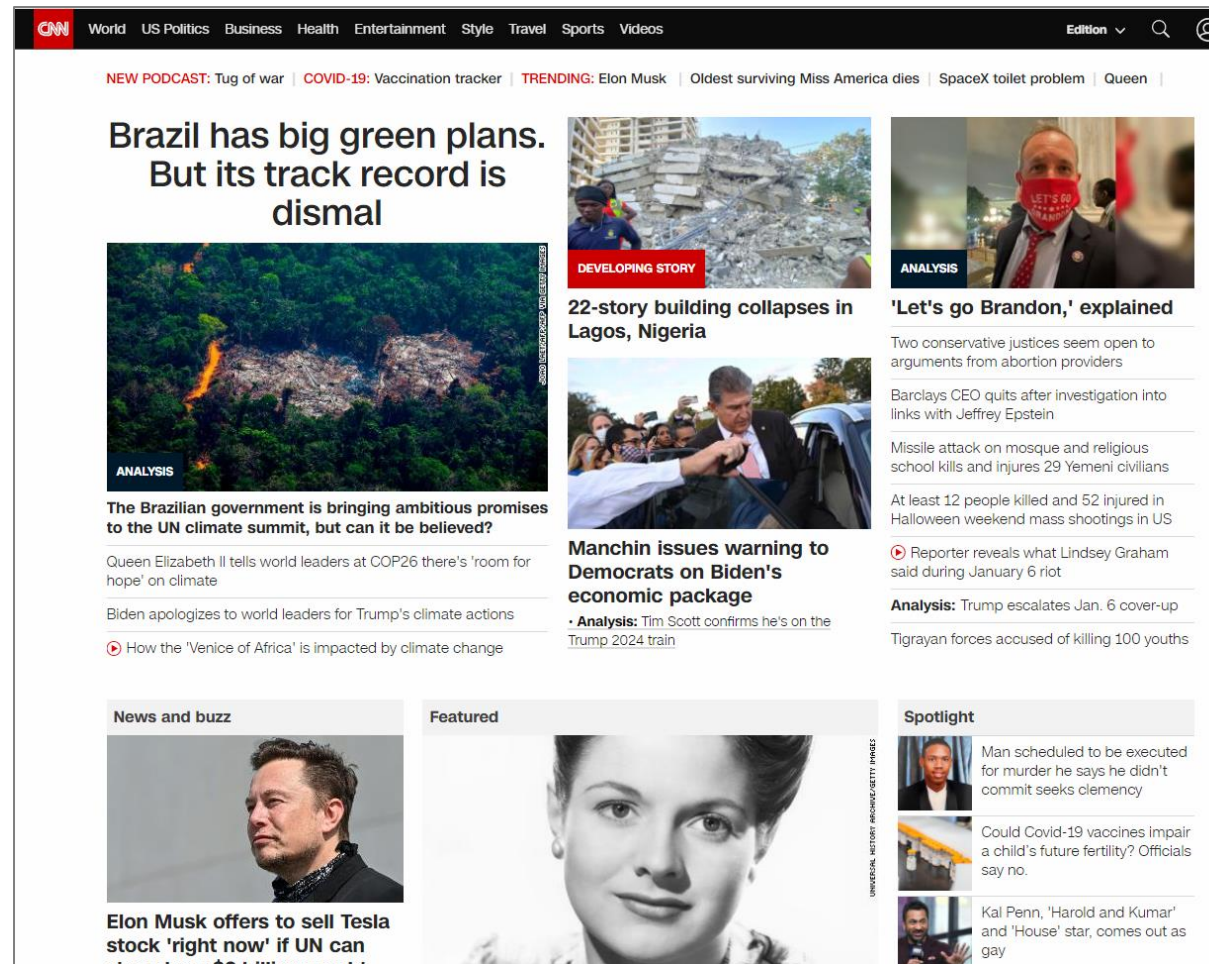
Layout

Colors

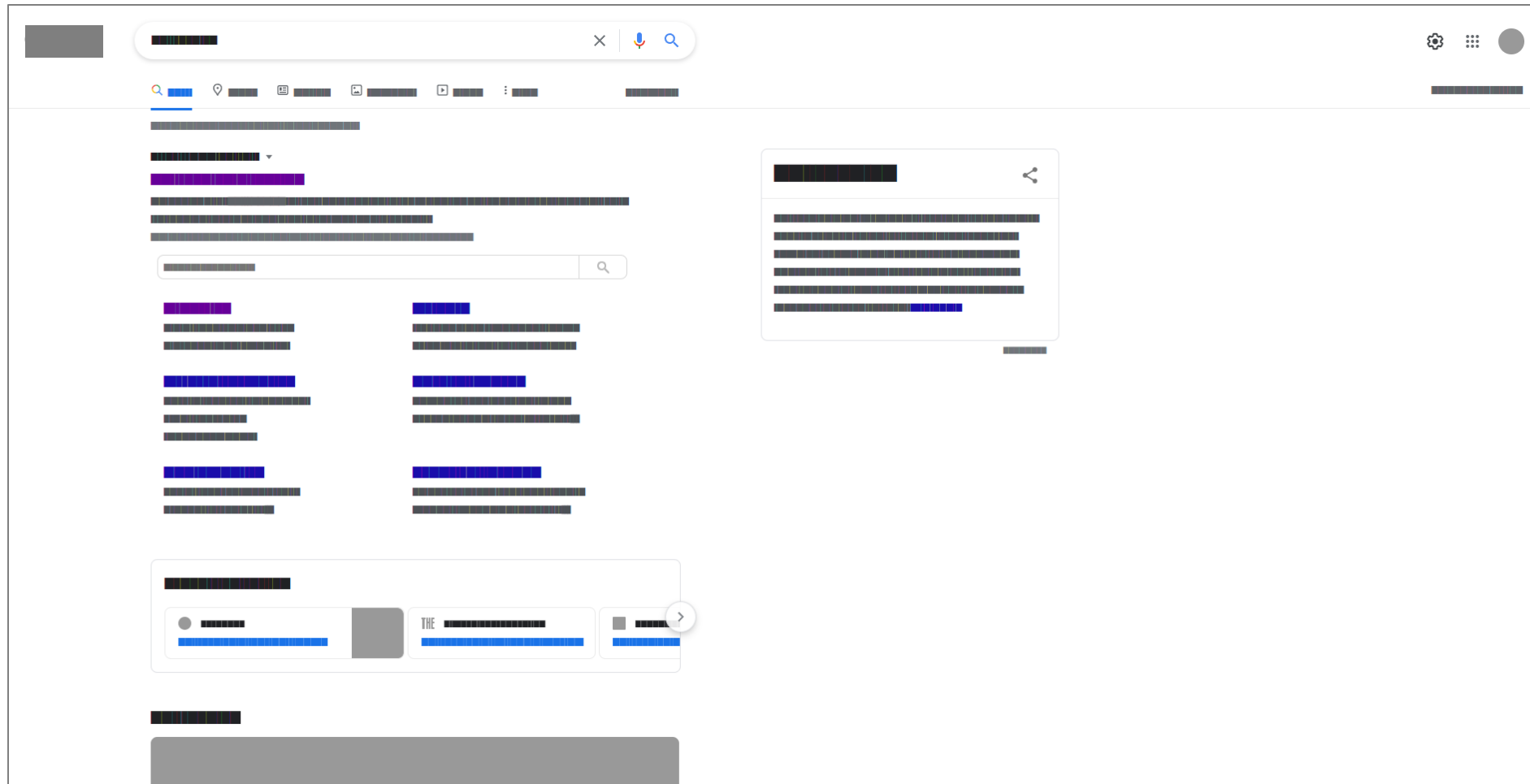
Recognizable Page Structure



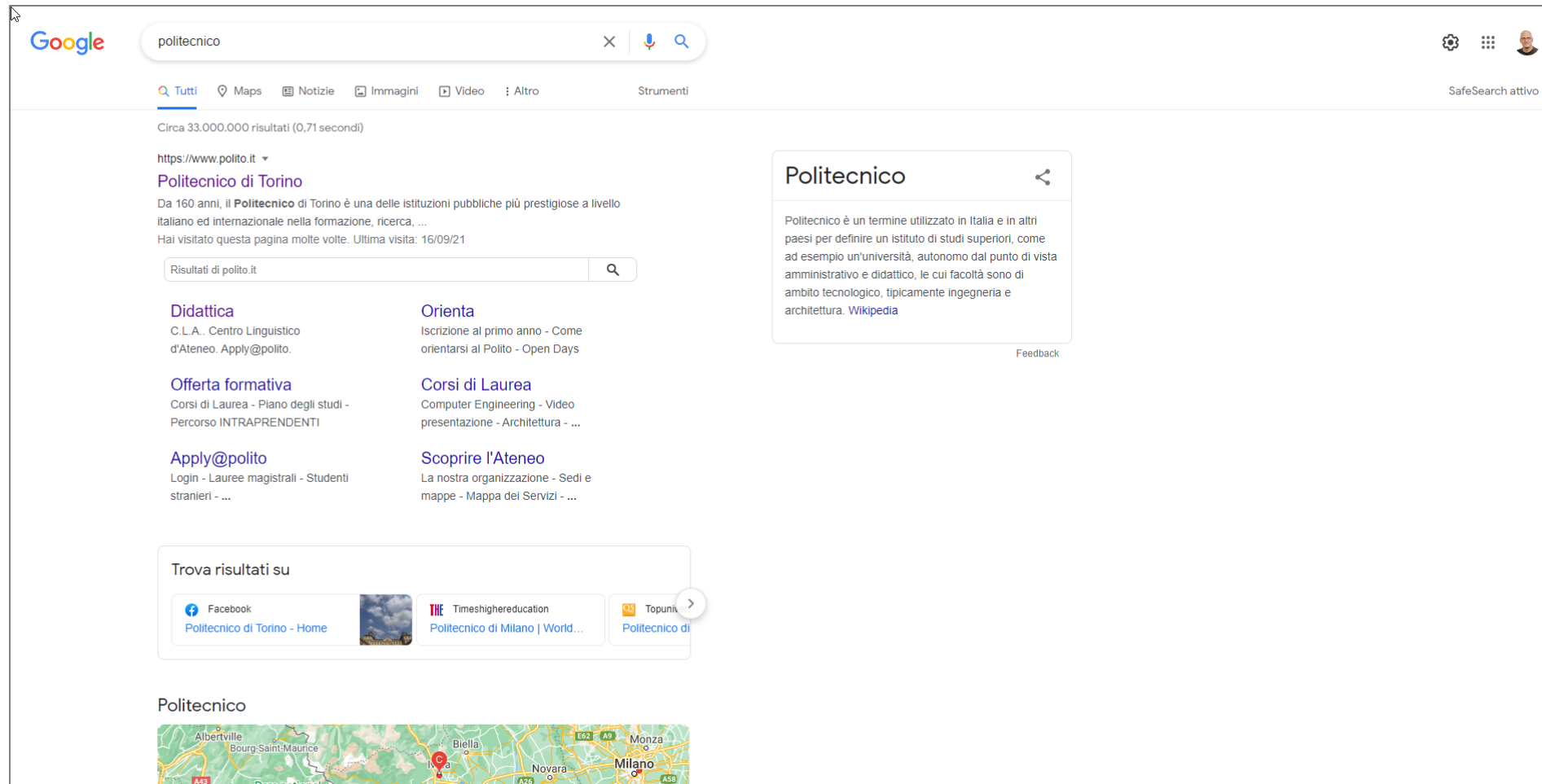
Recognizable Page Structure



Recognizable Page Structure



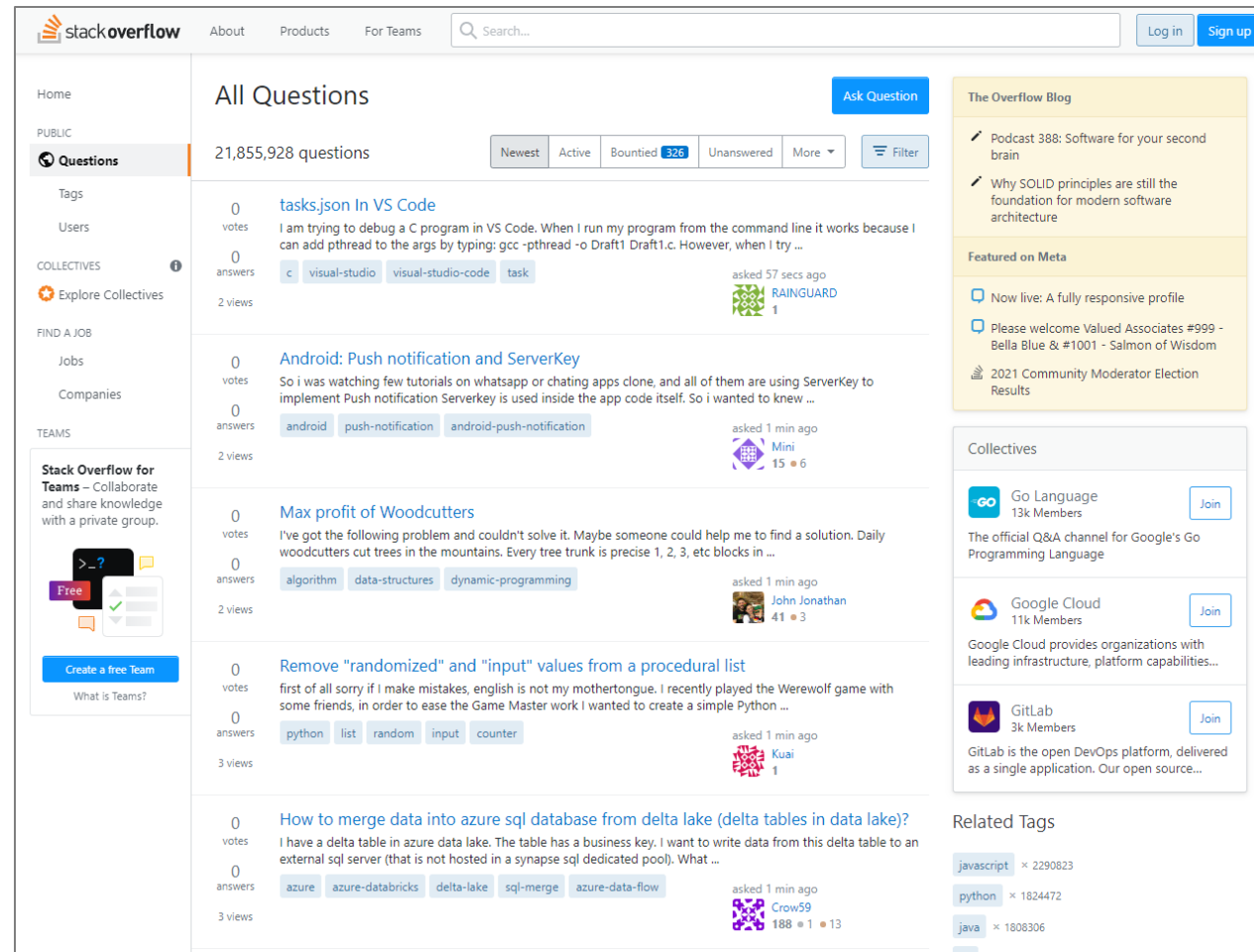
Recognizable Page Structure



Recognizable Page Structure



Recognizable Page Structure



Recognizable Page Structure



Recognizable Page Structure

The screenshot displays the TripAdvisor website interface for hotel searches in New York City. The top navigation bar includes the TripAdvisor logo, a search bar, and links for 'Scrivi una recensione', 'Viaggi', and 'Avvisi'. Below this, a secondary navigation bar lists categories like 'New York City', 'Hotel', 'Cose da fare', 'Ristoranti', 'Voli', 'Case vacanza', 'Pacchetti vacanza', 'Crociere', and 'Autonoleggio'. The main heading is 'Hotel New York City e alloggi', with a sub-header 'I migliori alberghi a New York City - Prezzi e recensioni per gli alloggi a New York City'. A map on the left shows the location of New York City with a 'Guarda la mappa' button. To the right of the map are input fields for 'Arrivo' (check-in), 'Partenza' (check-out), and 'Ospiti' (1 camera, 2 adulti, 0 bambini). Below the map, there are filter sections for 'COVID-19' (Strutture che adottano misure di sicurezza), 'Offerte' (Cancellazione gratuita, Prenota ora, Strutture con Offerte Speciali), and 'Prezzo' (0 € - + 623 €). A 'Molto richiesti' section lists filters like '4 stelle', 'Colazione inclusa', and '5 stelle'. The main content area shows '911 strutture a New York City' with a sorting option 'Ordina per: Qualità-prezzo'. A 'Viste di recente a New York City' section highlights the 'Fairfield Inn & Suites New York Midtown Manhattan/Penn Station' with a price of 161 € and a 'Vedi l'offerta' button. The hotel details section includes a 'Colazione inclusa' badge, a 'Sponsorizzato' tag, the hotel name, a rating of 1.865, and a list of amenities: 'Connessione Wi-Fi gratuita', 'Bar/Lounge', 'Centro fitness', and 'Misure di sicurezza adottate'. It also lists 'Info sull'hotel' with a link to the hotel's website and a phone number. The bottom of the hotel details section includes a 'Vedi l'offerta' button and a list of benefits: 'Cancellazione gratuita', 'Prenota ora, paga quando soggiorni', and 'Offerta Speciale'.

Recognizable Page Structure

TBS News
Tokyo Broadcasting System, News Portal Site

リアルタイム経営こそ、IT戦略
経営とITをデザインする、フューチャーアーキテクト。 FUTURE Architect

News10 アラファト元議長の前からポロニウム検出。暗殺の可能性高まる 11/07 04:20 RSS/ROF配信 文字サイズ 中 大

社会 政治 経済 国際 スポーツ 列島 天気 連続動画 報道コラム ニュース検索 検索

注目キーワード: [ミニュー表示問題] [みづほ暴力団騒動] [原発] [米論争騒動]

最終更新: 2013年11月7日(木) 6時34分

「三越伊勢丹」も不適切表示、他の百貨店にも拡大



大手百貨店の三越伊勢丹ホールディングスは、グループの百貨店などにあるレストラン14店で、メニューと違う食材を使った料理を提供していたことを明らかにしました。不適切な表示は、小田急、そごうなどの百貨店にも広がっています。

続きを読む

スタップ ワゴン ススメ! 家族の冒険プロジェクト
ニッポン 家族冒険スポット 総選挙!
ドンドン投票してね!
HONDA

TBSニュース番組ダイジェスト配信中

TBSニュースバード NEWS 23
NBS JNN

台風情報
Smart News
地震情報
JNN LIVE
福島第一原発情報カメラ

社会 >> 一覧へ

- ネット販売、23品目「3年間安全調査後」解禁へ
- 福島第一原発4号機を公開、燃料取り出しへ高いハードル
- 「もんじゃ」で核物質管理に不備、原子力機構に厳重注意
- NEW 温室効果ガスの平均濃度、過去最高値を記録
- カルガモから鳥インフル、北海道で今シーズン初
- 一転 食材偽装を認める、「三笠」運営会社の社長辞任へ
- 安曇県牧場「和牛産法」、関連会社などを提訴へ
- NEW 表示適正化対策、消費者庁が業界3団体に要請文
- 「嵐」など芸能人の偽サイン販売、容疑の親子らを3人逮捕
- 大阪・川に少年突き落とす、遺体は下着姿
- 歌舞伎町のホスト変死、何者かが暴行か
- NEW 小学校の4階から小6男見転落、意識不明の重体

政治 >> 一覧へ

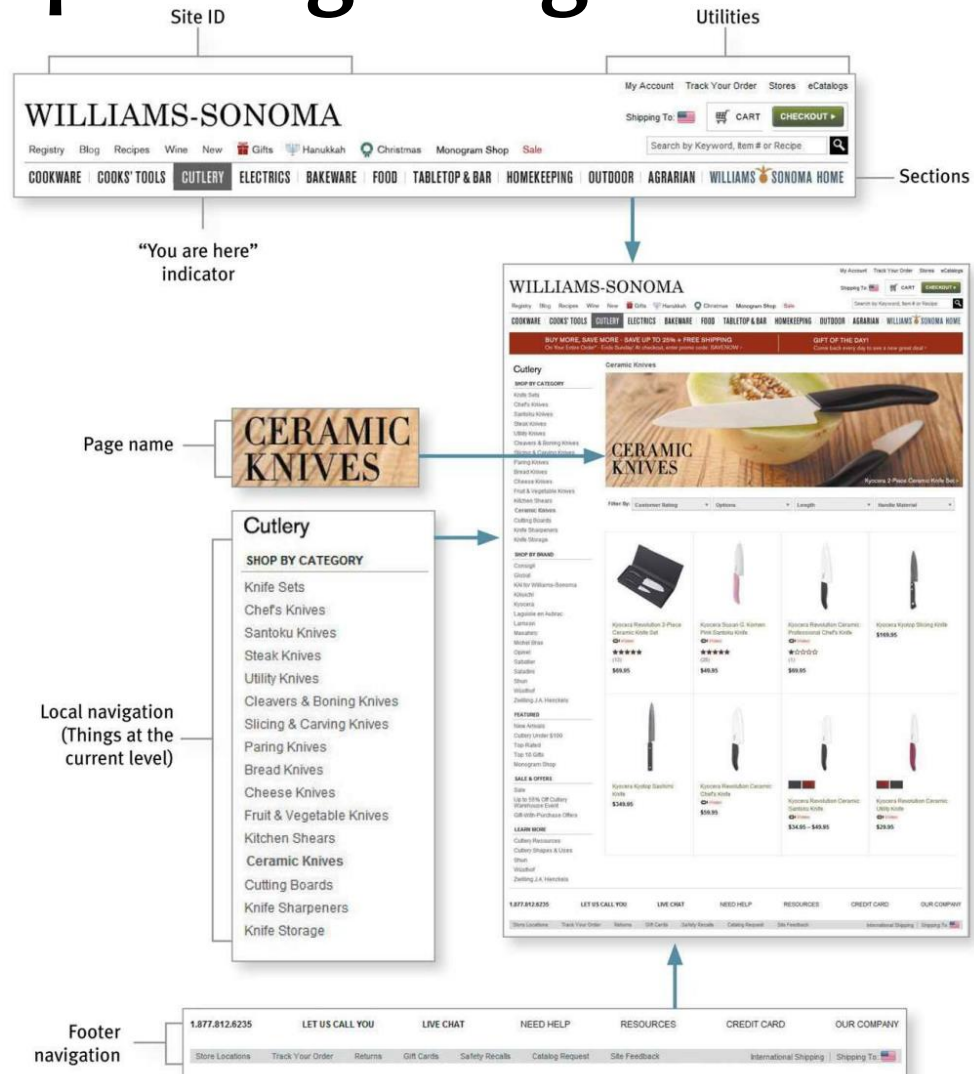
- NEW 「特定秘密保護法案」きょうから国会審議
- 日本版NSC法案、衆院特別費で可決
- 自衛隊が難防衛演習、沖縄・宮古島に地対艦ミサイル展開
- 岸田外相、中国・韓国との民間交流が重要という認識示す
- 「韓外子」遼寧相続の民法改正案、自公が成立目指す
- 原発事故の対応見直し、国が積極的関与へ

経済 >> 一覧へ

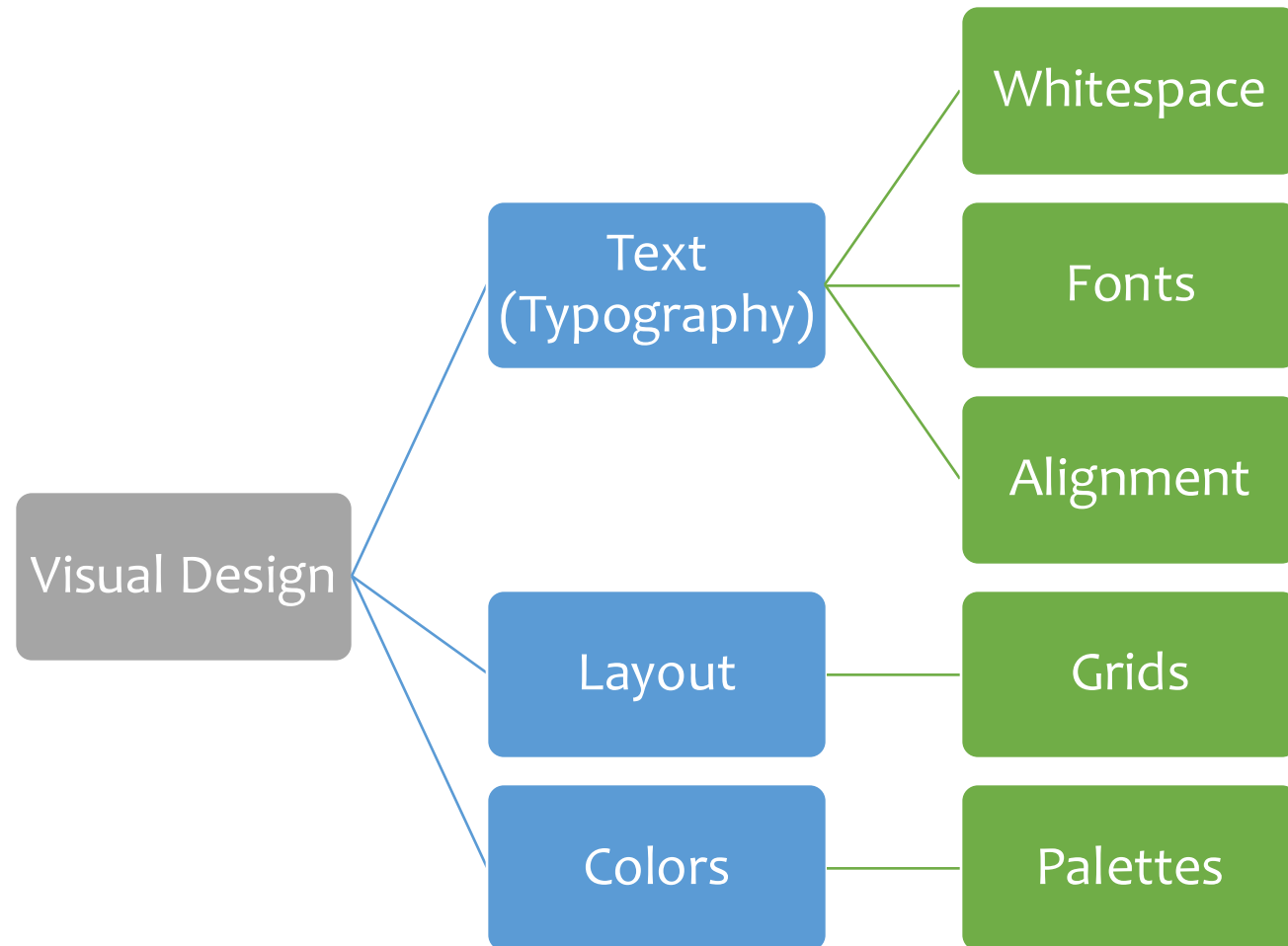
- NEW 「三越伊勢丹」も不適切表示、他の百貨店にも拡大
- NEW 東武鉄道系ホテルでもメニュー表示と異なる食材を使用
- 食材「偽造」問題で注目、「成型肉」とは?

