

Visual Design and Fluid Navigation

Human Computer Interaction

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Academic Year 2020/2021



POLITECNICO
DI TORINO



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.

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Layout

Colors

The Basics of Visual Design

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

The screenshot displays the homepage of the Italian newspaper **LA STAMPA**. The top navigation bar includes links for **GNN**, **NEWSLETTER**, social media icons for **TWITTER** and **FACEBOOK**, and options for **ABBONATI** and **ACCEDI**. Below the header, there's a main title **LA STAMPA** and a secondary navigation bar with links for **MENU**, **LEGGI IL QUOTIDIANO**, **TOP NEWS**, **TUTTOLIBRI**, and a search icon.

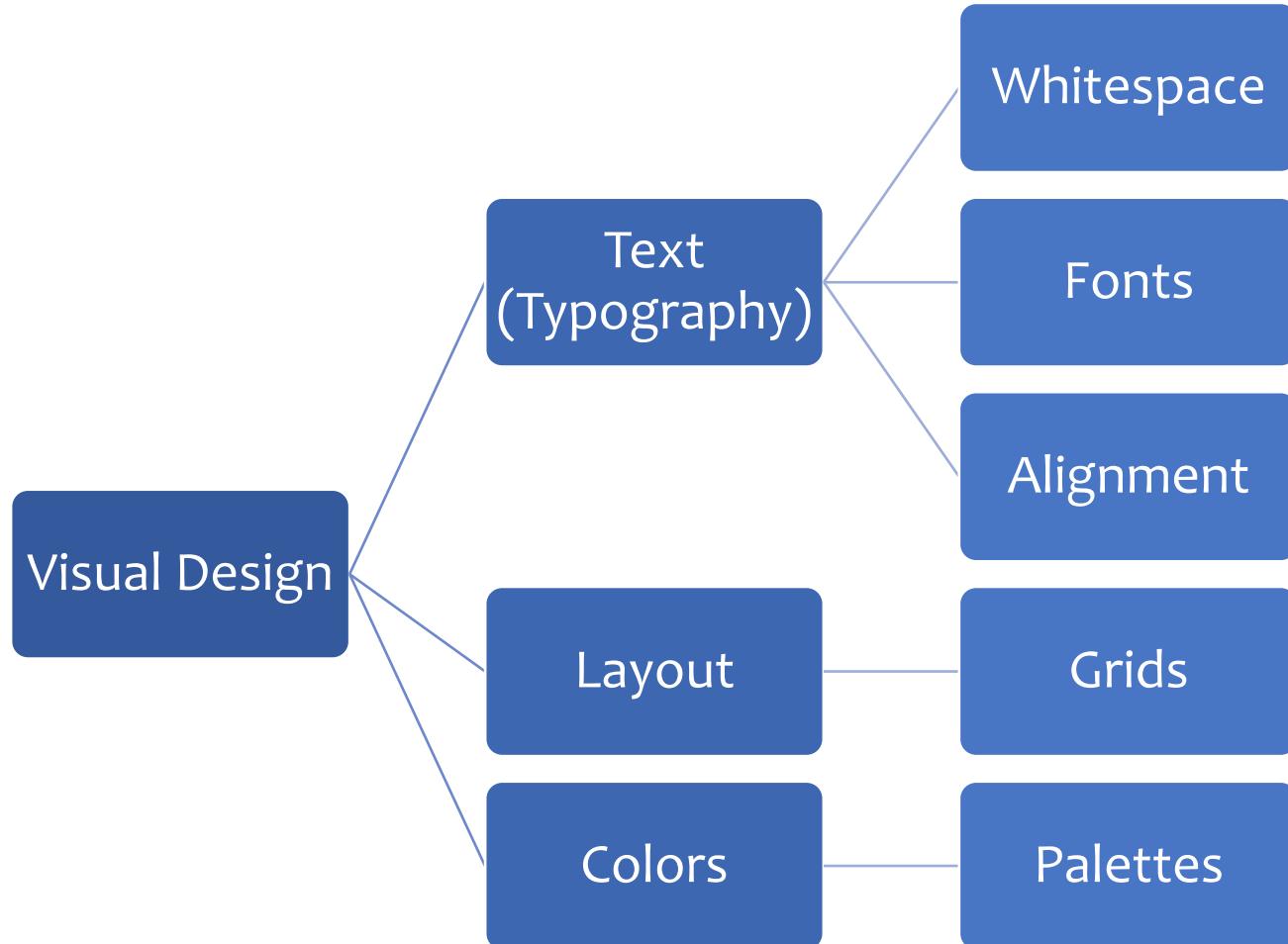
The main content area features several news items:

- I demoni di Hamilton: "Non è facile come sembra, per me è durissima"** by STEFANO MANCINI
- Lavorare meno per rendere di più: la ricetta funziona davvero** by EMANUELA GRIGLIE
- Reportage Trombe d'aria, pioggia e fiumi esondati: in Liguria torna l'incubo alluvione** by MARCO MENDUNI

Below these are larger news cards:

- ArcelorMittal abbandona Taranto e l'ex Ilva. Scoppia la polemica. L'azienda: c'era il diritto di recesso** by PAOLO BARONI. Includes a photo of an ArcelorMittal sign on a building.
- Intervista - Calenda: sull'Ilva di Taranto distrutto il lavoro di anni** by PAOLO BARONI. Includes a photo of a man speaking.
- ArcelorMittal si tira indietro sull'Ex Ilva, ecco quanto pesa la decisione su Taranto** by GIULIA CIANCAGLINI. Includes a photo of an industrial facility.
- La storia dell'acciaieria più grande d'Europa. Ecco l'Ilva dal 2012 a oggi** by MARCO ZATTERIN. Includes a photo of an industrial complex.
- Il surriscaldamento climatico è arrivato nel profondo delle Alpi** by NICOLA PINNA. Includes a photo of a person working in a snowy, rocky environment.
- LA STORIA DI GIOVANNI BELZONI IN UN LIBRO** by PAOLO BARONI. Includes a photo of a man with a beard.
- Da Abu Simbel a Giza, l'italiano che inventò l'egittologia** by MARCO ZATTERIN. Includes a photo of a man speaking.
- SECONDO NOI** by MARCO SODANO. Includes a photo of a group of people.
- Sud svuotato e senza lavoro: lo Svimez lancia l'allarme recessione** by MARCO SODANO. Includes a photo of a car interior.