関連リンク
R158 | show523 | 報道特集 | サタデーワイド | 報道特集 | 報道の森 | ニュースバード | プログラムバリエーション | ニュースリンク
TBS TOPページ | TBS報道番組一覧 | 24時間

Conventions Help Recognizing Structure



Key Ingredients



‘Gestalt’ principles

Hints from the psychology of Shapes and of Representation

Gestalt principles

- Laws from 1920s' psychology: how humans typically see objects by grouping similar elements, recognizing patterns and simplifying complex images
- Designers use these to engage users via powerful -yet natural- “tricks” of perspective and best practice design standards
- *“The whole is other than the sum of the parts” - Kurt Koffka*



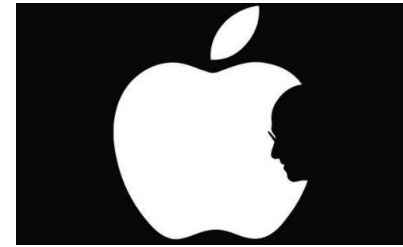
<https://www.interaction-design.org/literature/topics/gestalt-principles>

<https://www.usertesting.com/blog/gestalt-principles/>

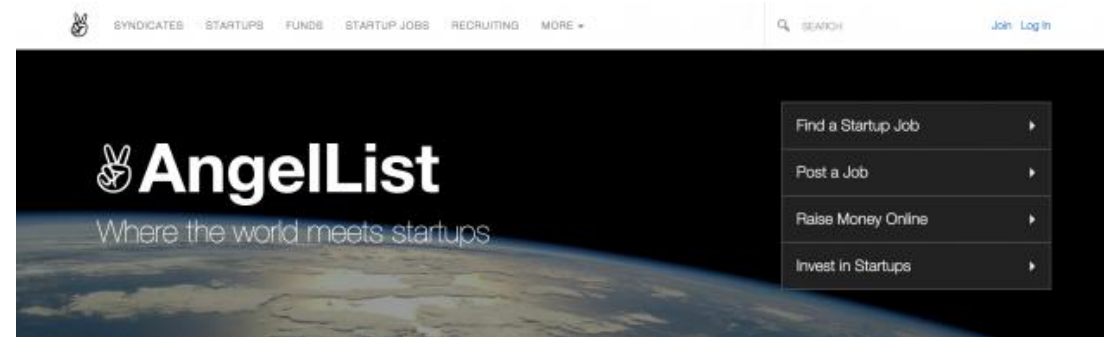
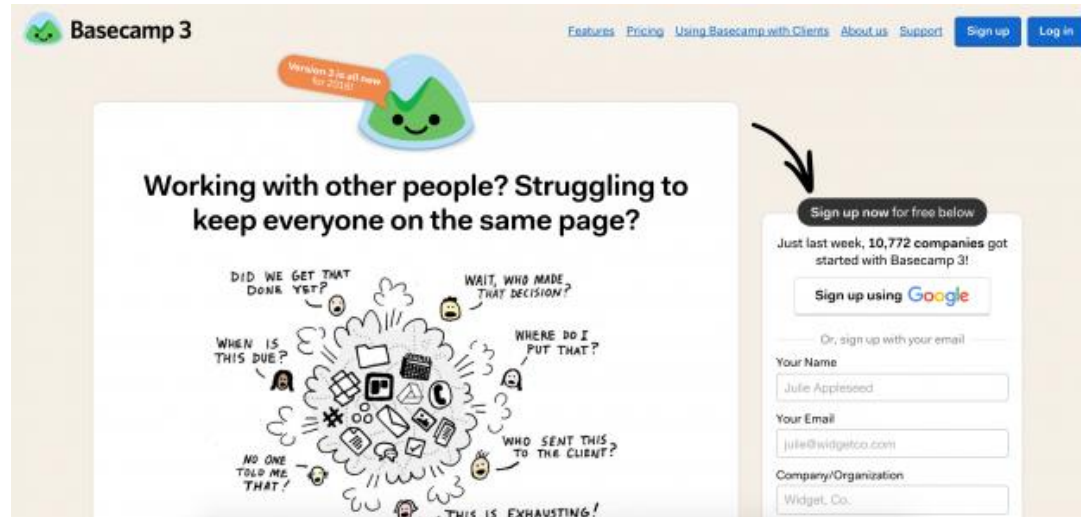
Some Gestalt Principles

- **Figure/Ground:** Disliking uncertainty, we look for solid, stable items. Foreground catches the eye first
- **Closure:** Preferring complete shapes, we automatically fill in gaps to perceive a complete image; we see the whole first
- **Common Region:** We group elements that are in the same closed region
- **Element Connectedness:** We group elements linked by other elements
- **Continuation:** We follow and “flow with” lines
- **Proximity (Emergence):** We group closer-together elements, separating them from those farther apart.
- **Good Form:** We differentiate elements that are similar in color, form, pattern, etc. and cluster them together
- **Meaningfulness (Familiarity):** We group elements if they form a meaningful or personally relevant image.
- **Prägnanz:** We perceive complex images as simple ones.
- **Convexity:** We perceive convex shapes ahead of concave ones
- **Regularity:** Sorting items, we tend to group some into larger shapes, and connect elements that form a pattern.
- **Similarity (Invariance):** We seek differences and similarities in an image and link similar elements.
- **Symmetry:** We seek balance and order in designs, struggling to do so if they aren’t readily apparent.
- **Common Fate:** We group elements that move in the same direction
- **Synchrony:** We group static visual elements that appear at the same time.

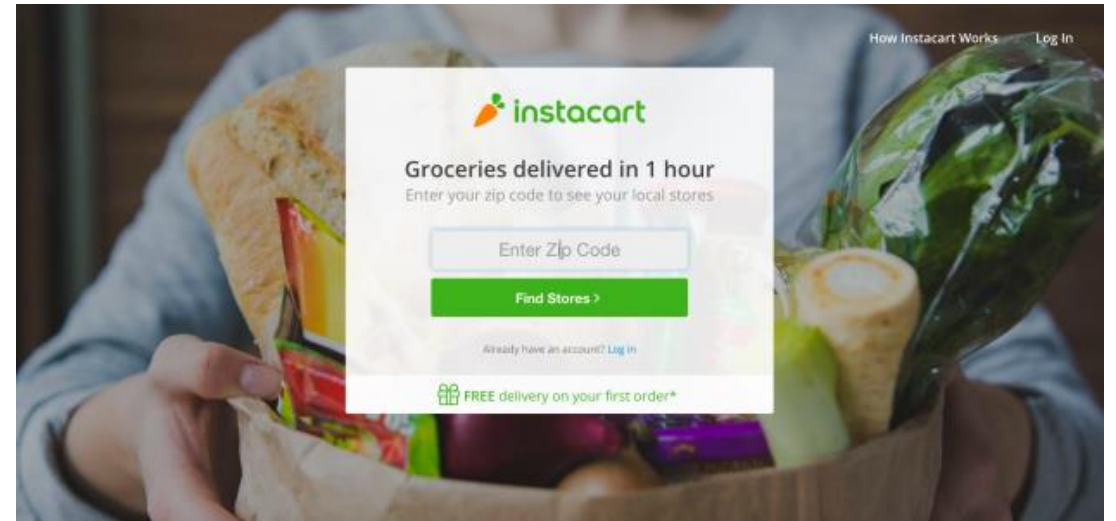
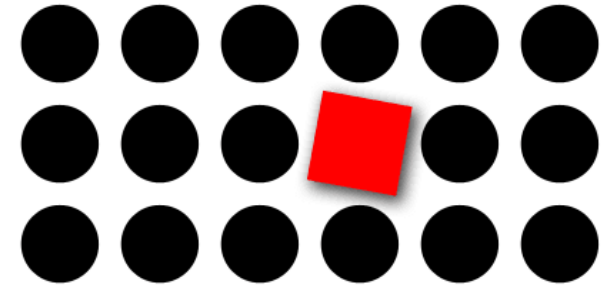
Examples: Figure-ground



Figure/Ground: Disliking uncertainty, we look for solid, stable items. Foreground catches the eye first

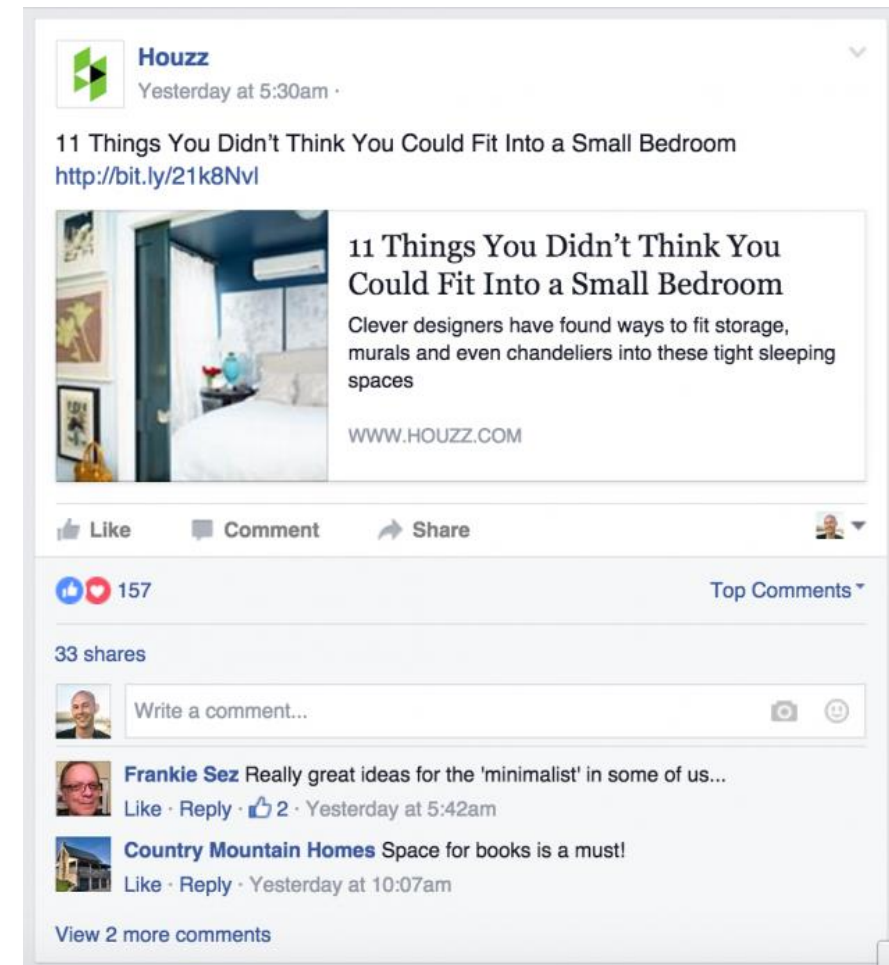
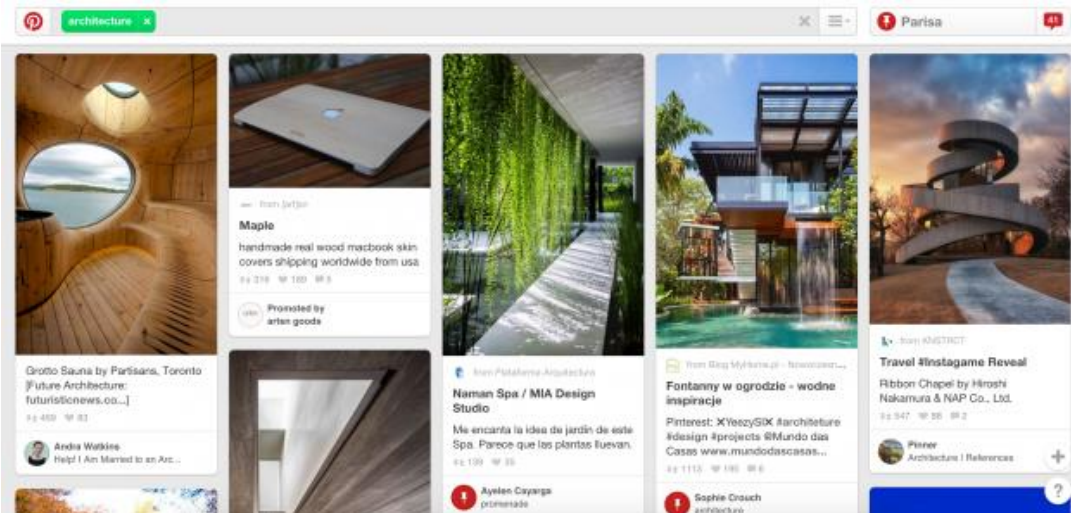
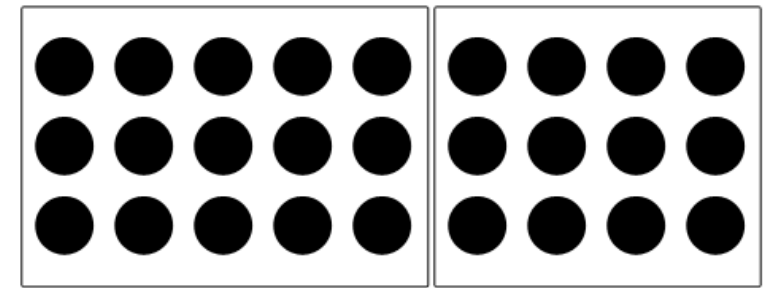


Examples: Focal Point



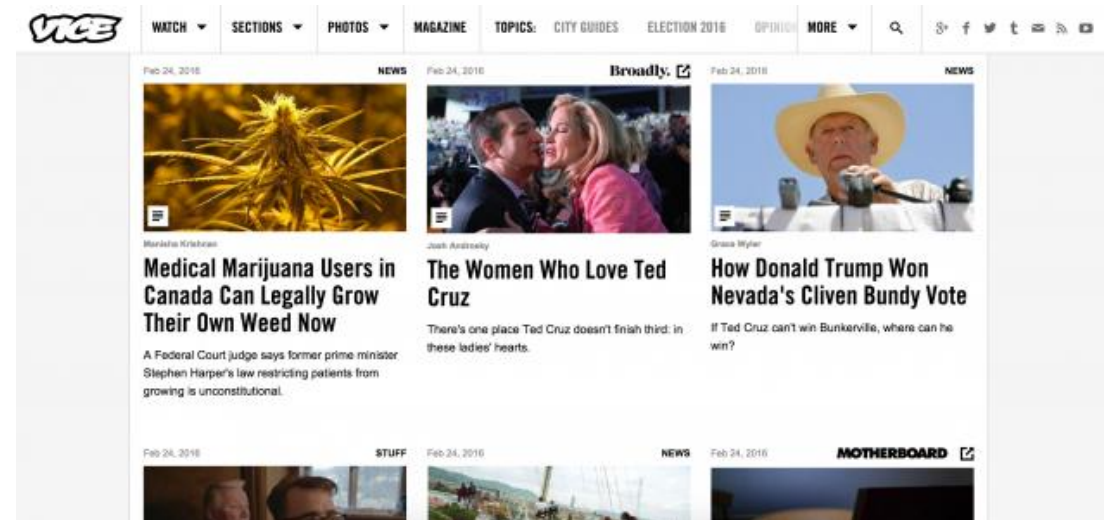
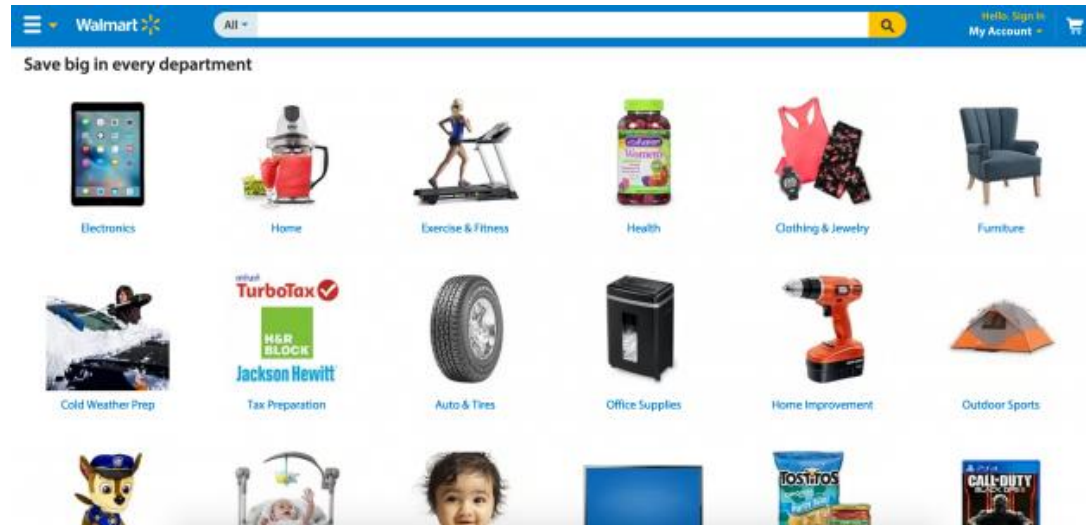
Examples: Common Region

Common Region: We group elements that are in the same closed region



Examples: Proximity

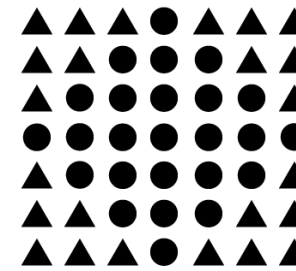
Proximity (Emergence): We group closer-together elements, separating them from those farther apart.

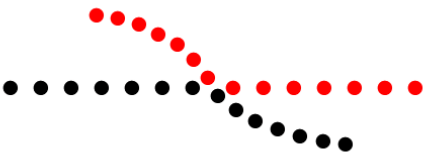


<https://www.usertesting.com/blog/gestalt-principles/>

Examples: Similarity

Similarity (Invariance): We seek differences and similarities in an image and link similar elements.





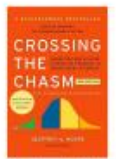
Examples: Continuity

Continuation: We follow and “flow with” lines

Customers Who Bought This Item Also Bought

Page 1 of 20

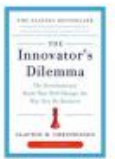




Crossing the Chasm, 3rd Edition: Marketing and Selling Disruptive Products
by Geoffrey A. Moore
★★★★★ 72
Paperback
\$12.35 ✓Prime



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★★★★★ 22
Hardcover
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How Will You Measure Your Life?
by Clayton M. Christensen
★★★★★ 583
Hardcover
\$15.86 ✓Prime





Step 1

Choose your meals, drinks and treats from our daily rotating menu.



Step 2

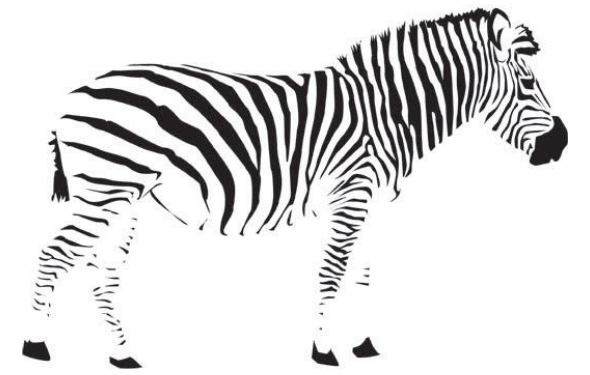
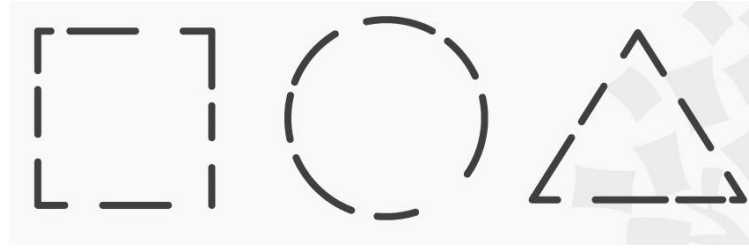
Our friendly servers organize your food for delivery - hot and ready to eat!



Step 3

Your meal arrives in around 20 minutes - like a home-cooked meal without the effort!

Examples: Closure



Closure: Preferring complete shapes, we automatically fill in gaps to perceive a complete image; we see the whole first

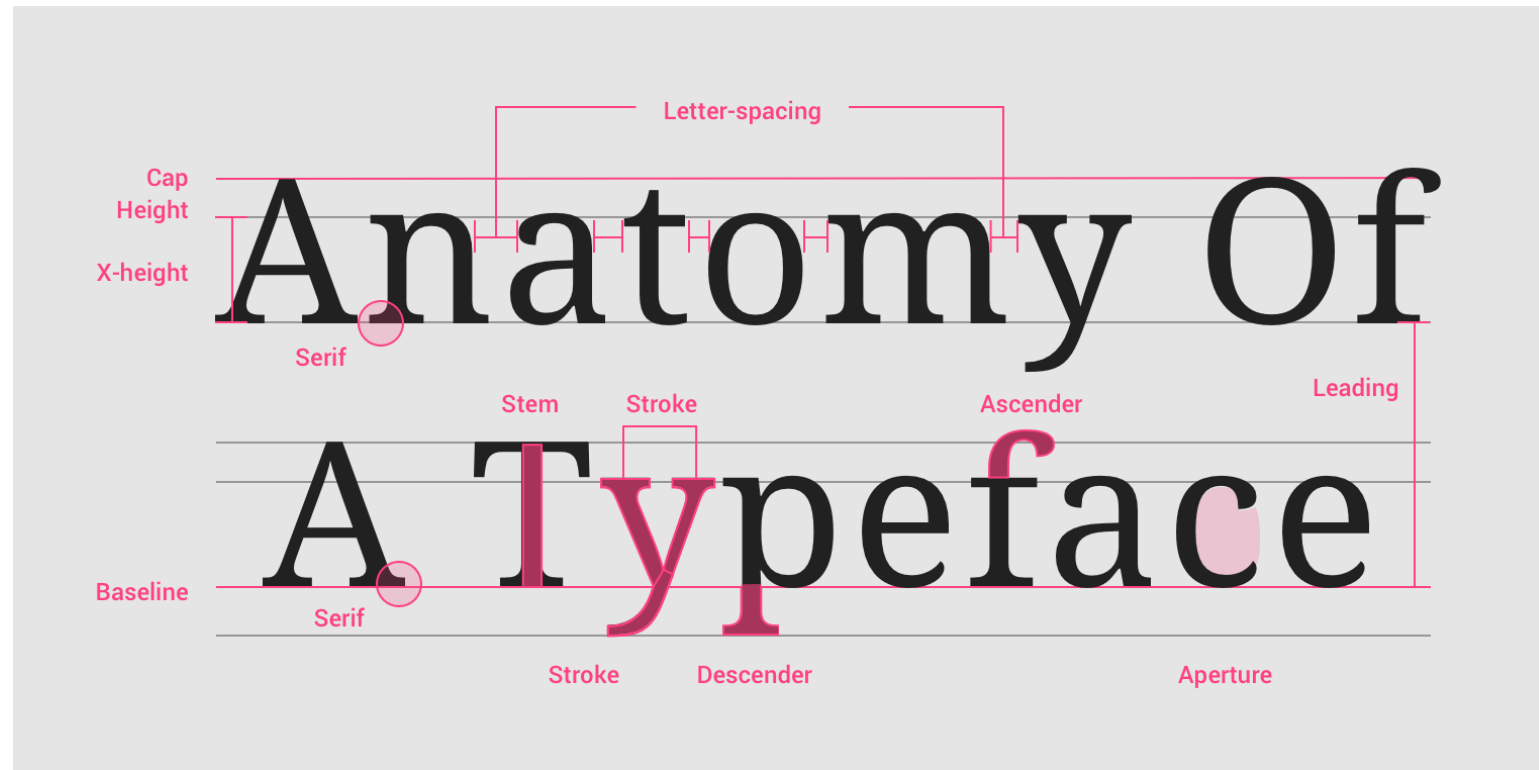


Typography

Property of text

Characteristics of Text

- Point Size
- Leading
- Cap Height, x-height
- Ascenders, Descenders
- Weight
- Serifs



<https://material.io/design/typography/understanding-typography.html>

Example: Material Design Type Scale

A combination of 13 styles that are supported by the type system

Reusable categories of text, each with an intended application and meaning

Scale Category	Typeface	Font	Size	Case	Letter spacing
H1	Roboto	Light	96	Sentence	-1.5
H2	Roboto	Light	60	Sentence	-0.5
H3	Roboto	Regular	48	Sentence	0
H4	Roboto	Regular	34	Sentence	0.25
H5	Roboto	Regular	24	Sentence	0
H6	Roboto	Medium	20	Sentence	0.15
Subtitle 1	Roboto	Regular	16	Sentence	0.15
Subtitle 2	Roboto	Medium	14	Sentence	0.1
Body 1	Roboto	Regular	16	Sentence	0.5
Body 2	Roboto	Regular	14	Sentence	0.25
BUTTON	Roboto	Medium	14	All caps	1.25
Caption	Roboto	Regular	12	Sentence	0.4
OVERLINE	Roboto	Regular	10	All caps	1.5

<https://material.io/design/typography/the-type-system.html#type-scale>

Text

- Font size, color and spacing define a hierarchy of visibility and attention
- The visual hierarchy should match the relative importance of the information content



<https://docs.italia.it/italia/designers-italia/design-linee-guida-docs/it/stabile/doc/user-interface/il-disegno-di-un-interfaccia-e-lo-ui-kit.html>

Text

- Font size, color and spacing define a hierarchy of visibility and attention
- The visual hierarchy should match the relative importance of the information content



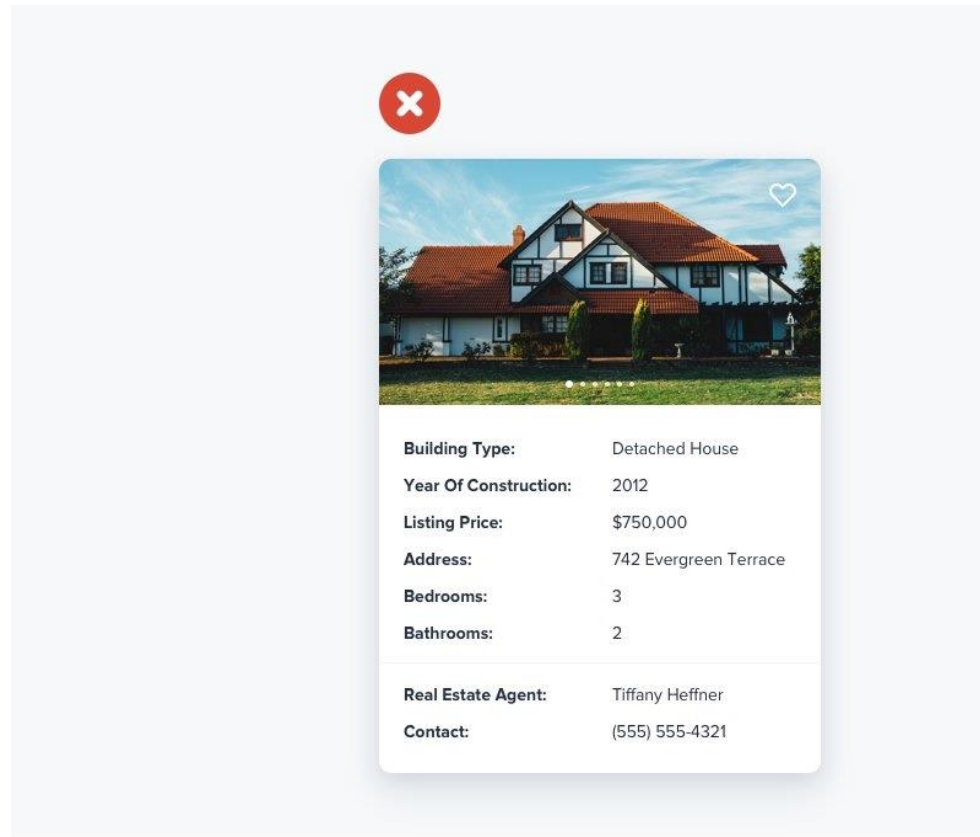
This example shows a mobile app payment screen with poor visual hierarchy. The header bar is blue and contains the text "Certificato di residenza" and "Comune di Gallarate" in white, with the amount "€16,52" and "ANNULLA" in small white text. Below the header, the text "Confermi il pagamento?" is in blue. The card details are in a light gray box, with the card number "2345" and the name "MARIO ROSSI" in blue. The payment details are in a light gray box, with the amount "€ 16,52" and "€ 0,50" in blue. The total is "€ 20,02". The buttons "Conferma e paga" and "Annulla il pagamento" are at the bottom.



This example shows a mobile app payment screen with good visual hierarchy. The header bar is dark gray and contains the text "Certificato di residenza" and "Comune di Gallarate" in white, with the amount "€16,52" and "ANNULLA" in small white text. Below the header, the text "Confermi il pagamento?" is in dark gray. The card details are in a light gray box, with the card number "2345" and the name "MARIO ROSSI" in dark gray. The payment details are in a light gray box, with the amount "€ 16,52" and "€ 0,50" in dark gray. The total is "€ 20,02". The buttons "Conferma e paga" and "Annulla il pagamento" are at the bottom.

<https://docs.italia.it/italia/designers-italia/design-linee-guida-docs/it/stabile/doc/user-interface/il-disegno-di-un-interfaccia-e-lo-ui-kit.html>

Exercise (~10 minutes)



www.refactoringui.com

- Redesign this UI to align with the text and layout principles we've discussed so far
 - You can redesign it in low fidelity, or by modifying the picture directly
- Text and layout convey meaning: what information are users most likely looking for?

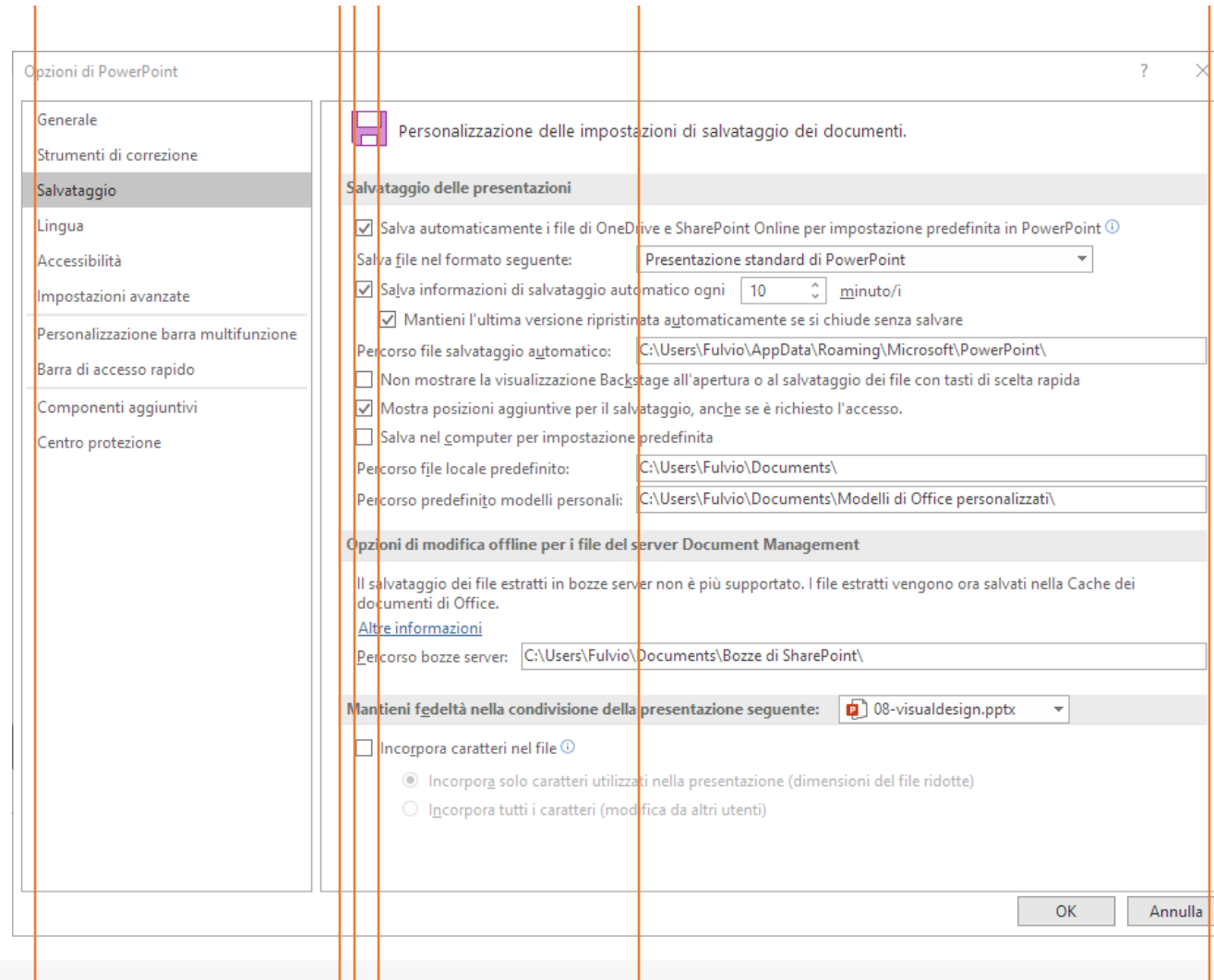
Grids and Alignment

Exploiting grouping and alignment to convey content, at different levels

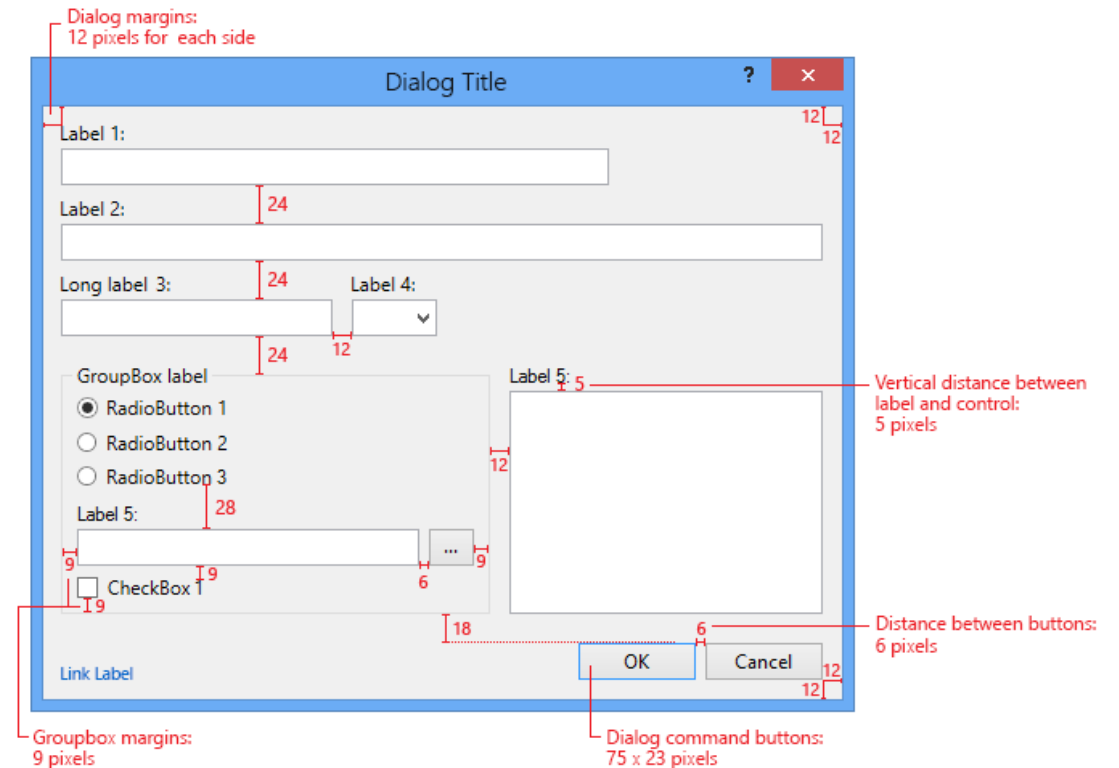
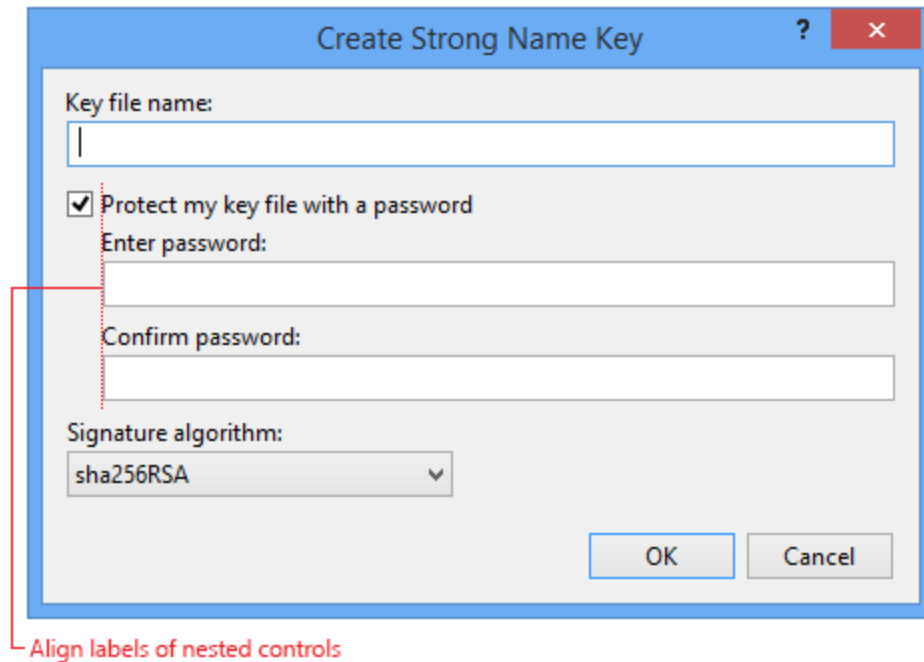
Alignment

- Invisible lines that run through the interface and “attract” the left- or right-edge of a widget control
 - Vertical
 - Horizontal

Example

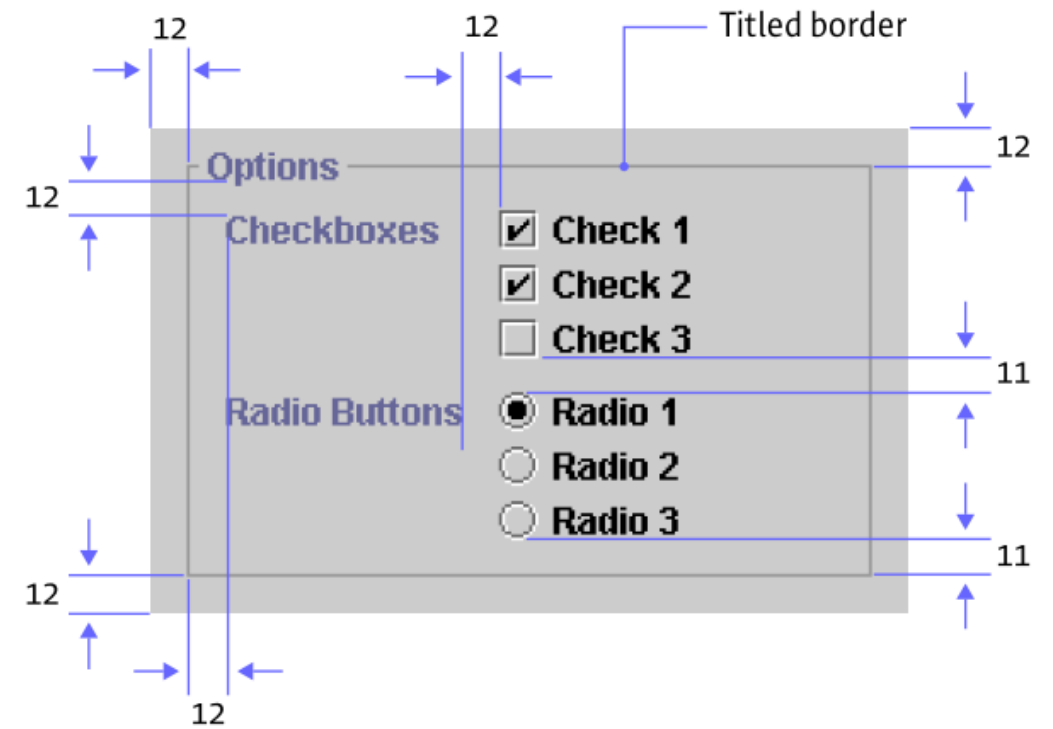
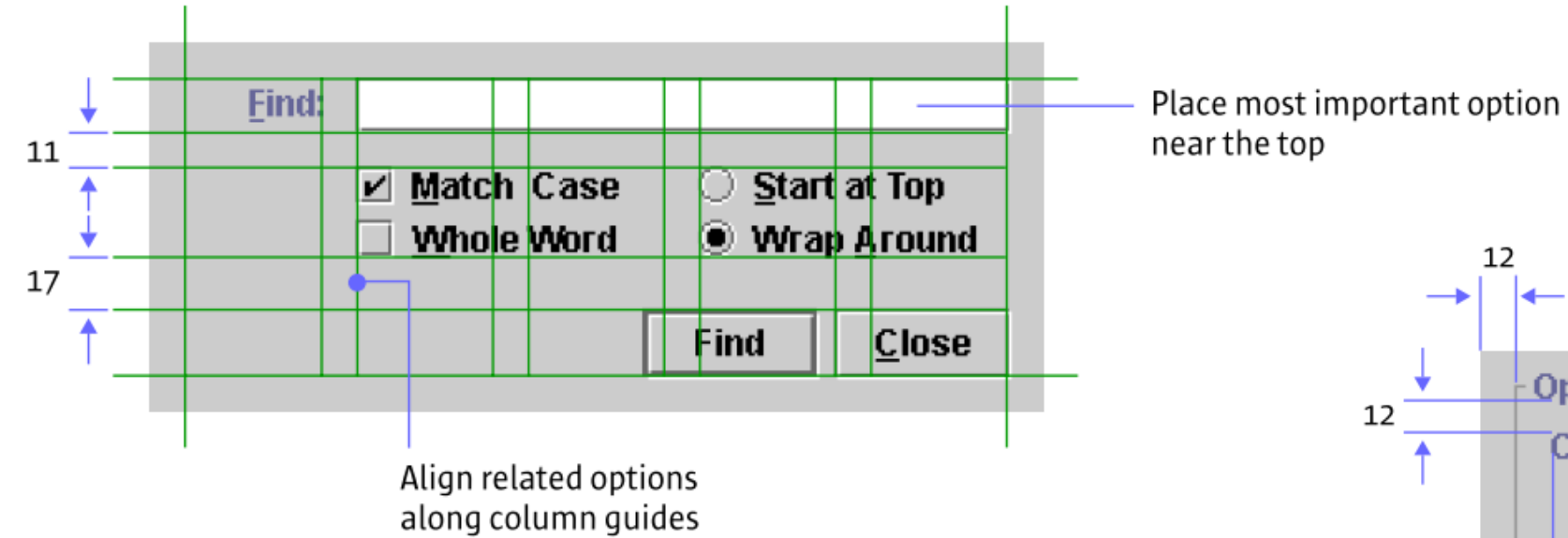


Examples



<https://docs.microsoft.com/en-us/visualstudio/extensibility/ux-guidelines/layout-for-visual-studio?view=vs-2019>

Examples

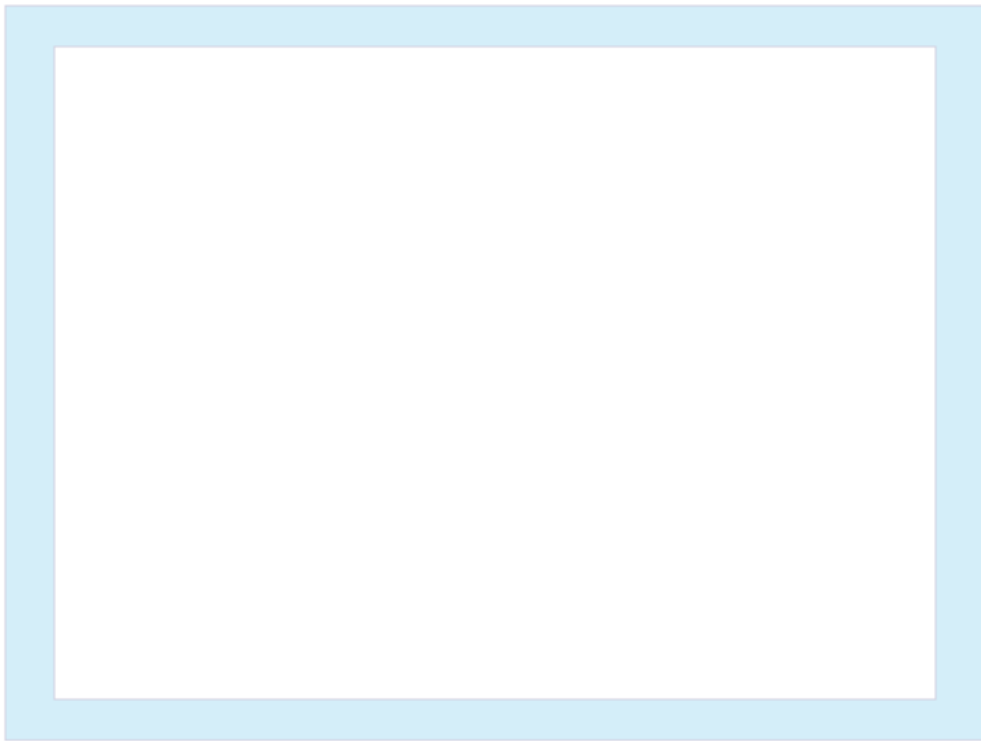


Grid Layout Ingredients

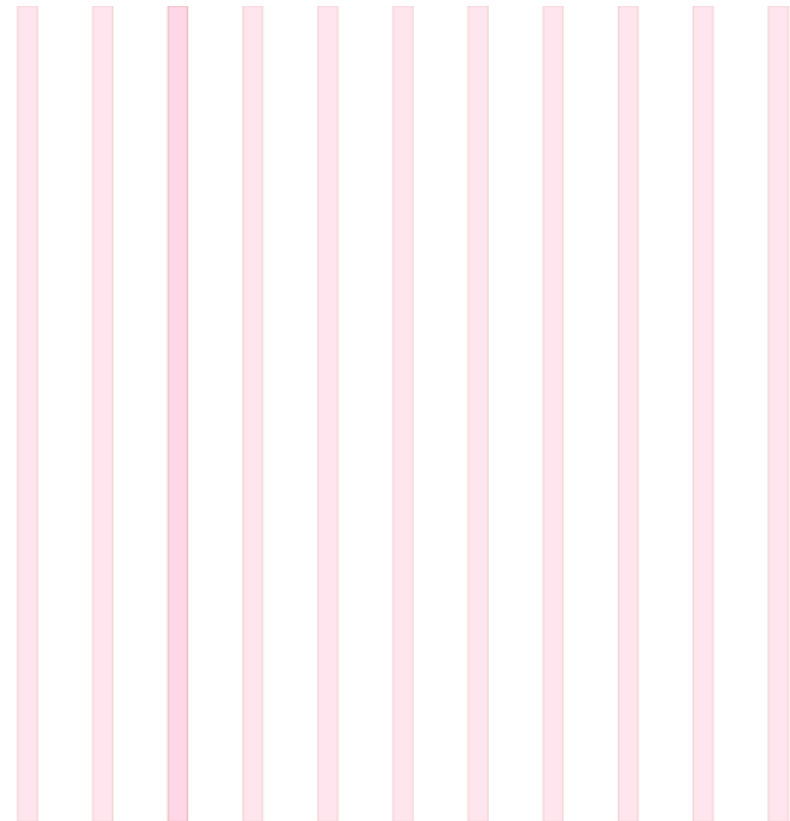
- **Guides:** The edge which you choose to align content with
- **Column:** A vertical division of content
- **Row:** A horizontal division of content
- **Margins:** The area surrounding your content
- **Gutters:** The margins between columns
- **Hang-line:** A horizontal guide to align content to hang off of
- **Baseline:** The horizontal guide for an element to sit on top of
- **Rhythm:** Proportion systems that can help define the sizing frequency and spacing of each of the above elements.