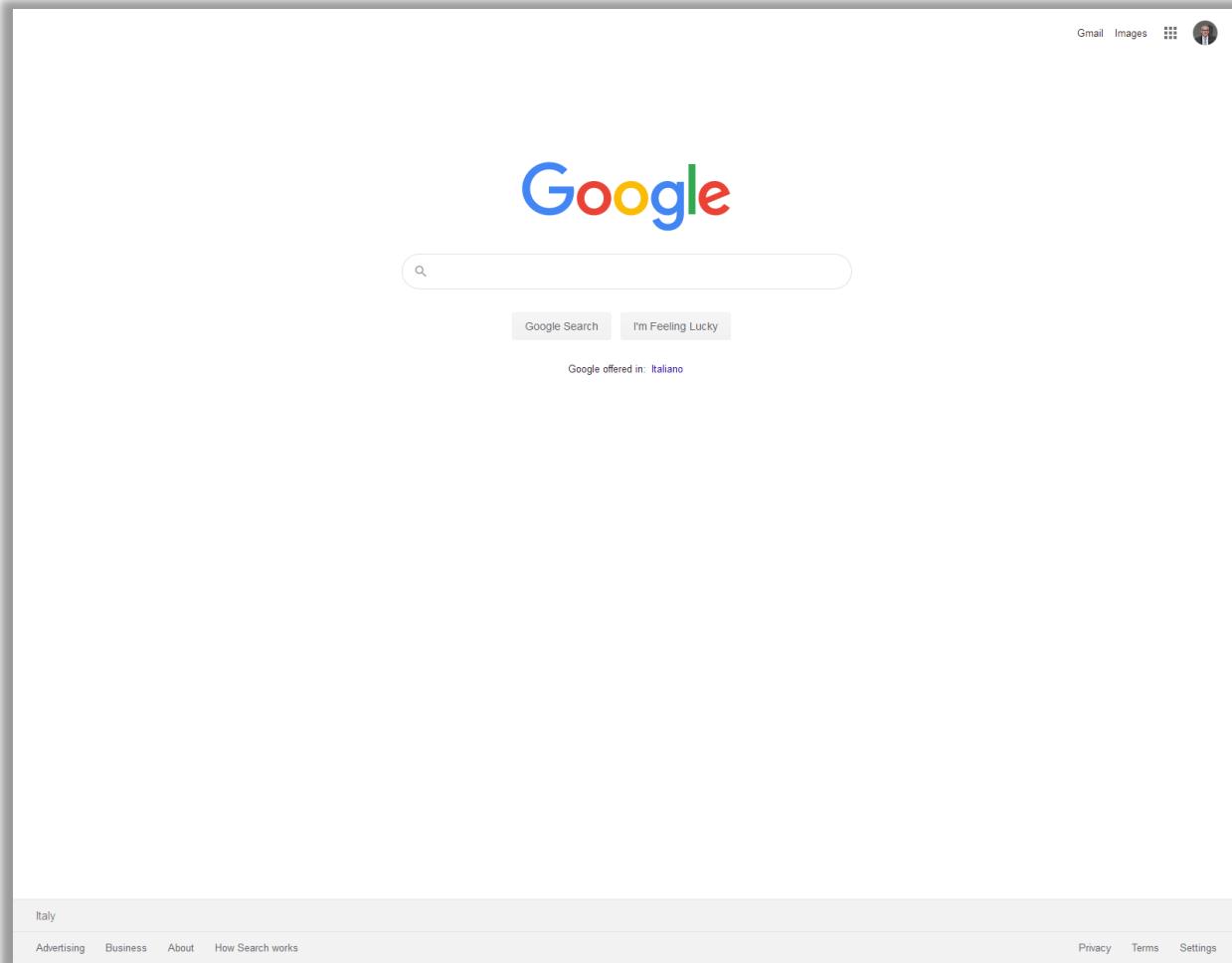
Key ingredients



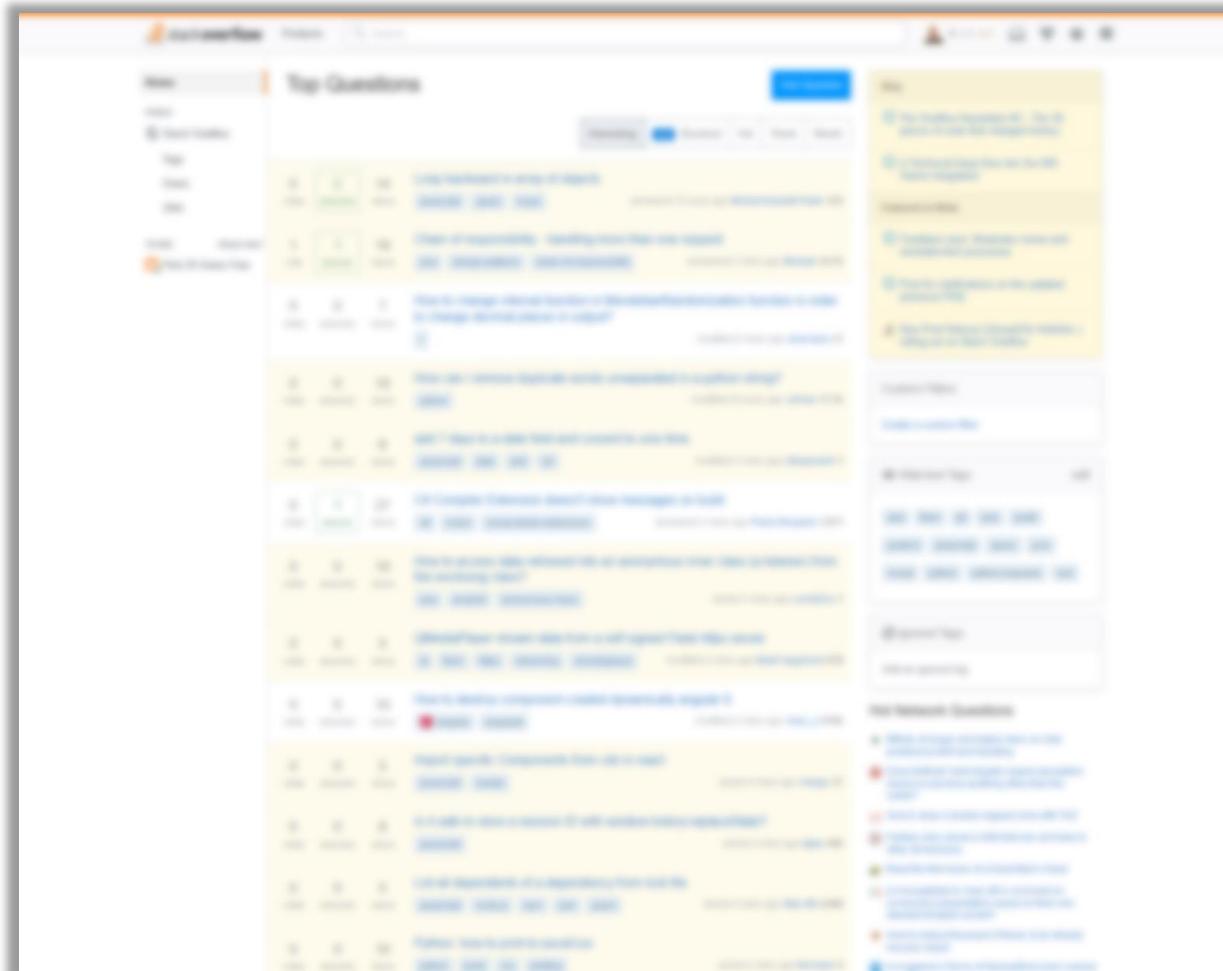
Recognizable page structure



Recognizable page structure



Recognizable page structure

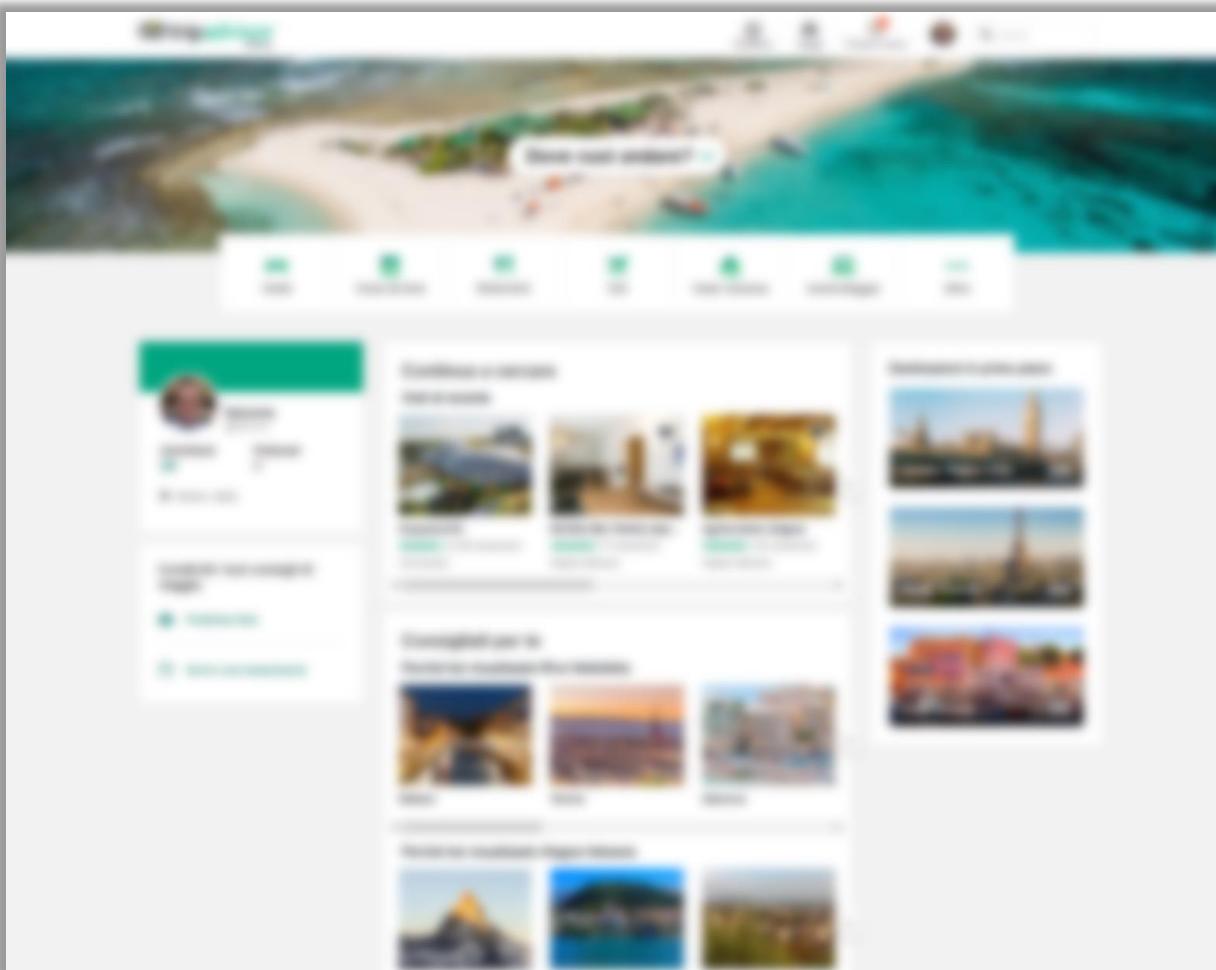


Recognizable page structure

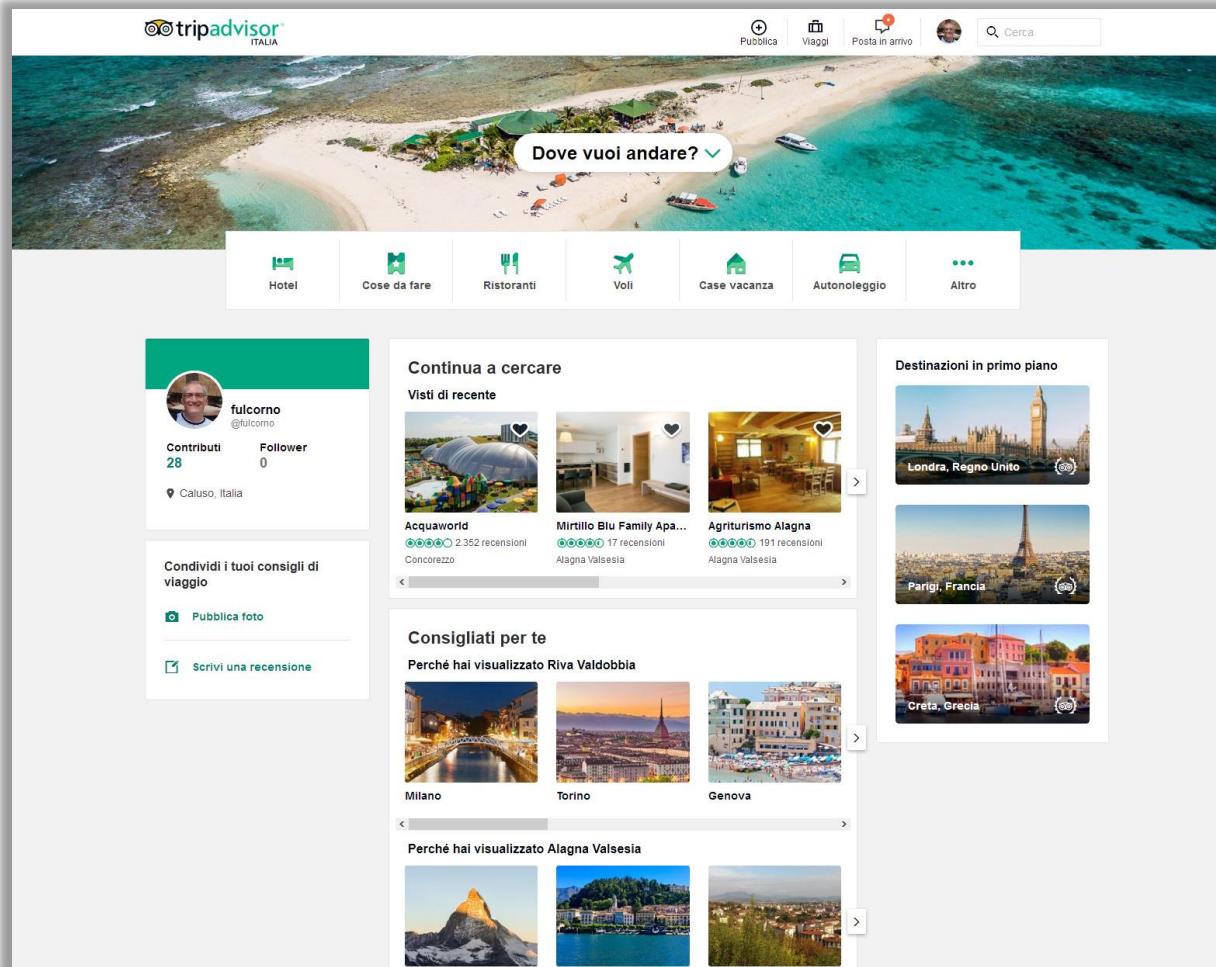
The screenshot shows the Stack Overflow 'Top Questions' page. The main content area displays a list of ten questions, each with a title, vote count, answer count, view count, tags, and a brief description. To the right of the main content are several sidebar panels:

- Blog**: Lists recent blog posts: "The Overflow Newsletter #3 – The 36 pieces of code that changed history", "A Technical Deep Dive into Our MS Teams Integration", and "Feedback post: Moderator review and reinstatement processes". It also mentions "Post for clarifications on the updated pronouns FAQ" and "New Post Notices (Closed/On Hold/etc.) rolling out on Stack Overflow".
- Custom Filters**: A section for creating custom filters.
- Watched Tags**: A list of tags: ajax, flask, git, java, javafx, javascript, jquery, json, mysql, python, python-requests, rest.
- Ignored Tags**: A section for adding ignored tags.
- Hot Network Questions**: A list of ten questions from other Stack Exchange sites, each with a small icon and a brief description.