Grid Layout Ingredients

Margins

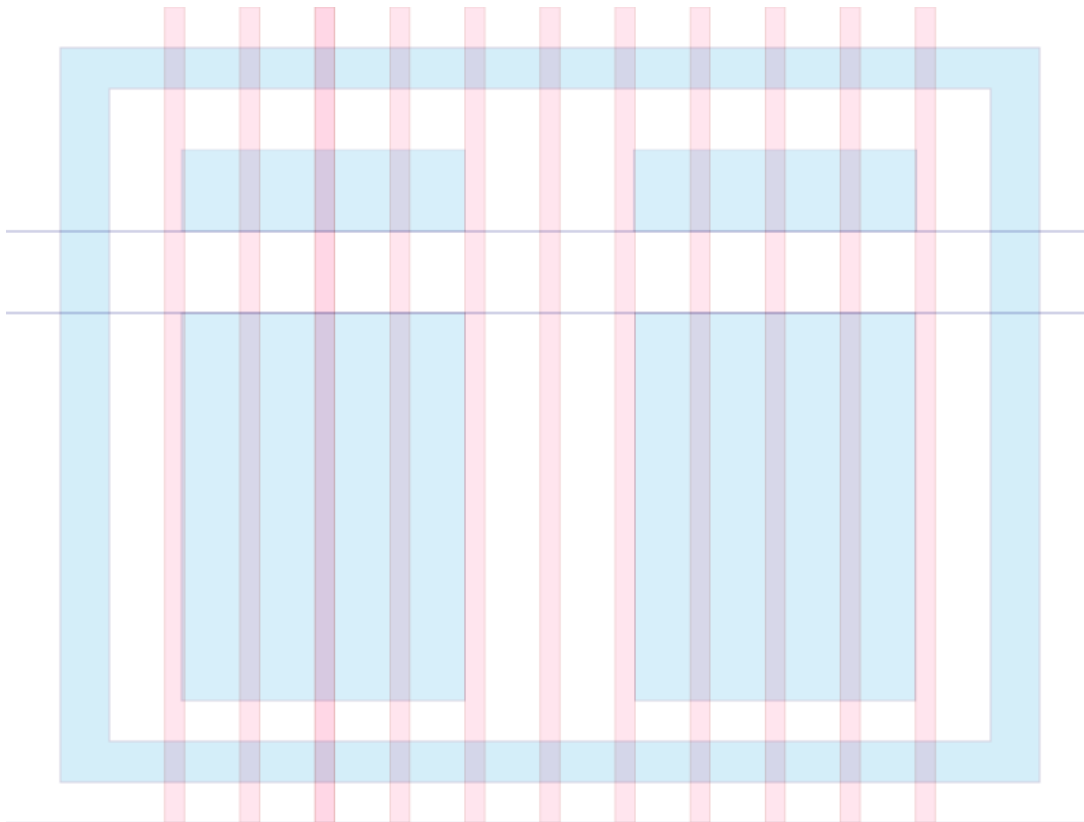


Columns & Gutters



Grid Layout Ingredients

Hanglines and Baselines

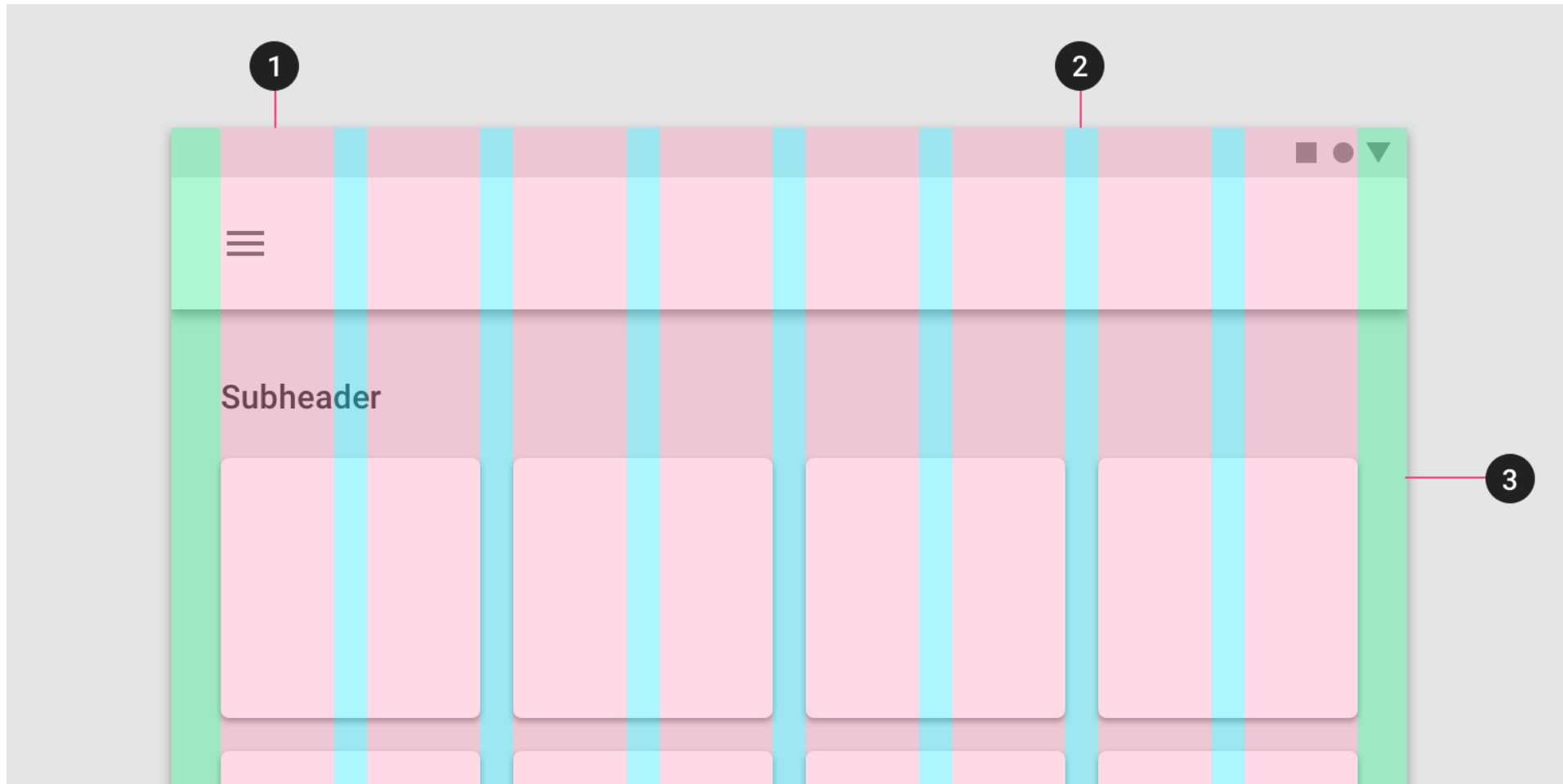


Baseline Grids



Example Grid-based layout

1. Columns
2. Gutters
3. Margins



Example: Bootstrap grid

Always 12 columns in total

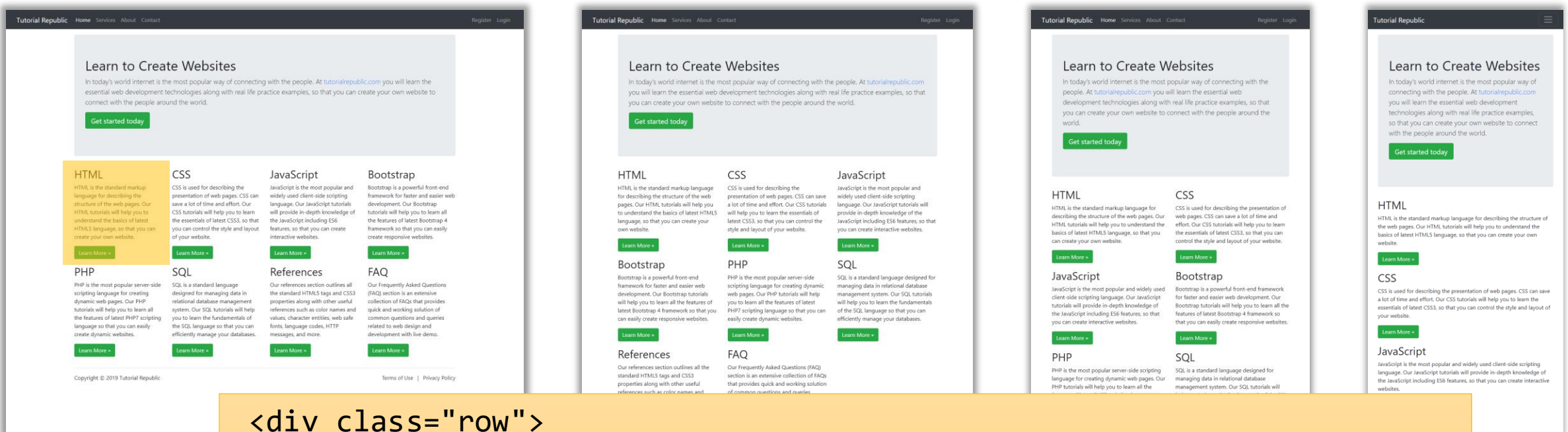
May choose to span a group of columns

Each column is tagged according to the screen size:

- xs (phones - <768px)
- sm (tablets - >=768px)
- md (small laptops - >=992px)
- lg (laptops and desktops - >1200px)

span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1
span 4				span 4				span 4			
span 4				span 8							
span 6						span 6					
span 12											

Responsive Grid Layout



```
<div class="row">
  <div class="col-md-6 col-lg-4 col-xl-3">
    <h2>HTML</h2>
    <p>...</p>
    <p><a href="..." class="btn btn-success">...</a></p>
  </div>
```

Other Grid Systems

Unsemantic (responsive, based on %)

The screenshot shows the Unsemantic website homepage. At the top is the 'unsemantic' logo. Below it is a navigation bar with links: Home, About, Demo, CSS Documentation, and Sass Documentation. There are two buttons: 'Download Here' and 'GitHub Repo'. The main content area is divided into two columns. The left column, titled 'What is it?', defines 'Un·se·man·tic' as an adjective and a noun. The right column, titled 'Example Usage', shows a code snippet for a grid container with three columns of 25%, 50%, and 25% width. Below this, there are three sections: 'Successor to 960.gs', 'SE-Oh?', and 'Built with Sass'. The 'Responsive Demo' section lists links for 'Responsive Demo' and 'Responsive Demo - RTL text'. At the bottom, there is a note about the site being reached by mistake and a footer with license, creator, and hosting information.

unsemantic

Home About Demo CSS Documentation Sass Documentation

Download Here GitHub Repo

What is it?

Un·se·man·tic ['ənsə'mantik]

adjective

1. A **nonexistent** word that **developers use** to critique the work of their peers.

noun

2. Now, it's also a CSS framework. I mean hey... "If the shoe fits, wear it." ☺

Example Usage

```
<div class="grid-container">
  <div class="grid-25">
    I am 25% wide.
  </div>
  <div class="grid-50">
    I am 50% wide.
  </div>
  <div class="grid-25">
    I am 25% wide.
  </div>
</div>
```

Successor to 960.gs

Unsemantic is a fluid grid system that is the successor to the [960 Grid System](#). It works in a similar way, but instead of being a set number of columns, it's entirely based on percentages.

For instance, if you want a 50% wide column, simply use `class="grid-50"`. There are grid classes for multiples of five: 5, 10, 15 ... 95, 100. There are also grid classes for dividing a page into thirds: `grid-33` and `grid-66`.

SE-Oh?

By using push- and pull-classes, you can rearrange the visual layout of page, without affecting its source order. While SEO is a bit of a "moving target," this has been known to help search engines determine the most relevant content on a page.

Typically, code at the top of a page is what search engines tend to focus on the most, and Unsemantic can help to ensure your source code is geared towards that goal.

Built with Sass

Unsemantic was built with extensibility in mind, using [Sass](#). While you can use the CSS as is, some developers prefer to use their own class names, and want only the bare minimum CSS required for a particular page.

To that end, you can use a "silent" Sass approach, and write your own Sass code to use Unsemantic's base styles. For instance, there's a placeholder named `%grid-container`.

Responsive Demo

These demos use [media queries](#).

- [Responsive Demo](#)
- [Responsive Demo](#) - RTL text

Adapt.js Demo

These demos use [Adapt.js](#).

- [Adapt.js Demo](#)
- [Adapt.js Demo](#) - RTL text

Browser Support

Unsemantic supports all major browsers: Chrome, Firefox, Internet Explorer (7+), Opera, and Safari.

If you think you've found a bug, and can verify that it is reproducible, file a ticket on [GitHub](#).

Note: If you reached this site by mistake, perhaps you are seeking Unsemantic's arch nemesis... [Semantic.css](#)

Licensed under [GPL](#), and [MIT](#) Created by [Tobias Smith](#) Built with [Sass](#) Hosted by [CloudFront](#)

<https://unsemantic.com>

tailwindcss (responsive, flexible)

The screenshot shows the Tailwind CSS website homepage. At the top is the 'tailwindcss' logo. Below it is a navigation bar with links: Docs, Components, Blog, and Showcase. There are also icons for a search bar, a settings gear, and a GitHub icon. The main content area features a large headline: 'Rapidly build modern websites without ever leaving your HTML.' Below this is a sub-headline: 'A utility-first CSS framework packed with classes like `flex`, `pt-4`, `text-center` and `rotate-90` that can be composed to build any design, directly in your markup.' There is a 'Get started' button and a search bar. The background is a grid pattern. On the right side, there is a code snippet showing HTML and Tailwind CSS classes. On the left side, there is a quote from Sarah Dayan, Staff Engineer at Algolia, praising Tailwind CSS.

tailwindcss

Docs Components Blog Showcase

Rapidly build modern websites without ever leaving your HTML.

A utility-first CSS framework packed with classes like `flex`, `pt-4`, `text-center` and `rotate-90` that can be composed to build any design, directly in your markup.

Get started

Quick search...

Quote:

"Tailwind CSS is the only framework that I've seen scale on large teams. It's easy to customize, adapts to any design, and the build size is tiny."

Sarah Dayan
Staff Engineer, Algolia

```
<figure class="bg-slate-100 rounded-xl p-8 dark:bg-slate-800">
  
  <div class="pt-6 space-y-4">
    <blockquote>
      <p class="text-l">
        "Tailwind CSS is the only framework that I've seen scale on large teams. It's easy to customize, adapts to any design, and the build size is tiny."
      </p>
    </blockquote>
    <figcaption>
      <div>
        Sarah Dayan
      </div>
      <div>
        Staff Engineer, Algolia
      </div>
    </figcaption>
  </div>
</figure>
```

<https://tailwindcss.com>

Grid Structure

Main body:
Mix of 2x and 3x
columns

Alternating row
types



Title area outside the
grid

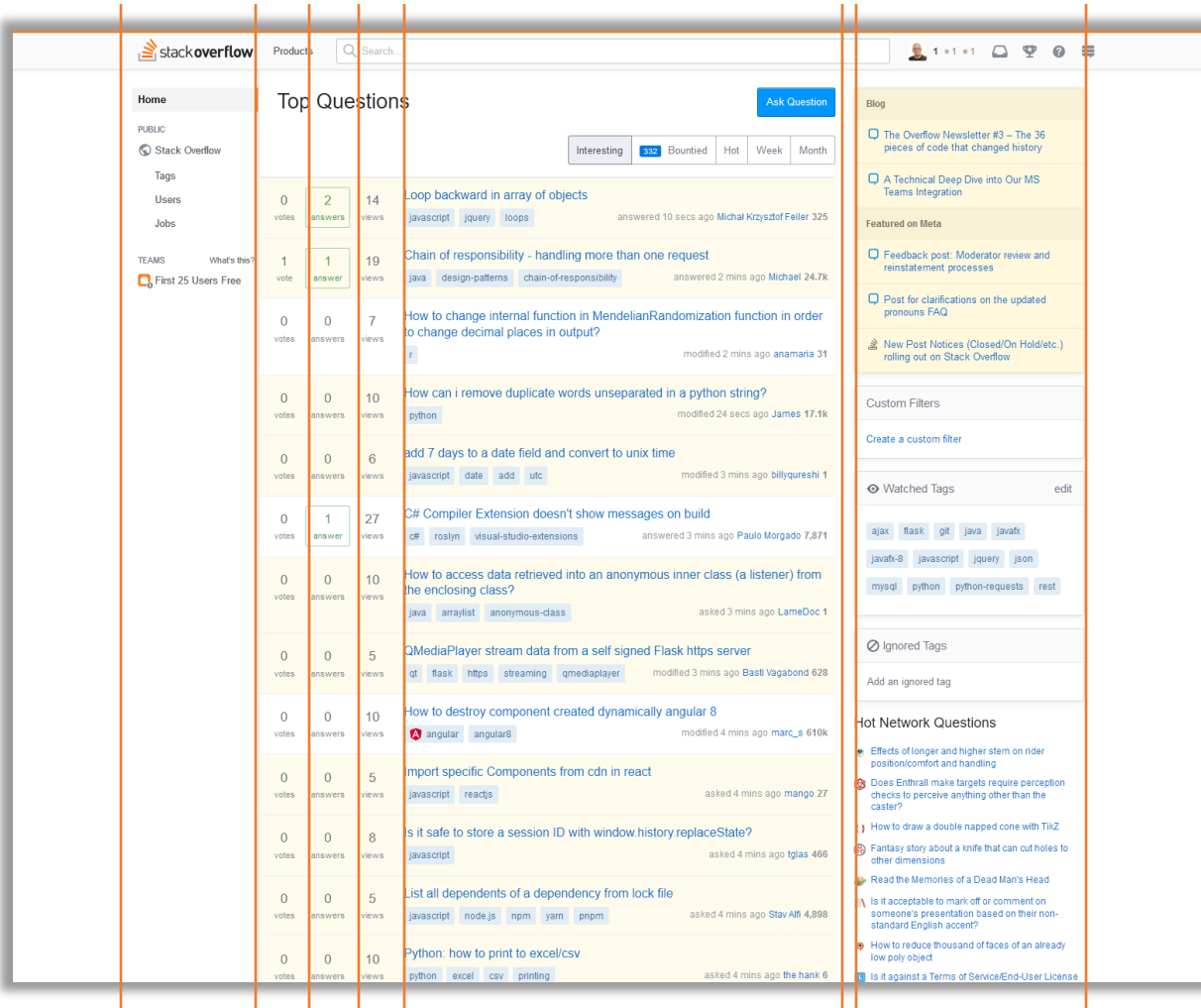
Right column for
other types of
articles

Grid Structure

Main content
(center, wide)

Navigation
(left, smaller)

Related content
(right, smaller)



Example (2015 vs. 2019)

Add an address

Full Name:

Address Line 1:
Street address, P.O. box, company name, c/o

Address line 2:
Apartment, suite, unit, building, floor, etc.

City:

State/Province/Region:

ZIP:

Country:

Phone Number: [Learn more](#)

Optional Delivery Preferences [\(What's this?\)](#)

Weekend Delivery:

Security Access Code:
For buildings or gated communities

Save & Add Payment Method

Save & Continue

Il tuo account > I tuoi indirizzi > [Nuovo indirizzo](#)

Aggiungi un nuovo indirizzo

Oppure ritira i tuoi colli quando desideri, presso i nostri punti self-service. Per aggiungere un punto di ritiro o un Amazon Locker, clicca [qui](#).

Paese/Regione

Nome e cognome

Indirizzo

Città

Provincia

Codice postale

Numero di telefono

Può essere utilizzato per aiutare consegna

Aggiungi istruzioni di consegna
Consegna nel fine settimana

Aggiungi indirizzo

Some Best Practices

- When designing a template, start from the longest block of text
- Left-aligned text is (usually) faster to skim
- Alignment guides the eye and reduces clutter
 - Avoid slight misalignments
 - Patterns and deviations are “automatically” detected
 - Deviate from a pattern for strategic reasons
 - Use visual proximity and scale to convey semantic information

Example (2019)

Software

1° anno

Periodo	Codice	Lingua	Insegnamento	Crediti	Docente	Note	Vincoli
1	01PDWVOV		Information systems ING-INF/05 (6)	6	M. Morisio		
1	02GOLOV		Architetture dei sistemi di elaborazione  ING-INF/05 (10)	10	P. Bernardi E. Sanchez Sanchez		
1	02LSEOV		Computer architectures  ING-INF/05 (10)	10	P. Montuschi		
1	01SQJOV		Data Science and Database Technology  ING-INF/05 (8)	8	S. Chiusano		
1	01SQMOV		Data Science e Tecnologie per le Basi di Dati  ING-INF/05 (8)	8	E. Baralis		
1	01OTWVOV		Computer network technologies and services  ING-INF/05 (6)	6	M. Baldi		
1	02KPNOV		Tecnologie e servizi di rete  ING-INF/05 (6)	6	G. Marchetto		
2	02JEUOV		Formal languages and compilers  ING-INF/05 (6)	6	R. Sisto		
2	05BIDOV		Ingegneria del software  ING-INF/05 (8)	8	G. Bruno		
2	04GSOV		Software engineering  ING-INF/05 (8)	8	M. Morisio		
2	01UDFOV		Applicazioni Web I  ING-INF/05 (6)	6	E. Masala		
2	01TXVOV		Web Applications I  ING-INF/05 (6)	6	F. Corno		
2	02GRSOV		Programmazione di sistema  ING-INF/05 (10)	10	G. Cabodi		
2	01NYHOV		System and device programming ING-INF/05 (10)	10	S. Quer		

2° anno

Periodo	Codice	Lingua	Insegnamento	Crediti	Docente	Note	Vincoli
1	Insegnamento a scelta 1			6			
1	01TYMOV		Information systems security ING-INF/05 (6)	6			
1	01UDUOV		Sicurezza dei sistemi informativi ING-INF/05 (6)	6			
1	01SQNOV		Software Engineering II ING-INF/05 (6)	6			
1,2	Crediti liberi			6			
1,2	29EBHOV		Tesi	30			
2	Insegnamento a scelta 2			6			

Insegnamento a scelta 1

Periodo	Codice	Lingua	Insegnamento	Crediti	Docente	Note	Vincoli
1	01TYDOV		Cloud Computing  ING-INF/05 (6)	6			
1	01PDCOV		Digital control technologies and architectures ING-INF/04 (6)	6			
1	01TXZOV		Distributed systems programming ING-INF/05 (6)	6			Si
1	01NWPOV		Elaborazione dell'audio digitale  ING-INF/05 (6)	6			
1	01UDGOV		Energy management for IoT ING-INF/05 (6)	6			Si
1	02JSKOV		Human Computer Interaction  ING-INF/05 (6)	6		 	
1	01SQIOV		Machine Learning and Artificial Intelligence  ING-INF/05 (6)	6			
1	01PDXOV		Modern design of control systems ING-INF/04 (6)	6			
1	01OUVOV		Optimization methods and algorithms  MAT/09 (6)	6			

Example (same page in 2020)

Software								
1° anno 2020/2021								
Periodo	Codice	SSD	Insegnamento	Lingua	Crediti	Docente	Note	Orario
1	01PDWVOV	ING-INF/05 (6)	Information systems	🇬🇧	6	M. Morisio (118 iscr.)	🟢	🕒
1	02GOLOV	ING-INF/05 (10)	Architetture dei sistemi di elaborazione	🇮🇹	10	P. Bernardi (150 iscr.) E. Sanchez Sanchez (159 iscr.)	🟢 🟢	🕒
			oppure					
1	02LSEOV	ING-INF/05 (10)	Computer architectures	🇬🇧	10	P. Montuschi (207 iscr.)	🔴 🟢	🕒
1	01SQJOV	ING-INF/05 (8)	Data Science and Database Technology	🇬🇧	8	S. Chiusano (172 iscr.)	🟢 🟢	🕒
			oppure					
1	01SQMOV	ING-INF/05 (8)	Data Science e Tecnologie per le Basi di Dati	🇮🇹	8	E. Baralis (254 iscr.)	🟢 🟢	🕒
1	01OTWVOV	ING-INF/05 (6)	Computer network technologies and services	🇬🇧	6	G. Marchetto (161 iscr.)	🟢 🟢	🕒
			oppure					
1	02KPNOV	ING-INF/05 (6)	Tecnologie e servizi di rete	🇮🇹	6	G. Marchetto (253 iscr.)	🟢 🟢	🕒
2	02JEUOV	ING-INF/05 (6)	Formal languages and compilers	🇬🇧	6	R. Sisto (60 iscr.)	🔴 🟢	🕒
2	05BIDOV	ING-INF/05 (8)	Ingegneria del software	🇮🇹	8	G. Bruno (132 iscr.)	🟢 🟢	🕒
			oppure					
2	04G5POV	ING-INF/05 (8)	Software engineering	🇬🇧	8	M. Morisio (202 iscr.)	🟢 🟢	🕒
2	01UDFOV	ING-INF/05 (6)	Applicazioni Web I	🇮🇹	6	E. Masala (91 iscr.) L. De Russis (57 iscr.)	🟢	🕒
			oppure					
2	01TXYO	ING-INF/05 (6)	Web Applications I	🇬🇧	6	F. Corno (185 iscr.)	🟢	🕒
2	02GRSOV	ING-INF/05 (10)	Programmazione di sistema	🇮🇹	10	G. Cabodi (100 iscr.) A. Savino (112 iscr.)	🔴 🟢	🕒
			oppure					
2	01NYHOV	ING-INF/05 (10)	System and device programming	🇬🇧	10	S. Quer (108 iscr.)	🟢	🕒
2° anno 2021/2022								
Periodo	Codice	SSD	Insegnamento	Lingua	Crediti	Docente	Note	Orario
1			Insegnamento a scelta 1		6		🔴	
1	01TYMOV	ING-INF/05 (6)	Information systems security	🇬🇧	6		🟢	🕒
			oppure					
1	01UDUOV	ING-INF/05 (6)	Sicurezza dei sistemi informativi	🇮🇹	6		🟢	🕒
1	01SQNOV	ING-INF/05 (6)	Software Engineering II	🇬🇧	6		🟢	🕒
1,2			Crediti liberi		6		🔴	
1,2	29EBHOV		Tesi		30		🔴	
2			Insegnamento a scelta 2		6		🔴	

Colors

The most dangerous weapon in your toolset

I AM LING YOU CAN TRUST ME

Menu

- Home
- Cars
- Vans
- Customers
- About Ling
- Fun stuff
- Free stuff
- Live staff

CARS A-Z

ABARTH

124 Spider Convertible
595 Convertible
595 Hatchback
695 Convertible

ALFA ROMEO

Giulia Saloon
Giulietta
Stelvio Estate

AUDI

I live inside my car leasing website all day Monday to Friday 9am-6pm. I lease the cheapest PCP and contract hire cars in the UK! - I am Ling, except no substitutes

LINGSCARS.com

Leader of the Pack - The UK's favorite car leasing website!

Contract hire cars from Ling Valentine. LINGSCARS is the UK's favourite car leasing website - On 2016 I leased over £85 million in cars!

Stop

"Believe it or not, this Gateshead-based website, featuring Mrs Ling jiggling on her motorbike, is one of the biggest online drivers of car sales in Great Britain" **25th July 2017**

Leader of the Pack

"[Ling Valentine is] Britain's **BIGGEST** individual seller of new cars."

BREXIT RISK FREE! February 2017 **theguardian**

LING'S BREXIT BORIS PROMISE: If the UK leaves the EU with "no deal", tariffs may apply to EU built cars landing in the UK after Brexit day (31st Jan?). If this is the case with YOUR car, and IF the price increases due to tariffs, YOU will be able to cancel the car order at **NO COST** to you. **YOU can order a new car from me, with NO BREXIT RISK.** - Ling

MY BEST SELLING CAR LEASING DEALS!

500 IDEAS!

Fiat 500

1.2 Pop 8v (69bhp) (4 seats)
Hatchback 3dr 1242cc Petrol Manual (5 Speed)

RENT NEW £127/mth including VAT

3 year cheap car leasing

9+35

NICOLE...PAPA!

Renault Clio

0.9 TCE Iconic 12v (90bhp)
Hatchback 5dr 898cc Petrol Manual (5 Speed)

RENT NEW £152/mth including VAT

3 year cheap car leasing

6+35

MEGA-HATCH!

Citroen C3

1.2 PureTech 12v (83bhp) Flair
Hatchback 5dr Manual 1199cc

RENT NEW £157/mth including VAT

2 year cheap car leasing

6+23

Car Leasing Online Service Response Times

Quote > Proposal > Order > Delivery

15 CUSTOMERS IN 'PROPOSAL'

Ling replies in... **0:03:07**

129 CUSTOMERS IN 'ORDER'

Ling replies in... **0:05:03**

1 DELIVERY TODAY

Ford Ka+
Arthur
ATTLEBOROUGH, NR17

21 DELIVERIES IN LAST WEEK

Renault Captur
Cath
PONTEFRAC, WF81

Mercedes GLC Coupe
Bill
BEDLINGTON, NE22

BMW 2 Series Convert...
Pingu
DERBY, DE56

Nissan Qashqai
Arlene
GLASGOW, G11

Volvo XC60 Estate
Saif
MILTON KEYNES, MK8

Seat Leon
Ben
BARNSELY, S70

Skoda Kodiaq Estate
Hannah
HAY-ON-WYE, HR3

Renault Clio
Paul
MIDDLEBROUGH, TS7

Renault Clio
Paul
MIDDLEBROUGH, TS7

Seat Arona
Steve
LONDON, SE18

Seat Leon
Adam
HATFIELD, AL10

Audi A3 Sportback
Chris
WYMONDHAM, NR18

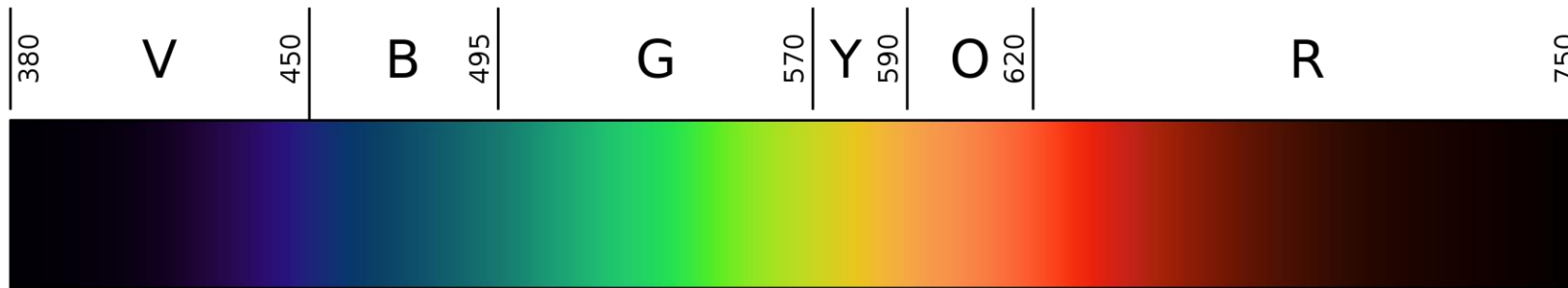
Colors

- A powerful tool to improve interfaces by communicating **key information**
- Inappropriate use of colors can severely **reduce the performance** of an interactive system

Colors: Suggestions

- Be careful, do not exaggerate
- Design in grayscale, first
 - Ensure information is conveyed by text and layout
- When adding colors, try to conserve the same luminance of the grayscale design
- Assign meaning to color
- Use a limited and consistent palette and use slight variations
- Avoid simultaneous display of pure (highly-saturated), spectrally extreme colors
 - e.g., no blue at the same time as red
 - desaturated combinations (pastels) are better

Visible Spectrum

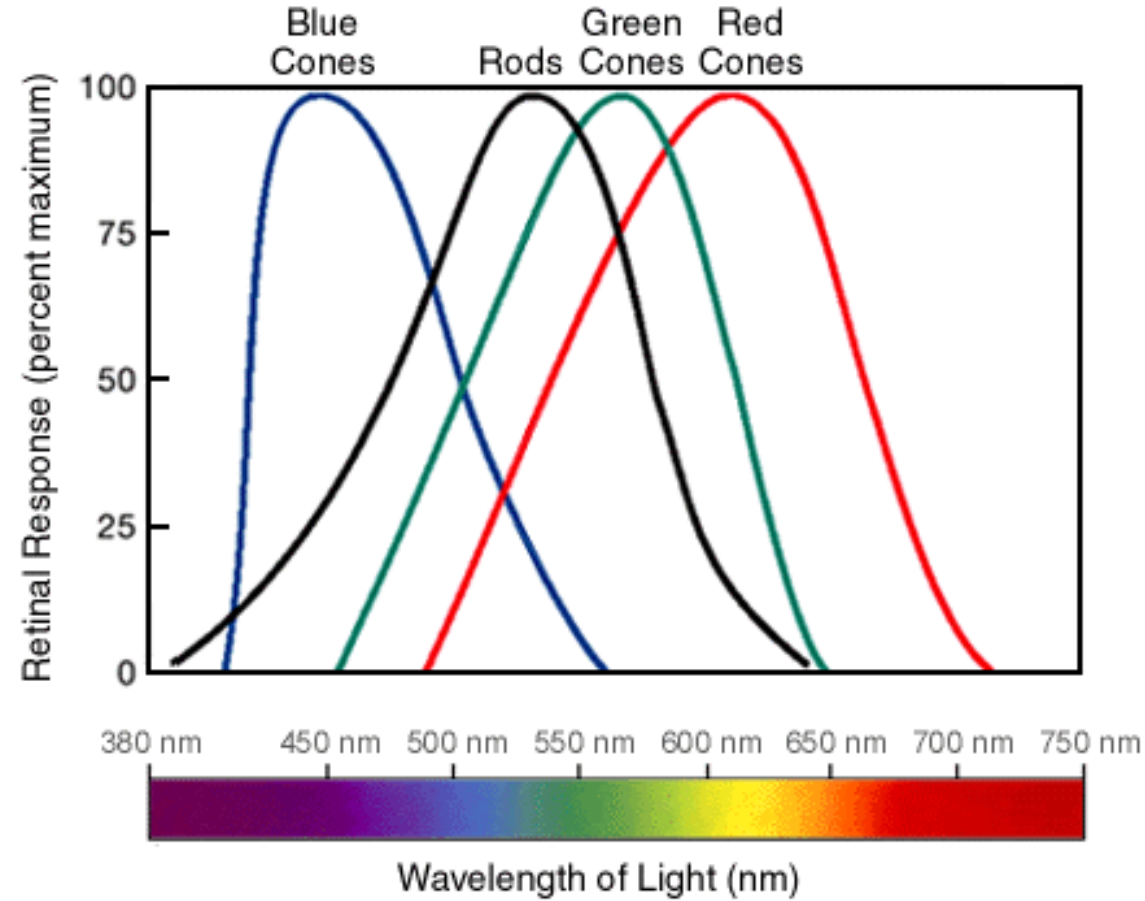


- UV spectrum ends on the left, IR starts on the right
- Wavelengths are in nm
- Source: https://commons.wikimedia.org/wiki/File:Linear_visible_spectrum.svg

Human Vision

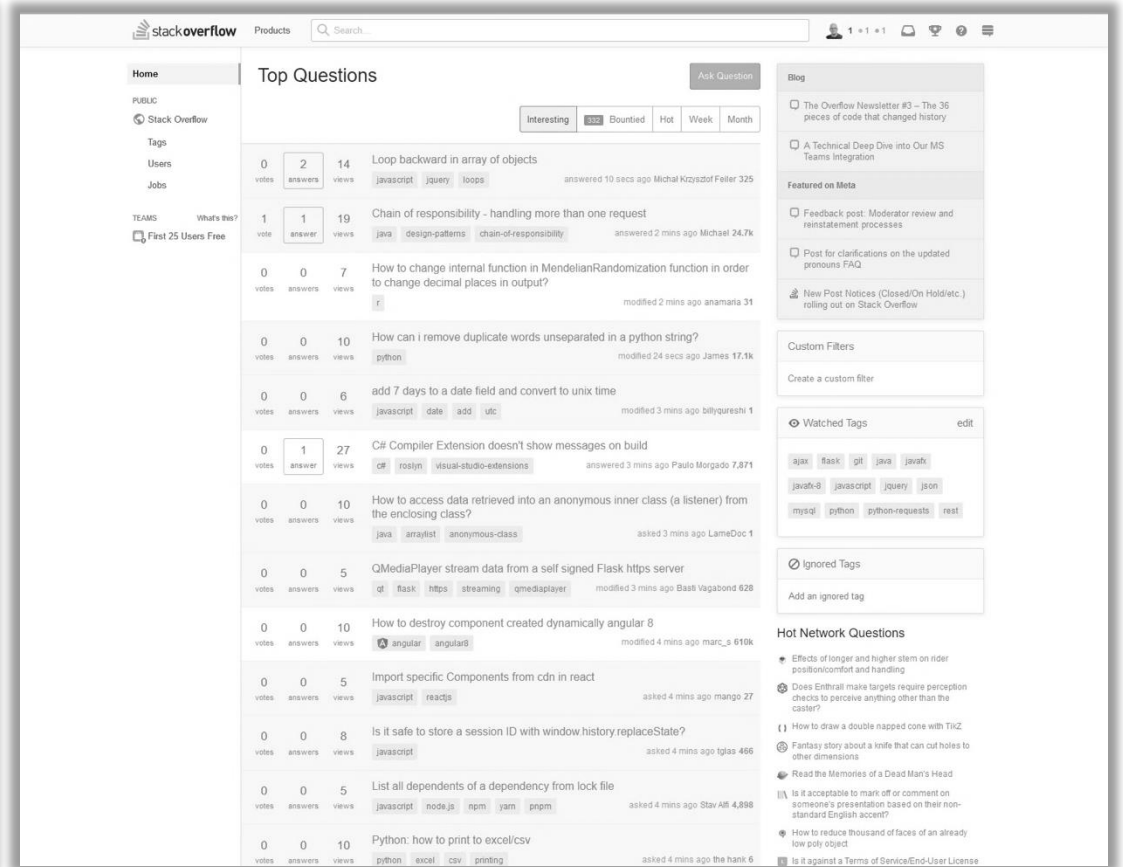
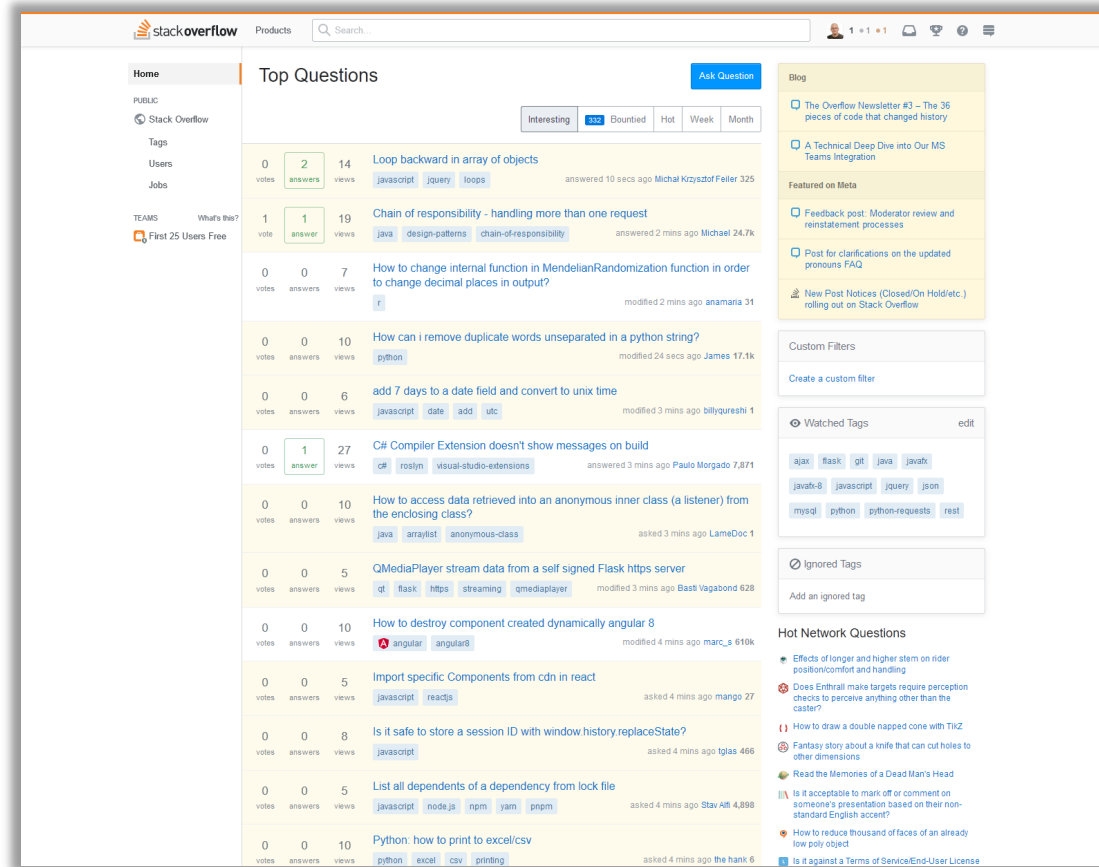
- **Human vision:** a highly complex activity, often the main source of information about the world
- The **eye:** a mechanism for receiving light and transforming it into electrical energy
 - light reflected from objects in the world and their image is focused upside down on the back of the eye
 - then, the receptors in the eye transform it into electrical signal which are passed to the brain
 - the brain detects, finally, pattern and movements

Color Sensitivity of the Eyes



source: <https://askabiologist.asu.edu/rods-and-cones>

Example



Example

ITA | ENG | Login | argomenti o persona

SCOPRIRE L'ATENEO DIDATTICA E STUDENTI IL MONDO DELLA RICERCA INNOVAZIONE PER LE IMPRESE CAMPUS INTERNAZIONALE

festival della TECNOLOGIA
TORINO, 7-10 NOV 2019
Tecnologia è Umanità

È online il programma del Festival della Tecnologia

EVENTI Tutti gli eventi

Dal	Evento	Dal	Evento
14.06	Walking Beyond: camminate urbane attraverso la città contemporanea Giugno - Dicembre 2019	23.10	The Polar oceans and global climate change 23 October - 18 November 2019
04.11	Network dynamics in the social, economic and financial sciences 4-8 November 2019	05.11	OptArch2019 5 - 7 November 2019

ACCESSO RAPIDO

Apply - PoliTo
Iscrizioni online

- Orientamento
- Corsi di studio
- Orario delle lezioni
- Tasse e riduzioni
- Dottorato di ricerca
- Dipartimenti
- Centri interdipartimentali
- Per le imprese
- Servizi web Amministrazione
- Sedi e mappe
- Concorsi e selezioni
- PoliToComunica
- Rassegna stampa
- Alumni

AVVISI E SCADENZE Tutti gli avvisi

10 settembre 2019
Comitato Leonardo: nuovi bandi per i Premi di Laurea

Scadenza presentazione abstract 15 novembre 2019
AI4CH - Artificial Intelligence in geomatics for cultural heritage

Scadenza Call for participation: 15 novembre 2019
Progetti resilienti di natura in città in Francia e in Italia

Deadline online registration: 18 November 2019
Wireless charging of vehicles (WCV2019)

ITA | ENG | Login | argomenti o persona

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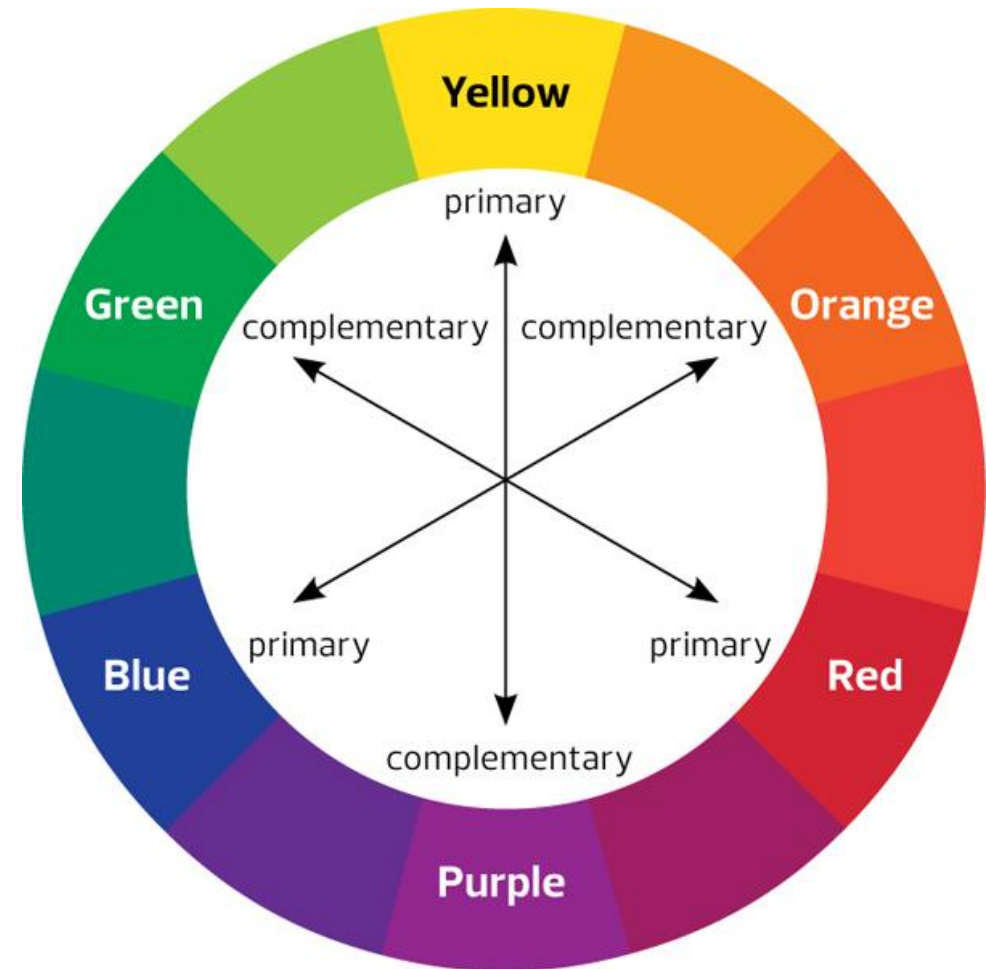
Scadenza presentazione abstract 15 novembre 2019
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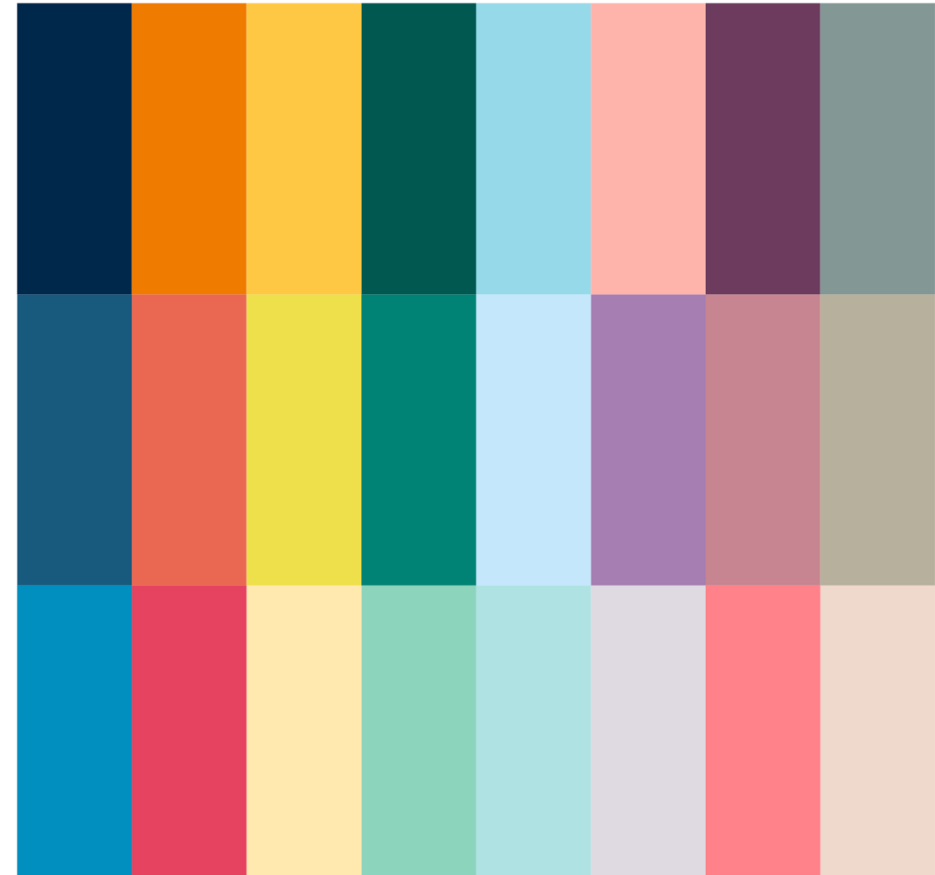
The Color Wheel