Recognizable page structure



Recognizable page structure



Recognizable page structure

TBS **Newsi**
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 アラフト元議長の骨からイボニウム検出。暗殺の可能性高まる 11/07 04:20 RSS/RDF配信 文字サイズ 中 大

社会 政治 経済 國際 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 » [メニュー表示問題][みずほ暴力団説立][原発][米富士艦隊]

最終更新:2013年11月7日(木) 04時34分

NEW「三越伊勢丹」も不適切表示、他の百貨店にも拡大

スティッパー ウゴン 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 ニュースパートNER NEWS 23 NR3 JNN

台風情報 Smart News 地震情報

福島第一原発情報カメラ

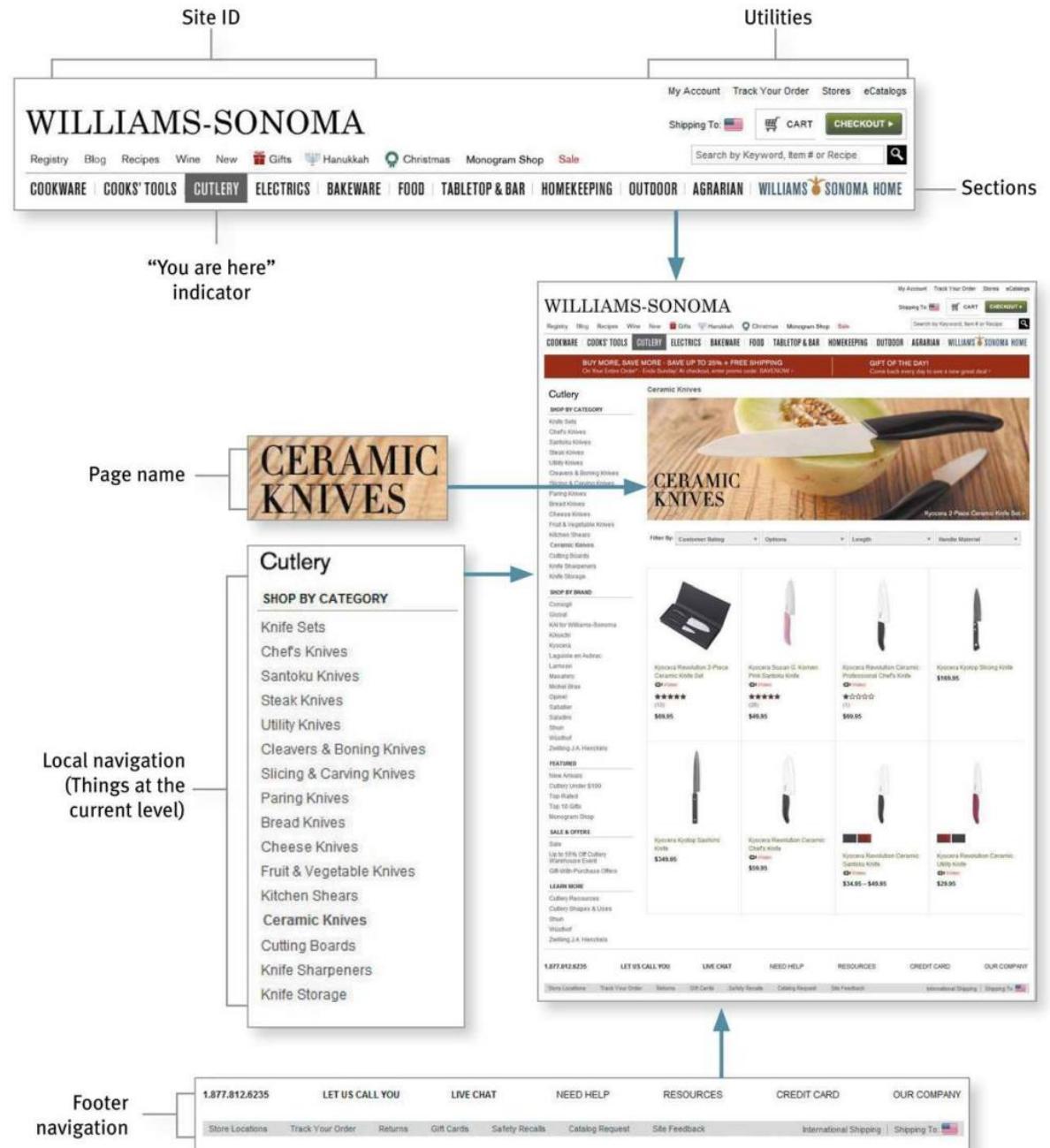
NEW 日本人初の船長・若田さん、きょう宇宙へ
NEW 「特定秘密保護法案」きょうから国会審議
NEW 豚肉議員、金正恩氏の従兄人・張成沢氏と会談
NEW 山西省連続爆発事件、共産党本部狙った計画的犯行か