- Aka the Hue Circle
- Pick non-adjacent colors
- Opponent colors go well together
 - Complementary colors
- Read more at <https://www.canva.com/colors/color-wheel/>



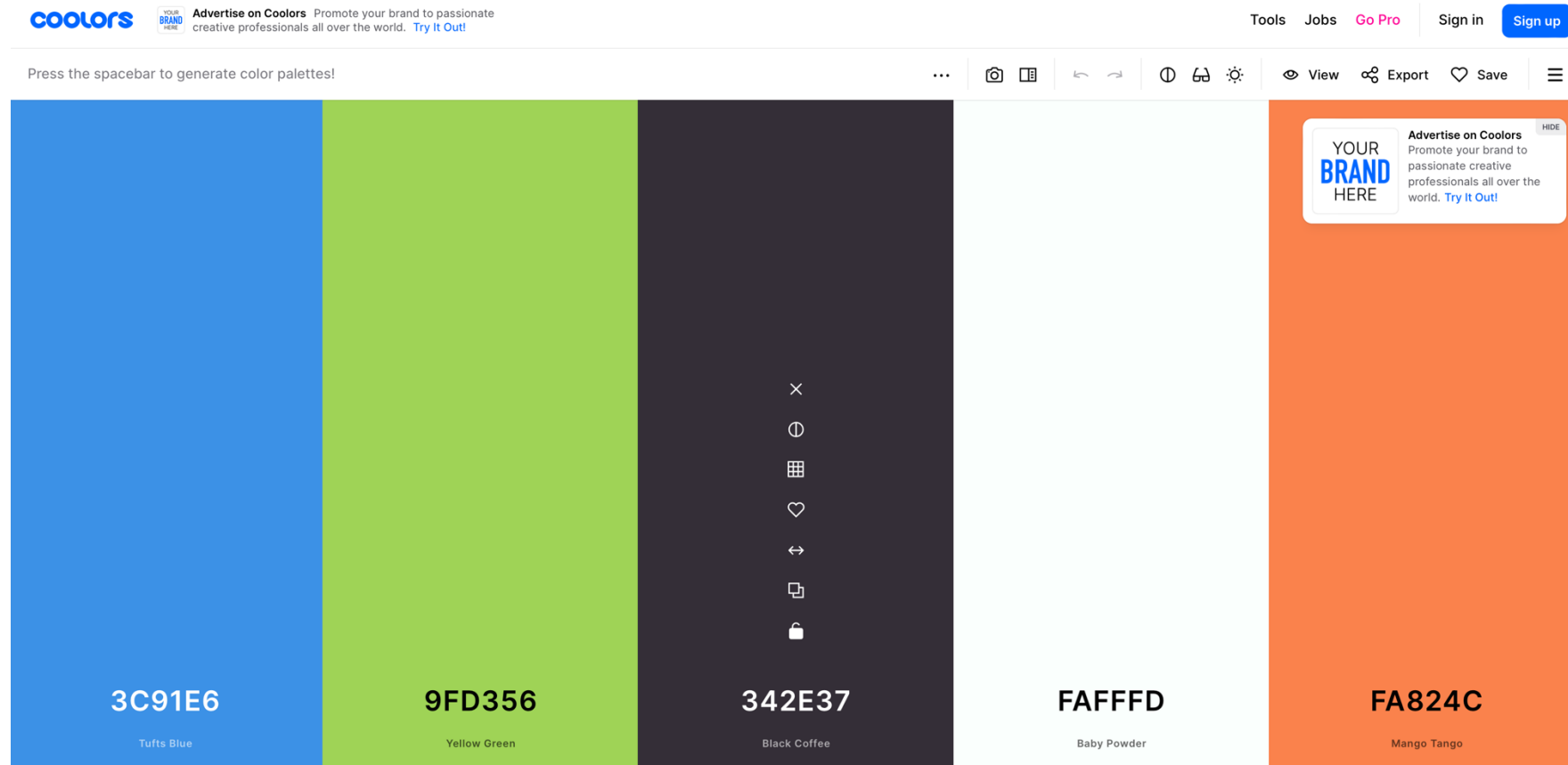
Palettes - PoliTo

GERARCHIA COLORI



https://www.politocomunica.polito.it/en/corporate_image/brand_and_visual_identity

Palettes Generator



<https://coolors.co>

ColourLovers



Share Your Color Ideas & Inspiration.

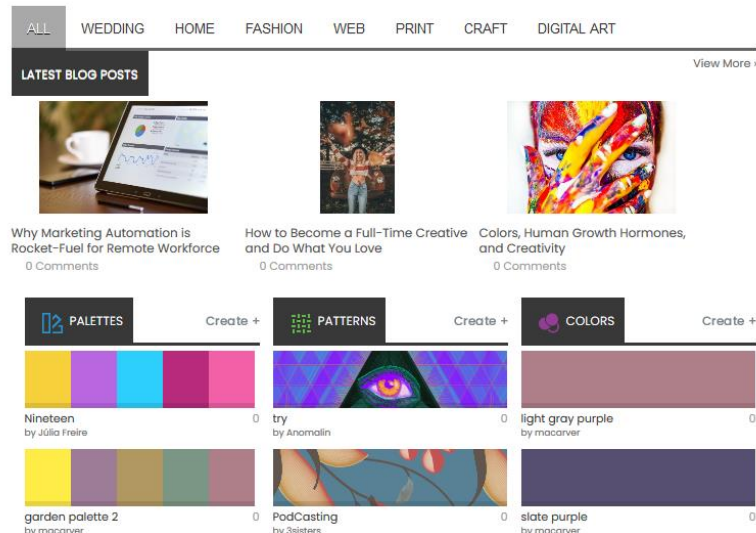
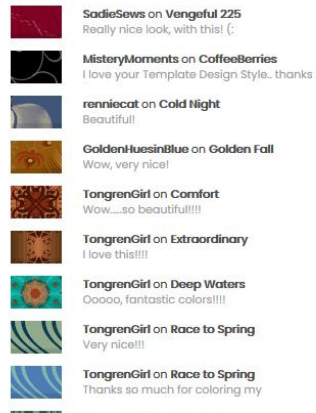
COLOURlovers is a creative community where people from around the world create and share colors, palettes and patterns, discuss the latest trends and explore colorful articles... All in the spirit of love.

Join the Community!

CONNECT WITH COLOURLOVERS

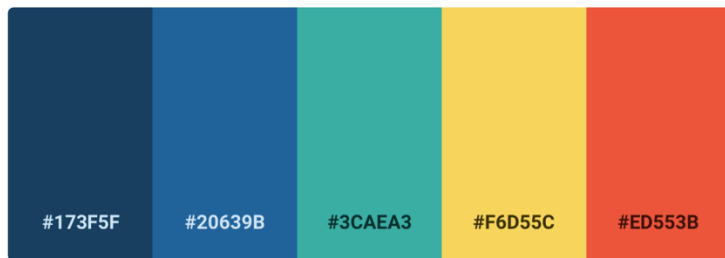
Follow @COLOURlovers 1.59M followers

LOVERS PEEK

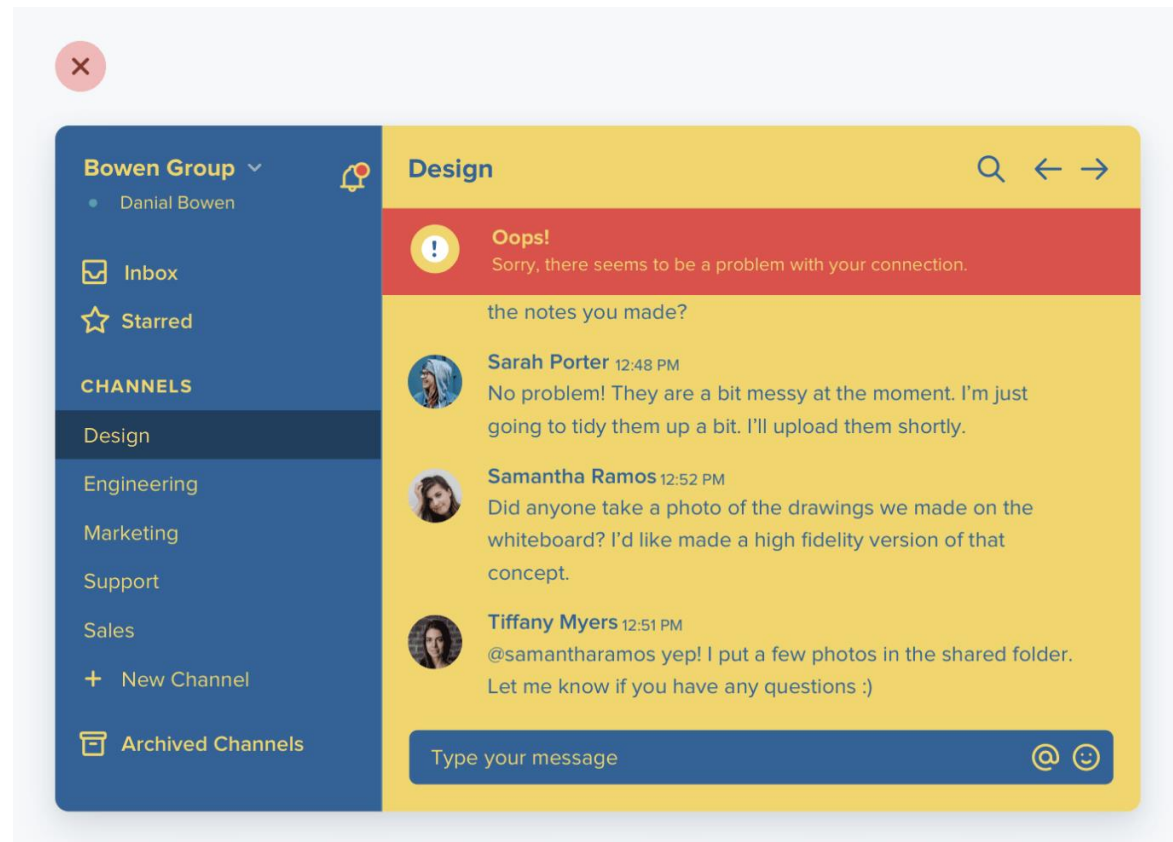


<https://www.colourlovers.com/>

Using Palettes

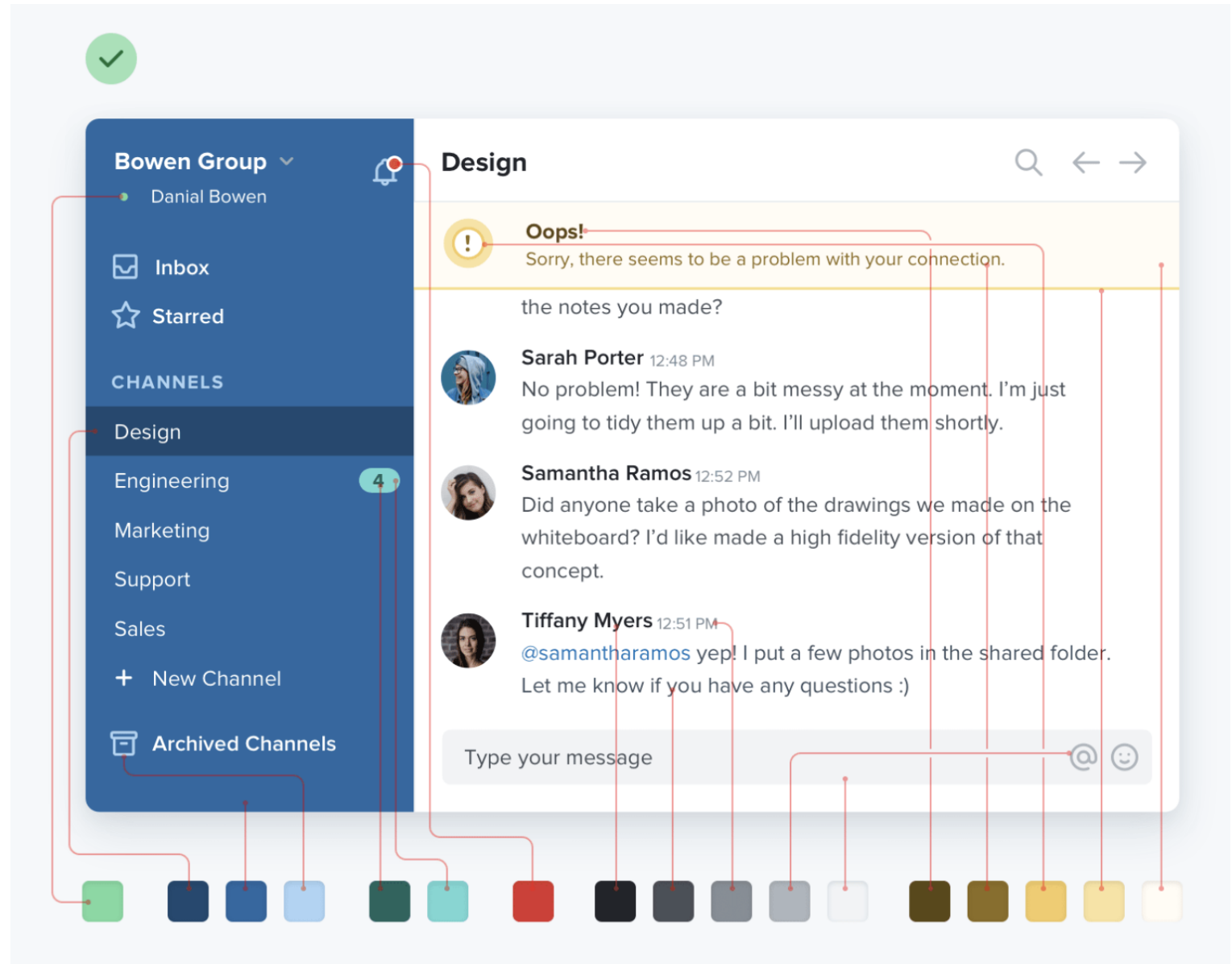


www.refactoringui.com

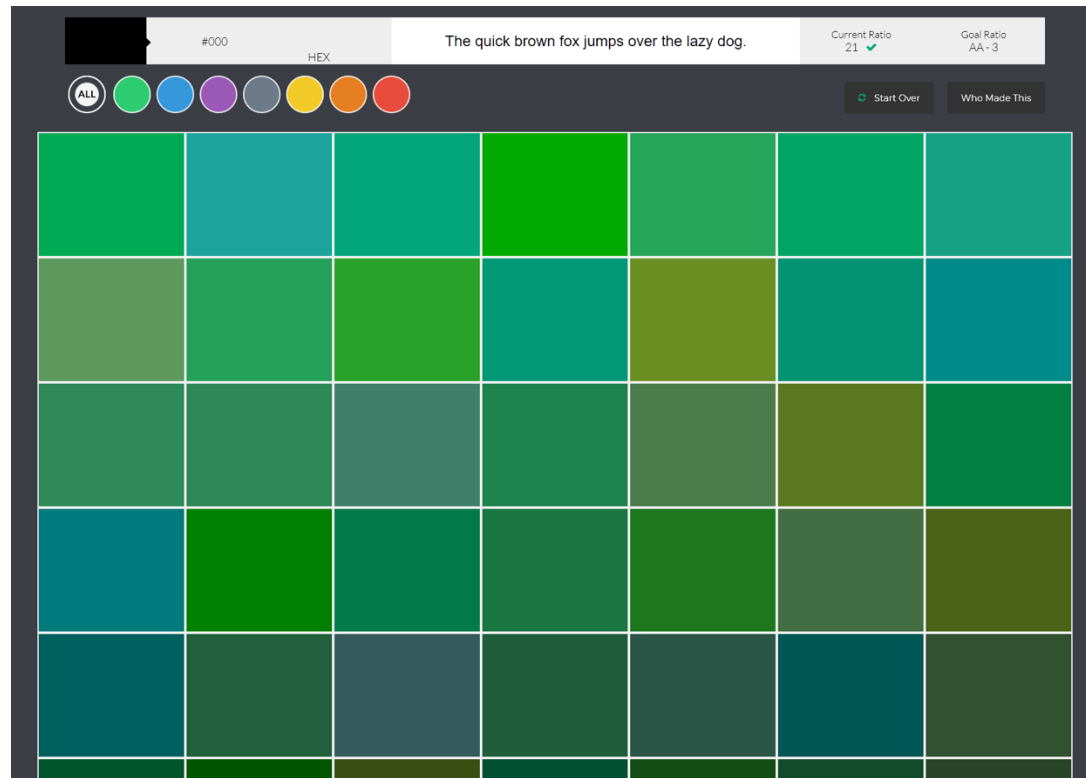


Using Palettes

www.refactoringui.com



Color Contrast



<http://colorsafe.co/>

Default type color On light			Default type color On dark		
Primary	#000000	1a	Primary	#FFFFFF	1a
Secondary	#000000	0.54a	Secondary	#FFFFFF	0.54a
Disabled	#000000	0.26a	Disabled	#FFFFFF	0.26a
Link	#3367D6	1a	Link	#7BAAF7	1a
Positive	#0B8043	1a	Positive	#57BB8A	1a
Negative	#C53929	1a	Negative	#E67C73	1a
Warning	#EA6100	1a	Warning	#F7CB4D	1a

Google Chrome Palette

Example

- Colors needing an explanation legend
- Time intervals are shaded with two different colors
 - “why is the first hour filled with a different color?”
- No indication of the “fill level”

Turni disponibili - Aule Studio - Sala studio al Secondo Piano di C.so Castelfidardo 39

Legenda turni prenotazione

Disponibile Passato Non prenotabile Prenotazioni non attive Turno al quale sei prenotato

Tutti gli orari sono da intendersi espressi secondo il fuso orario italiano

A partire da giorno 15 luglio 2020, è consentito l'uso della seguente Sala Studio della Sede Centrale:
- Sala studio al Secondo Piano di C.so Castelfidardo 39, codice locale TO_CIT11_XP02_001

Le sale studio sono aperte dalle ore 9.00 alle ore 18.00 dal lunedì al venerdì. L'accesso sarà consentito su due turnazioni orarie, dalle ore 9.00 alle 13.00 e dalle ore 14.00 alle ore 18.00

<<	Oggi	>>	21 Set 2020 - 27 Set 2020	1 giorno	3 giorni	Settimana lavorativa	Settimana
	Lunedì 21 Set 2020	Martedì 22 Set 2020	Mercoledì 23 Set 2020	Giovedì 24 Set 2020	Venerdì 25 Set 2020	Sabato 26 Set 2020	Domenica 27 Set 2020
09:00	09:00 - 13:00 - prenotazioni: 36/36	09:00 - 13:00 - prenotazioni: 36/36	09:00 - 13:00 - prenotazioni: 35/36	09:00 - 13:00 - prenotazioni: 36/36	09:00 - 13:00 - prenotazioni: 34/36		
10:00							
11:00							
12:00							
13:00							
14:00	14:00 - 18:00 - prenotazioni: 36/36	14:00 - 18:00 - prenotazioni: 36/36	14:00 - 18:00 - prenotazioni: 34/36	14:00 - 18:00 - prenotazioni: 34/36	14:00 - 18:00 - prenotazioni: 26/36		
15:00							
16:00							
17:00							

Reading and Navigating

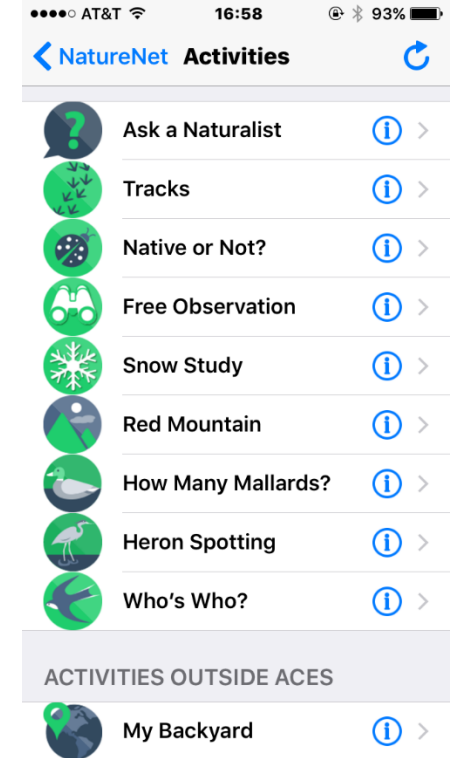
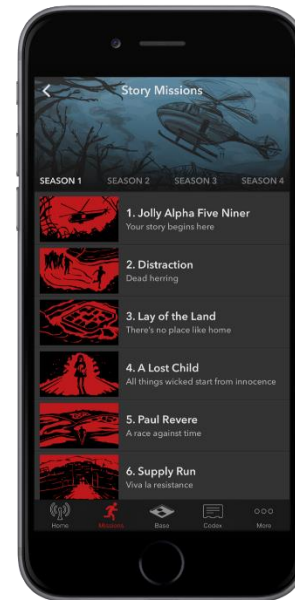
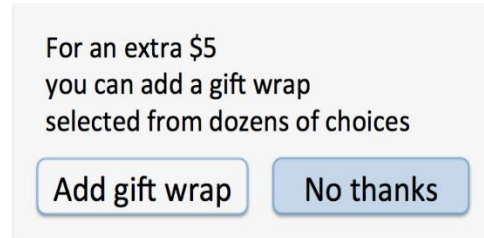
«Informavores» must quickly find the information they need

Navigation

- Enables users to know where they are and to steer themselves to their intended destination
- Is about getting work done (or having fun) through a series of actions
- May consist of
 - **Task navigation**: successfully operating interactive applications, such as installing a mobile app, completing an on-line survey, or purchasing a ticket
 - **Web navigation**: finding information on a website or browsing social media
 - **Command menu navigation**: finding the action needed in a desktop application
- Has nothing to do with visual elegance / graphic shininess

Navigation By Selection

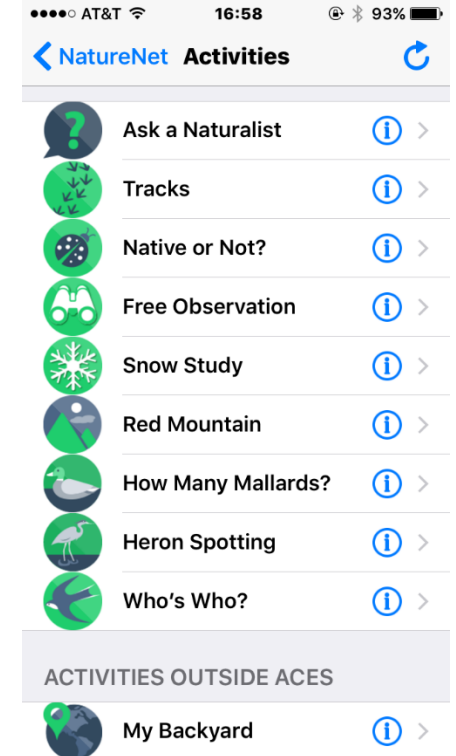
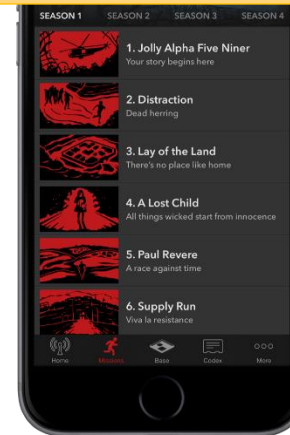
- Menu bars, pop-up menus, toolbars, palettes and ribbons
- Shortcuts and gestures for rapid interaction
- Long lists
- Linear versus simultaneous presentation



Navigation By Selection

- Menu bars, pop-up menus, toolbars, palettes and ribbons
- **Shortcuts and gestures for rapid interaction**
- Long lists
- Linear versus simultaneous presentation

- Tap
- Long press
- Double tap
- Small swipe
- Large swipe
- Rapid swipe (fling)
- Pinch and spread
- 2-finger swipe
- ...



Navigation By Selection

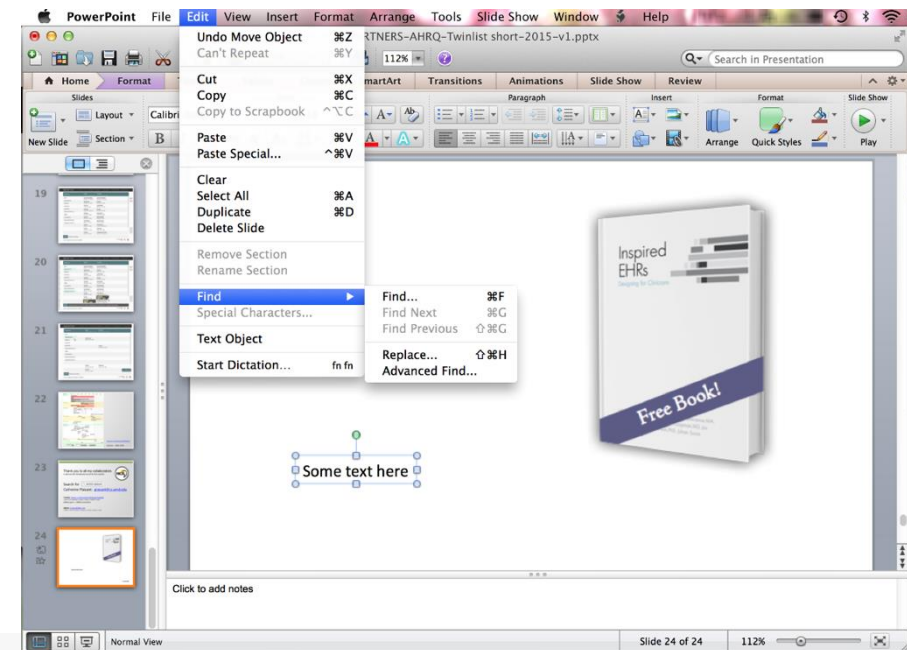
- Radio Buttons and Checkboxes
- Menu bars, pop-up menus, toolbars, palettes and ribbons

Does anyone in your household currently smoke?

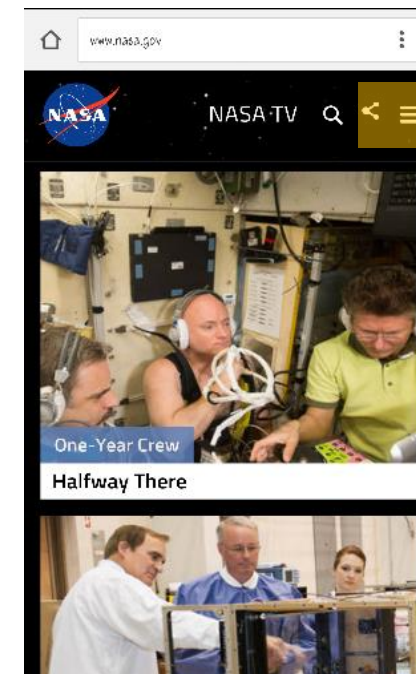
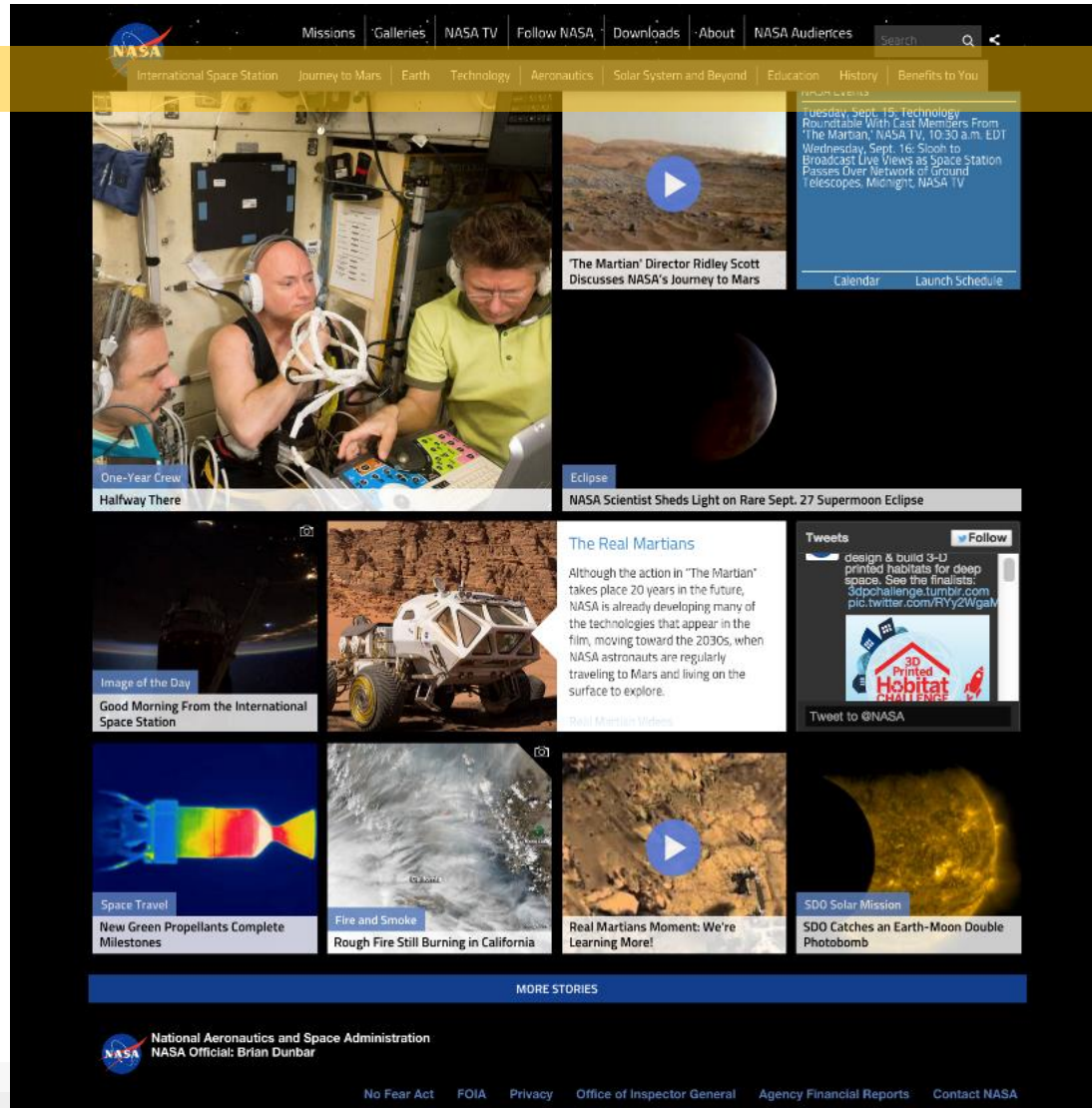
- ☐ Yes, someone does
- ☒ No, no one does
- ☐ Not sure

What treatment would you like to discuss with a nurse?

- ☐ Surgery
- ☒ Physical therapy
- ☒ Medication
- ☐ Acupuncture (not available in your area)



Menus



Content Organization

- Organizing menus in a meaningful structure results in faster selection time and higher user satisfaction
- Approaches:
 - Linear sequence (e.g., in a wizard or survey)
 - Hierarchical structure (tree) that is natural and comprehensible (e.g., a store split into departments)
 - Network structure when choices may be reachable by more than one path (e.g., websites)

Tree-like Content Organization

[▼ Help](#) [Wish List](#) [Gift Registry](#) [Classes & Events](#) [Store Locator](#) [0](#) [Checkout](#)

Welcome to REI! | [Log In](#) or [Register](#)
FREE SHIPPING With \$50 minimum purchase.

SHOP REI

SHOP REI OUTLET

TRAVEL WITH REI

LEARN

BLOG

MEMBERSHIP

STEWARDSHIP

[Camp & Hike](#) [Climb](#) [Cycle](#) [Fitness](#) [Run](#) [Paddle](#) [Snow](#) [Travel](#) [Men](#) [Women](#) [Kids](#) [Footwear](#) [More](#) **Deals**

Bikes
Mountain Bikes
Road Bikes
Hybrid Bikes
Kids' Bikes
Bike Helmets
Road Helmets
Mountain Bike Helmets
Kids Helmets

Cycling Clothing
Jerseys
Jackets
Shorts
Tights and Pants
Accessories
Cycling Shoes
Road Shoes
Mountain Bike Shoes

Bike Accessories
Computers
Lights
Locks
Pumps
Racks
Trailers
Trainers
Messengers/Backpacks
Panniers/Bike Bags

Bike Components
Brakes
Saddles/Seat Posts
Tires, Tubes and Wheels
Tools and Maintenance
Drivetrain Components
Pedals
Handlebars


GIVE THE GIFT OF GEAR
ANYTIME, ANYWHERE
REI gift & e-gift cards
[Buy now](#)

[Car Racks](#) [Novara Cycling](#) [Cycling Deals](#) [All Cycling](#)

☐ Deals (31)

▼ Features

- ☐ Moisture wicking (27)
- ☐ Quick drying (26)
- ☐ Sun-protective fabric (22)
- ☐ Waterproof (15)
- ☐ Insulated (11)
- ☐ Earflaps (6)
- ☐ Made in USA (5)

[See 8 More](#)

▼ Brand

[Clear](#)

☐ 686 (6)


★★★★★ (1)
REI Rainwall Rain Jacket - Girls'
\$31.83 - \$64.50
[Compare](#)


★★★★★ (1)
REI Rainwall Rain Pants - Kids'
\$49.50
[Compare](#)


★★★★★ (9)
REI Sahara Convertible Pants - Girls'
\$44.50
[Compare](#)


ONLY AT REI


ONLY AT REI


ONLY AT REI

Rules for Tree-like Organization

- Use **task semantics** to organize menus
- Limit the **number of levels** (i.e., prefer broad–shallow to narrow–deep)
- Create groups of **logically similar** items: e.g., Level 1: countries, Level 2: states, Level 3: cities
- Form groups that **cover all possibilities**: e.g., Age ranges: [0–9] [10–19] [20–29] and [≥ 30]
- Make sure that items are **non-overlapping**: e.g., use “Concerts” and “Sports.” over “Entertainment” and “Events”
- Arrange items in each branch by **natural sequence** (not alphabetically) or **group** related items
- Keep **ordering** of items **fixed** (or possibly duplicate frequent items in dedicated section of the menu)

Example


Tool Prenotazioni

Selezionare l'ambito per il quale ci si intende prenotare

Ambiti per i quali è possibile effettuare una prenotazione

> Aule Studio
 > Biblioteca
 > Segreteria generale studenti

Aule Studio - Seleziona Aula Studio

> Sala studio al Secondo Piano di C.so Castelfidardo 39
 > Sala studio sotto l'aula 7

Ambiti per i quali è possibile effettuare una prenotazione

> Aule Studio
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Tool Prenotazioni

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Turni disponibili - Aule Studio - Sala studio al Secondo Piano di C.so Castelfidardo 39

Legenda turni prenotazione

Disponibile
Passato
Non prenotabile
Prenotazioni non attive
Turno al quale sei prenotato

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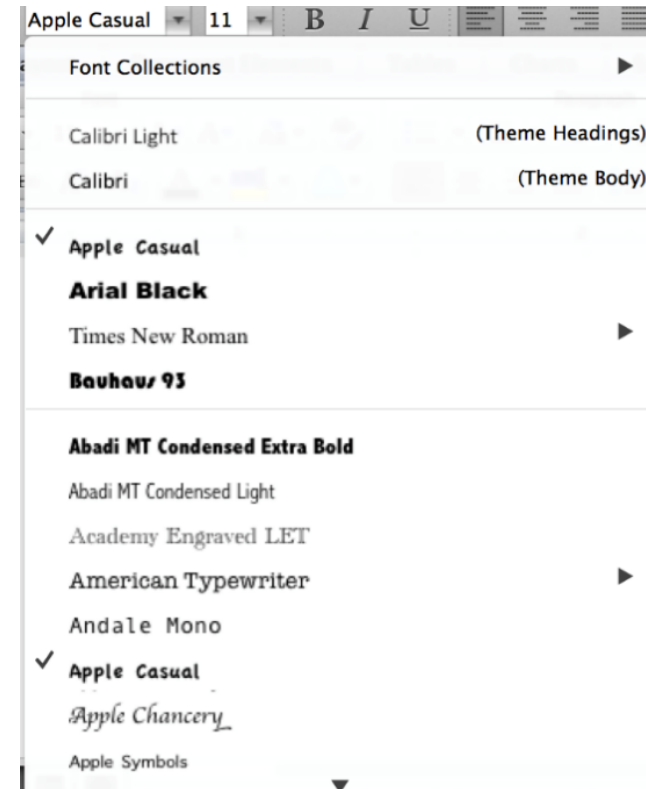
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<< Oggi >> 14 Set 2020 - 18 Set 2020
 1 giorno 3 giorni **Settimana lavorativa** Settimana

	Lunedì 14 Set 2020	Martedì 15 Set 2020	Mercoledì 16 Set 2020	Giovedì 17 Set 2020	Venerdì 18 Set 2020
09:00	09:00 - 13:00 - prenotazioni: 36/36	09:00 - 13:00 - prenotazioni: 33/36	09:00 - 13:00 - prenotazioni: 36/36	09:00 - 13:00 - prenotazioni: 32/36	09:00 - 13:00 - prenotazioni: 35/36
10:00					
11:00					
12:00					
13:00					

Menu Grouping: example

- 3 groups
 - Template styles
 - Frequently used fonts
 - All fonts
- Alphabetical order within each group
 - Lack of a semantic ordering
- Preview for recognition
- Scrollable list



Information Scent

- Informavores orient themselves using *information scent*
- How can we figure out how to get the information we want?
- Do we realize what options are available to us?
- Web pages (and UIs general) provide *cues* to suggest where to find information
 - Icons, Menus, Breadcrumbs, Color coding, ...



Informavore, an organism that consumes information

Poor Information Scent

- Users flailing around...
 - Do not know where to go
- Low confidence
 - Users are not sure of their actions, both before executing it and after they see its effects
- Back button
 - When it's used too often...

Example

The screenshot displays the 'Teaching portal' of the Politecnico di Torino. The header features a navigation bar with links for 'The Politecnico', 'Teaching', 'Research', 'Business', and 'International Campus', along with language options (ITA | ENG), a login button, and a search bar. The main content area is organized into a grid of service tiles. The 'Course catalogue' tile provides links to course catalogues, curricula, and syllabi, as well as special projects. The 'Student Guide' tile directs users to find their degree programme. 'Student services' includes exam dates, course finders, and support services. The 'Notice board' features news and events. Other tiles include 'Apply@polito' for online applications, 'Orientation' for degree programme selection, 'Fees, scholarships and prizes' for financial aid and job opportunities, 'Study abroad' for international mobility, 'News - events - notices' for updates, 'Career service' for internships and job placements, 'Graduates' for state examinations, 'Regulations / Student discipline' for university rules, and 'Teaching Quality Assurance' for accreditation information. The footer contains contact information, logos for regional entities, and social media links.

■ The Politecnico ■ Teaching ■ Research ■ Business ■ International Campus ITA | ENG Login keywords or people

POLITECNICO DI TORINO

Teaching portal

Course catalogue Course catalogue, curricula, course syllabi. Special projects: Young Talent Project and Alta Scuola Politecnica.	Student Guide Find the Student Guide of your degree programme.	Student services Exam dates, course finder, lecture rooms, libraries, course timetables, Language Centre, thesis proposals, support services, cultural activities and much more.	Notice board News and events from the Office of the University Registrar, the Office of Student Services and the various degree programmes.
Apply@polito Politecnico di Torino online application service (all levels and programmes).	Orientation Choosing your degree programme, application information and services for Polito and high school students.	Fees, scholarships and prizes Tuition fees and reductions, IELTS payment policy, scholarships and financial aid, part-time on-campus jobs, university residences and much more.	Study abroad International mobility for students, faculty and staff: calls for applications for study periods at foreign universities, thesis and internships abroad, teaching mobility, international
News - events - notices DETAILED NEWS - EVENTUARIUM - 2011-2012 For further informations click here		Career service Internships and job placements for students and graduates, recruiting services for employers.	Graduates State examination for professional practice, alumni, Almalaurati.
		Regulations / Student discipline Regulations, Disciplinary Board.	Teaching Quality Assurance Teaching Quality Assurance, Joint Committee on Teaching, regional accreditation.

Posta Studenti email  **Ente Regionale per il Diritto allo Studio Universitario** **Contact us**  **Lezioni online demo**   

Contacts

© Politecnico di Torino
Corso Duca degli Abruzzi, 24 - 10129 Torino, ITALY

Example

Bachelor's degree programmes	Young Talent Project
Master's degree programmes	Alta Scuola Politecnica
Specializing Master's programmes and Lifelong Learning	Ph.D. programmes
	Postgraduate School
Curricula and course syllabi of current and previous years	Summer School

Welcome to Apply@polito - the online application service of the Politecnico di Torino			
Bachelor's degree programmes Information about Bachelor's degree programmes for students with Italian high school diploma.	M.Sc. Italian students Information about Master's degree programmes for students with Italian degree.	Students with a foreign qualification Information about Bachelor's degree and Master's degree for students with a foreign qualification.	
Ph.D. Information about Ph.D.	Specializing master Information about 1st and 2nd level Specializing Master's Programmes and Lifelong Learning courses.	Exchange programmes Online application for nominated Exchange students.	State exams Information about the state exam.
News - Events			
Online application form Privacy - Information Forgot your password?			

STUDENT GUIDE (2019 - 2020)	
ITA	ENG
All guides	
Area	Course
Architecture 1st level	Bachelor's degree programme in ARCHITECTURE Location: Torino - Class: ARCHITECTURE
Architecture 1st level	Bachelor's degree programme in ARCHITECTURE Location: Torino - Class: ARCHITECTURE
Architecture 1st level	Bachelor's degree programme in DESIGN AND COMMUNICATION Location: Torino - Class: INDUSTRIAL DESIGN
Architecture 1st level	Bachelor's degree programme in DESIGN AND VISUAL COMMUNICATION Location: Torino - Class: INDUSTRIAL DESIGN
Architecture 1st level	Bachelor's degree programme in TERRITORIAL, URBAN, ENVIRONMENTAL AND LANDSCAPE PLANNING Location: Torino - Class: TOWN, REGIONAL AND ENVIRONMENTAL PLANNING
Architecture 2nd level	Master's degree programme in ARCHITECTURE CONSTRUCTION CITY Location: Torino - Class: ARCHITECTURE AND ARCHITECTURAL ENGINEERING
Architecture 2nd level	Master's degree programme in ARCHITECTURE FOR THE SUSTAINABILITY DESIGN Location: Torino - Class: ARCHITECTURE AND ARCHITECTURAL ENGINEERING
Architecture 2nd level	Master's degree programme in ARCHITECTURE HERITAGE PRESERVATION AND ENHANCEMENT Location: Torino - Class: ARCHITECTURE AND ARCHITECTURAL ENGINEERING
Architecture 2nd level	Master's degree programme in ECODSIGN Location: Torino - Class: DESIGN
Architecture 2nd level	Master's degree programme in SYSTEMIC DESIGN Location: Torino - Class: DESIGN
Architecture 2nd level	Master's degree programme in TERRITORIAL, URBAN, ENVIRONMENTAL AND LANDSCAPE PLANNING Location: Torino - Class: REGIONAL, URBAN AND ENVIRONMENTAL PLANNING
Engineering 1st level	Bachelor's degree programme in AEROSPACE ENGINEERING Location: Torino - Class: INDUSTRIAL ENGINEERING

Exam dates	Course finder	C.I.A. Language Center	Course Timetables
Thesis proposals	Support services	Research Labs	Campus maps
Student teams	Register of student societies	Libraries	Study rooms
Student projects	Donations (5X1000)	University residences	Free room finder
Mobility and Cultural	Sports activities	Polito Wi-Fi	

Find the Degree Course of your degree programme	Find the Degree Course of your degree programme	Find the Degree Course of your degree programme	Find the Degree Course of your degree programme
Find the Degree Course of your degree programme	Find the Degree Course of your degree programme	Find the Degree Course of your degree programme	Find the Degree Course of your degree programme
Find the Degree Course of your degree programme	Find the Degree Course of your degree programme	Find the Degree Course of your degree programme	Find the Degree Course of your degree programme
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Find the Degree Course of your degree programme	Find the Degree Course of your degree programme	Find the Degree Course of your degree programme	Find the Degree Course of your degree programme

Generale	Area dell'Architettura Corsi di Laurea di 1° livello	Area dell'Architettura Corsi di Laurea Magistrale
Studenti	Area dell'Ingegneria Corsi di Laurea di 1° livello	Area dell'Ingegneria Corsi di Laurea Magistrale

Fees and Reductions University fees, exemptions and reductions.	Part-time Collaborations part-time collaborations for remunerative activities supporting education and services.	Halls of residence Accommodation solutions, services, benefits.
Researching activity announcements Scholarships willing to work in the university and in the field of researching.	Scholarships and prizes Scholarships and prizes to help deserving students financially.	External Institutions' announcements Scholarships and prizes supported by external institutions addressed to students and graduates.
News - events - notices		

AlmaIaurea Consorzio interuniversitario per l'Università e il mondo del lavoro.	Esami di stato Presso il Politecnico di Torino è possibile conseguire l'abilitazione all'esercizio delle professioni di Architetto e Ingegnere.	Ex allievi Associazione fondata nel 1908. Accumunati dalla formazione politecnica, dall'interesse per la cultura scientifica e l'innovazione tecnologica.	Certificati e autocertificazioni Le procedure per ottenere i certificati e presentare le autocertificazioni sono disponibili nell'omonima sezione della guida dello studente.
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STUDENTS & GRADUATES Check all the opportunities to build your career.	EMPLOYERS Find out how to get in touch with our talents.	EVENTS
HIGHLIGHTS: TECH TALK VISHAY L'evoluzione della E-Mobility 07 Novembre 2019 ore 17:30 - Aula 4P		
VIDEO GALLERY: LA BELLEZZA DI FARE IMPRESA Job Fair@Polito under 250 La bellezza di fare impresa		
Career Day 2018 I consigli dello studente per il colloquio di lavoro		
Career Day 2018 L'importanza delle esperienze curriculari		

Common Problems

- Unexpected categories
- Short links
- Hidden navigation
- Icons are too generic, or not easily recognizable

Icons

- Icons facilitate recognition over recall
 - When they are consistently used, and frequently visible
- Redundant coding helps recognition and memorization
 - Icon + Text + Tooltip + Context



Links

- Always use multi-word links
 - Download the [next assignment template](#)
 - Assignment template: click [here](#)
- Straight language, not jargon
 - [Scor-o-matic](#) download
 - Download the [spreadsheet for computing scores](#)

Forms

- Logical field grouping
 - Sections
 - Dividers
 - Columns (spacing)
 - Titles
- Real-time error checking and validation feedback
 - Suggestions for correction
- Explicit submit button

The screenshot displays a web form titled "Create an IEEE Account" with a close button (X) in the top right corner. The form is organized into two main columns for logical field grouping.

Left Column: Provide your personal information

- * Required field** (indicated by a red asterisk)
- * Given/First name:** Input field containing "Catherine".
- Middle name:** Input field.
- * Last/Family/Surname:** Input field containing "Plaisant".

Right Column: Enter e-mail address & password

- Text: "The e-mail provided here will be the username of your account."
- * E-mail address:** Input field containing "cplaisant@" with a red border indicating an error.
- * Re-enter e-mail address:** Input field.
- * Password:** Input field with masked characters "*****".
- * Confirm password:** Input field.

Feedback Messages:

- E-mail Error:** A yellow warning box with a triangle icon states: "The e-mail address provided is not in a valid e-mail format (for example: j.doe@nomain.com). Please try again."
- Password Success:** A green success box with a checkmark icon states: "Your password is good". Below it, text explains: "Passwords must be between 8 and 64 characters, and include at least one number. [More...](#)"

Set security questions

For your security, IEEE Accounts are required to have two security questions and answers.

- * Security question 1:** Dropdown menu with "Select" as the current choice.
- * Type your answer:** Input field.
- * Security question 2:** Dropdown menu with "Select" as the current choice.
- * Type your answer:** Input field.

Footer:

- [Privacy & Opting Out of Cookies](#)
- Create Account and Continue Joining** (orange button)
- [Cancel](#)

Form Elements and UI Elements

Text input fields let you input text

☐ NonFederal (99)
☐ Federal (57)

☐ Yes ☐ No

Find your state or... Go

List boxes
Are like dropdowns
But they let
You make
Multiple selections
Like checkboxes do

General Settings
Your Profile
Sign Out

SEP 18TH 2010

22 JUN

Send Post Tweet

ON OFF

Su Mo Tu We Th Fr Sa
01 02 03 04 05 06 07
08 09 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31 01 02 03 04

22 JUN

Navigation icons

Navigation icons

Menu Item Messages About Us

This is a box

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce metus. Pellentesque sit amet velit. Phasellus non quam. Nulla diam purus, tristique quis, eleifend ac, molestie eu, sapien. Vestibulum ante ipsum primis.

READ MORE

Navigation arrows

1 2 3 4 5 6 7 8 9 10 next
Previous 1 2 3 4 5 6 7 8 9 10 ... 245 247 Next
Prev 1 2 3 4 5 6 ... 33 34 Next

Tags

Costs (72)
Health Conditions (54)
Improving Care (53)
Prevention (50)
Rights, Protections and Benefits (135)
Insurance Coverage (141)

Navigation
Navigation Crystal Clear
Navigation Menu
Navigation Soft Style
Navigation Class
Navigation Plastic

Enter Keywords
Search Option One Search Option Two Search Option Three

Enter Keywords
Category
SEARCH

Search:
Everything
Articles
Photos
Videos
Audio

1 2 3 4 5
1. Skills 2. Location 3. Finish
1 Step 2 Step 3 Step

Clean Fresh Modern
Unique x +

<https://www.usability.gov/how-to-and-tools/methods/user-interface-elements.html>

Exercise (~10 minutes)

- Open the Polito website: <https://www.polito.it/>
- Try to find this information:
 - ***“Deadline for passing all the exams for graduating in the Master Degree in Computer Engineering in the winter session”***
- Look for any problems related to navigation and information scent

Reading Content

Organizing text and content for maximum visibility

Reading Content

“How people
read on-line?”

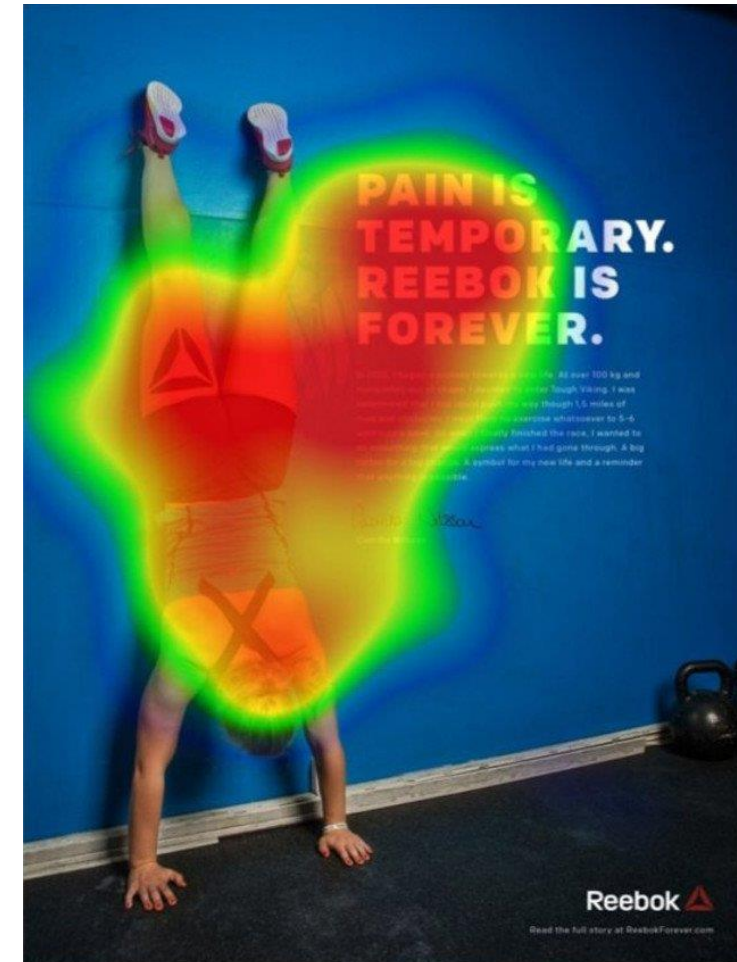
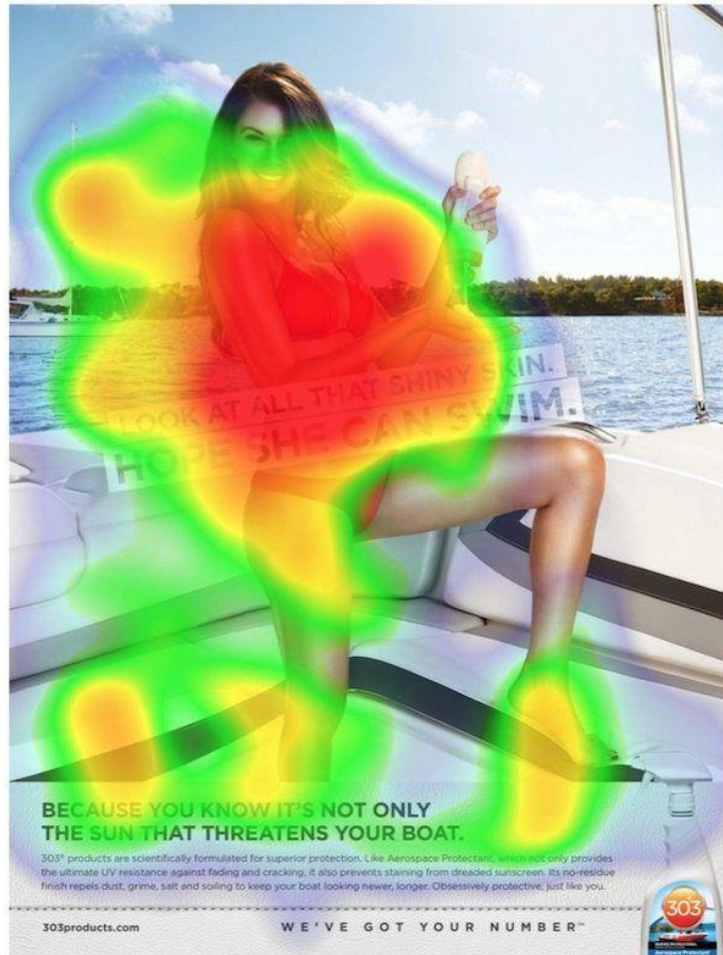
“They don’t”

How Users Read on the Web

by Jakob Nielsen on September 30, 1997

<https://www.nngroup.com/articles/how-users-read-on-the-web/>

Did Anyone Ever Look at the Product Name?



Eye Trackers



source: <https://www.tobii.com>

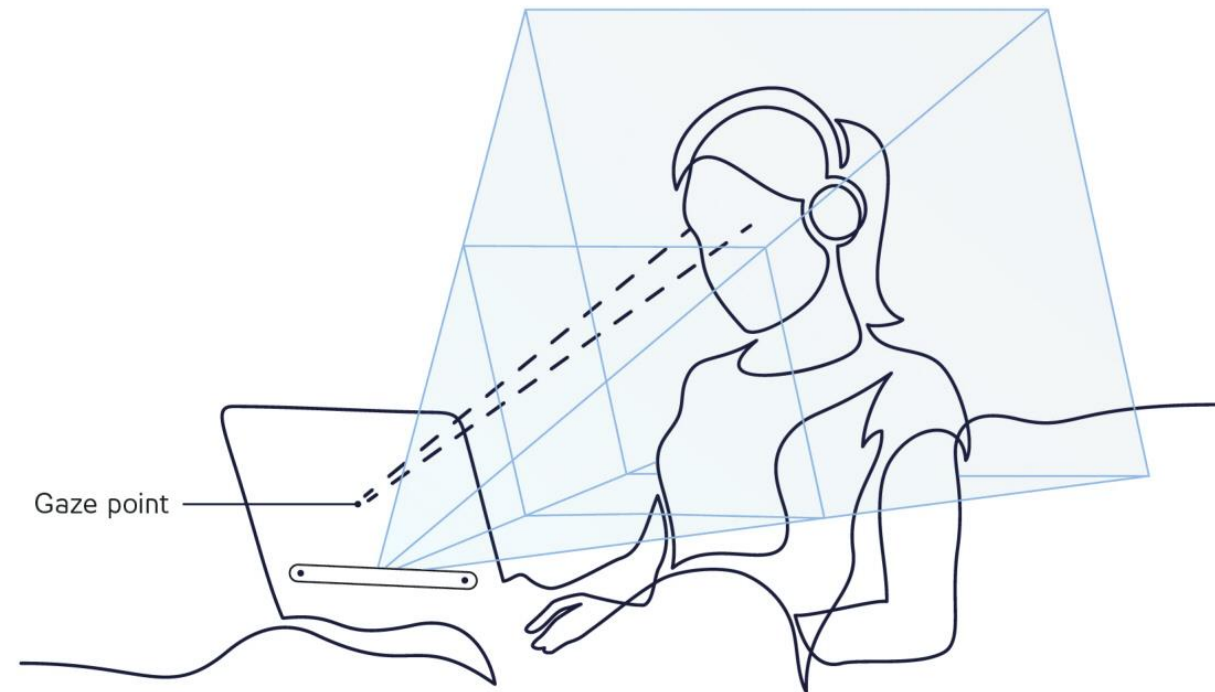
Eye Tracking



- Observe eye movements
 - One or more cameras
 - Usually in infra-red
- Infer where the user was looking (on the screen)
- Record the positions where your gaze will go
- Combine observations from many users

Eye Tracker: How It Works

- 1 An eye tracker consists of cameras, projectors and algorithms.
- 2 The projectors create a pattern of near-infrared light on the eyes.
- 3 The cameras take high-resolution images of the user's eyes and the pattern.
- 4 Machine learning, image processing and mathematical algorithms are used to determine the eyes' position and gaze point.

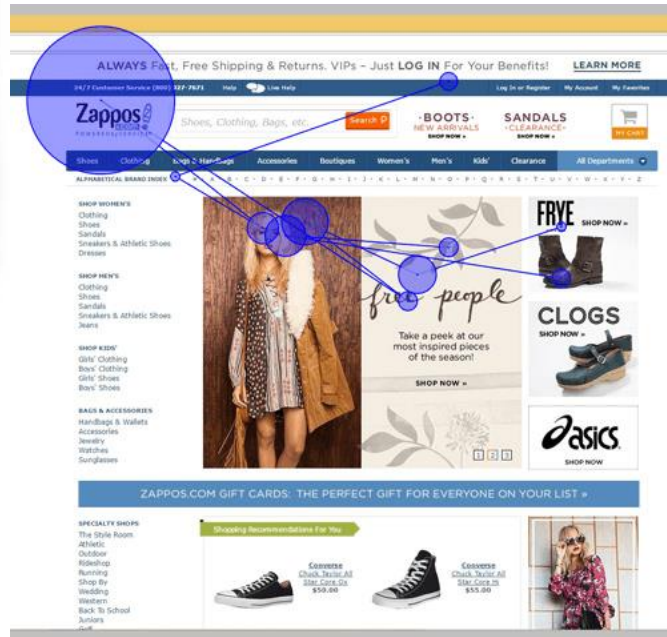


source: <https://www.tobii.com/group/about/this-is-eye-tracking/>

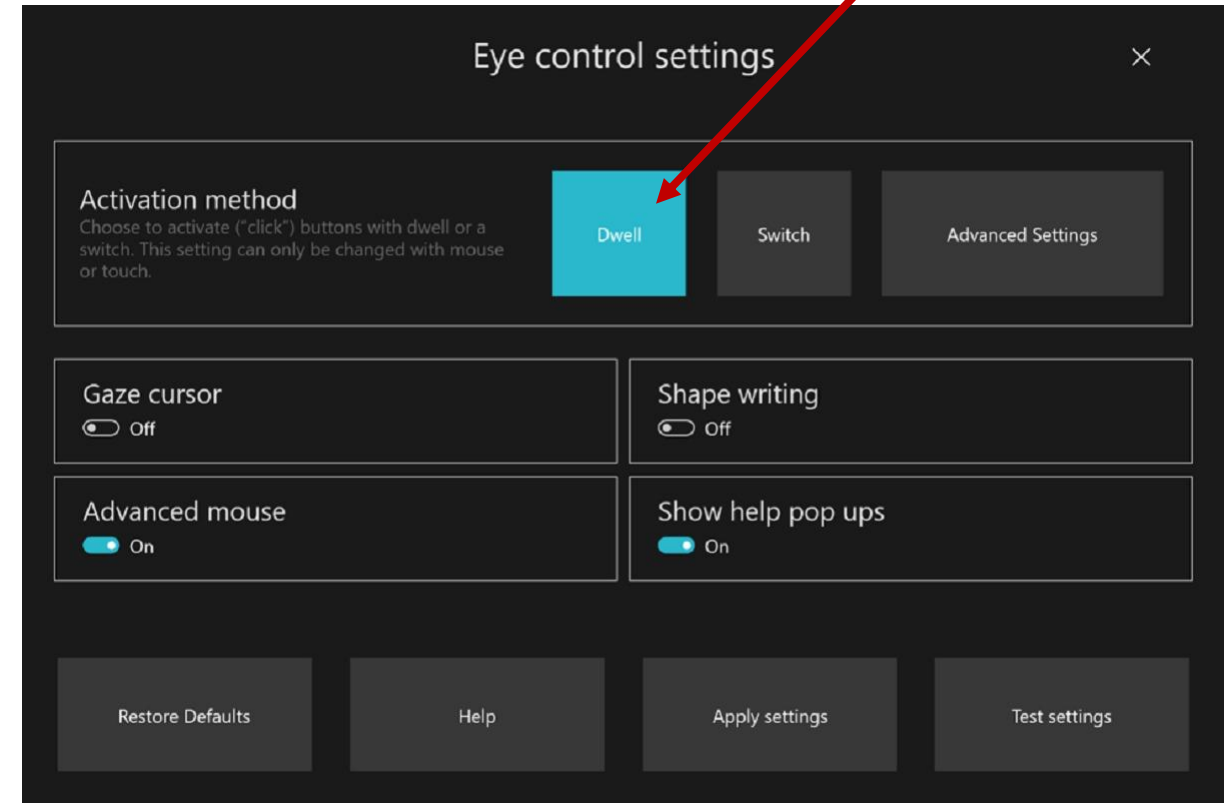
Eye Tracker: Examples



Heatmap and scan path analysis



Beware the Midas' Touch!



Windows 10 Eye Control Settings

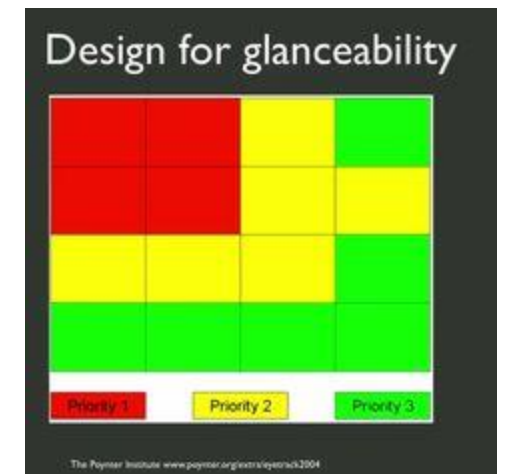
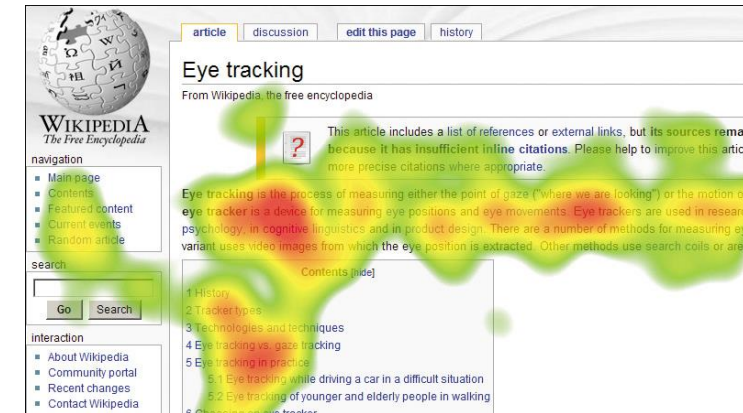
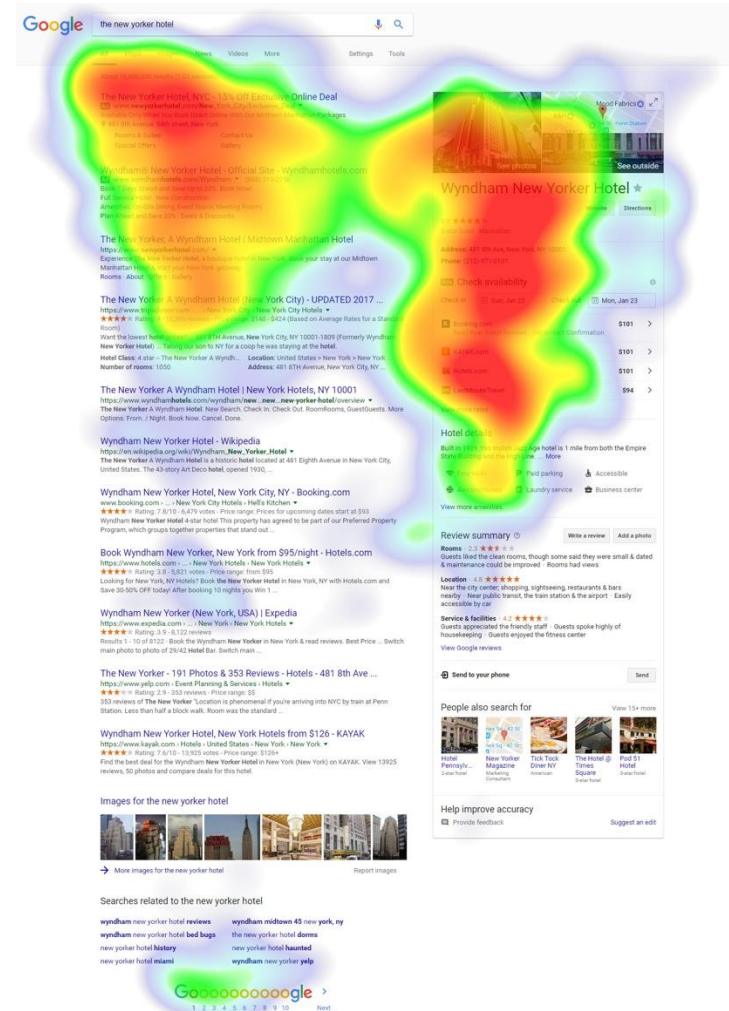
Location on the Page

Eye tracking studies show where the users actually look on the page

Search “eye tracking heat map” and see the major patterns

Users “glance” and spend limited amount of time on each page.

F-shaped pattern

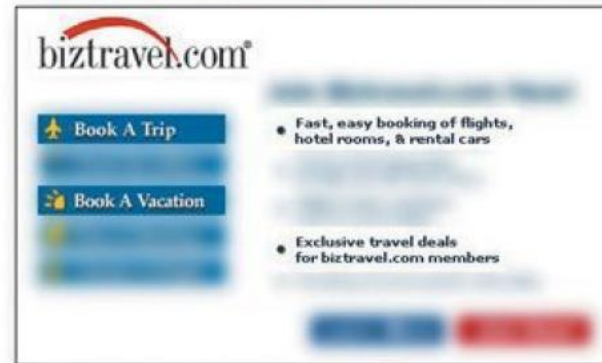


Scanning

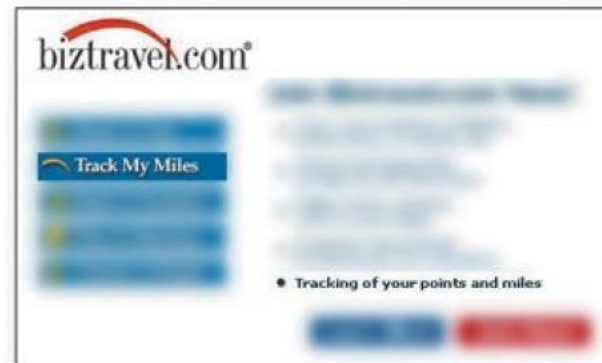
WHAT DESIGNERS BUILD...



WHAT USERS SEE...



I want to buy a ticket.



How do I check my frequent flyer miles?

Experiment

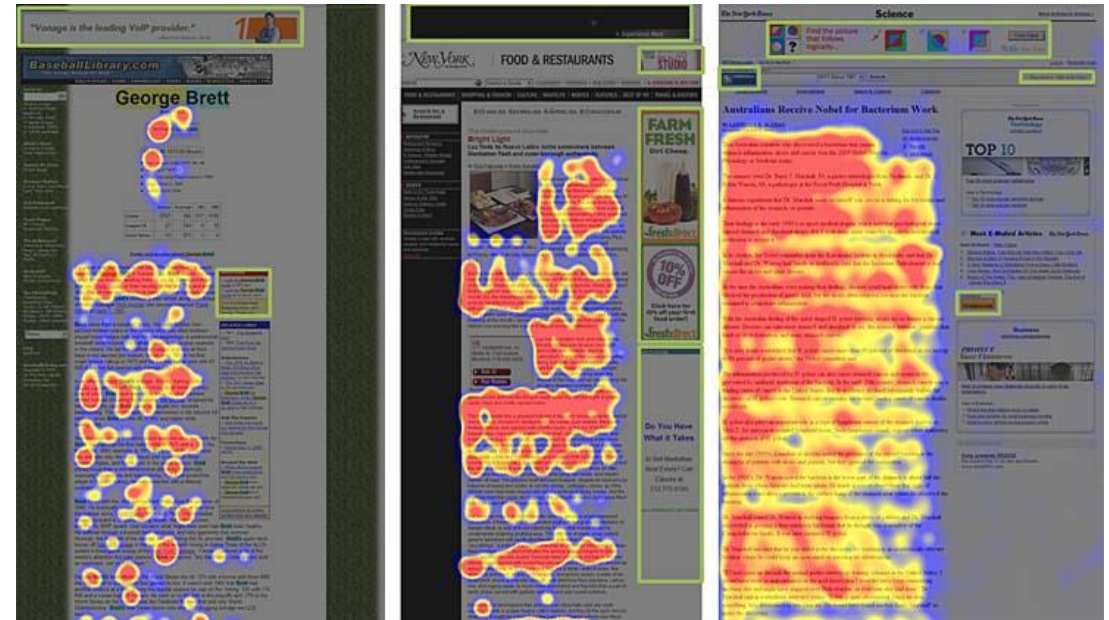
Site Version	Sample Paragraph	Usability Improvement (relative to control condition)
Promotional writing (control condition) using the "marketese" found on many commercial websites	Nebraska is filled with internationally recognized attractions that draw large crowds of people every year, without fail. In 1996, some of the most popular places were Fort Robinson State Park (355,000 visitors), Scotts Bluff National Monument (132,166), Arbor Lodge State Historical Park & Museum (100,000), Carhenge (86,598), Stuhr Museum of the Prairie Pioneer (60,002), and Buffalo Bill Ranch State Historical Park (28,446).	0% (baseline)
Concise text with about half the word count as the control condition	In 1996, six of the best-attended attractions in Nebraska were Fort Robinson State Park, Scotts Bluff National Monument, Arbor Lodge State Historical Park & Museum, Carhenge, Stuhr Museum of the Prairie Pioneer, and Buffalo Bill Ranch State Historical Park.	+58%
Scannable layout using the same text as the control condition in a layout that facilitated scanning	Nebraska is filled with internationally recognized attractions that draw large crowds of people every year, without fail. In 1996, some of the most popular places were: •Fort Robinson State Park (355,000 visitors) •Scotts Bluff National Monument (132,166) •Arbor Lodge State Historical Park & Museum (100,000) •Carhenge (86,598) •Stuhr Museum of the Prairie Pioneer (60,002) •Buffalo Bill Ranch State Historical Park (28,446).	+47%
Objective language using neutral rather than subjective, boastful, or exaggerated language (otherwise the same as the control condition)	Nebraska has several attractions. In 1996, some of the most-visited places were Fort Robinson State Park (355,000 visitors), Scotts Bluff National Monument (132,166), Arbor Lodge State Historical Park & Museum (100,000), Carhenge (86,598), Stuhr Museum of the Prairie Pioneer (60,002), and Buffalo Bill Ranch State Historical Park (28,446).	+27%
Combined version using all three improvements in writing style together: concise, scannable, and objective	In 1996, six of the most-visited places in Nebraska were: •Fort Robinson State Park •Scotts Bluff National Monument •Arbor Lodge State Historical Park & Museum •Carhenge •Stuhr Museum of the Prairie Pioneer •Buffalo Bill Ranch State Historical Park	+124%

Best Locations to Put Content

- Above the fold
 - Prioritize, do not cram
- Where people expect
 - Where other pages put similar content
 - **Not** where the ads usually go
- Users will scroll down if the first content is interesting

Banner Blindness

- The brain learns to avoid uninteresting content
- Banners and Advertisements are recognized subconsciously (by their appearance) and are never considered
 - Ads also “poison” adjacent elements
- Lesson learned: never create a message / title / warning / etc. that might look like an ad. (Faux ads)



References and Acknowledgment

- Scott MacKenzie: Human-Computer Interaction - An Empirical Research Perspective, Morgan Kaufmann
 - Chapter 3: Interaction Elements
- Ben Shneiderman, Catherine Plaisant, Maxine S. Cohen, Steven M. Jacobs, and Niklas Elmqvist, Designing the User Interface: Strategies for Effective Human-Computer Interaction
 - Chapter 8: Fluid Navigation
- COGS120/CSE170: Human-Computer Interaction Design, videos by Scott Klemmer, https://www.youtube.com/playlist?list=PLLsT5z_DsK_nusHL_Mjt87THSTlgrsyJ
- Thanks to Fulvio Corno, past teacher of the course, for his work on some of these slides

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