社会 政治 経済

■ 来ネット販売、23品目“3年間安全調査法”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
■ 「もんじゅ」で核物質管理に不備、原子力機構に厳重注意
■ 温室効果ガスの平均濃度、過去最高値記録
■ カルガモから鳥インフル、北海道で今シーズン初
■ 一軒 食材偽装を認める、「三笠」運営会社の社長辞任へ
■ 安曇楽牧場「和牛丼法」、闇漁会社などを提訴へ
■ 表示適正化方策、消費者庁が業界3団体に要請文
■ 「崖」など芸能人の偽サイン板売、容疑の親子らを3人逮捕
■ 大阪・川に少年突き落とし、遺体は下着姿
■ 歌舞伎町のホストを刺死、何者かが暴行か
■ 小学校の4階から小6男児転落、意識不明の重体

関連リンク [スクランブル](#) [NEWS23](#) [報道特集](#) [クリチーネ](#) [時事新報](#) [新選組](#) [ニュースカード](#) [グローバルナビ](#) [フォント](#) [モンスタークリック](#)
TOPページ TBS報道番組一覧 労働問題

Uses Conventions = Recognizable Structure



‘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



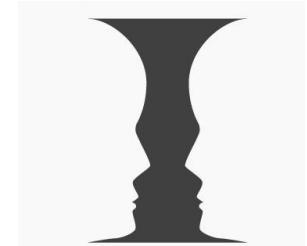
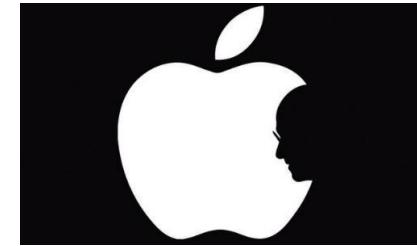
<https://www.interaction-design.org/literature/topics/gestalt-principles>

<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.

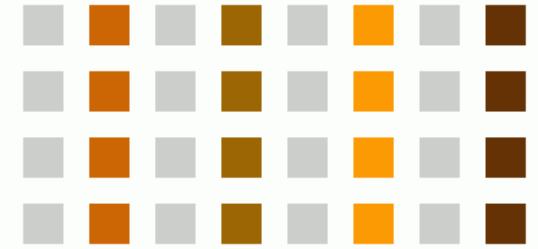
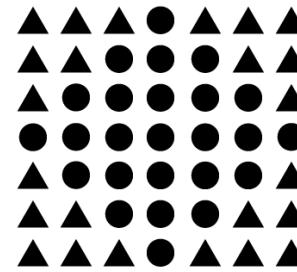
Examples: figure-ground



The Basecamp 3 landing page features a central cartoon illustration of a person overwhelmed by multiple tasks. The character is surrounded by various icons and speech bubbles containing text such as "DID WE GET THAT DRAFT YET?", "WAIT, WHO MADE THAT DECISION?", "WHERE DO I PUT THAT?", "WHEN IS THIS DUE?", "WHO SENT THIS TO THE CLIENT?", and "NO ONE TOLD ME THAT! THIS IS EXHAUSTING!". Above the illustration, there's a banner that says "Version 3 is all new for 2010!" and a "Sign up now for free below" button. The page includes a navigation bar with links like "Features", "Pricing", "Using Basecamp with Clients", "About us", "Support", "Sign up", and "Log in".

The AngelList homepage has a dark background featuring a stylized Earth image. At the top, there's a search bar and a "Join Log In" button. Below the search bar, the AngelList logo is prominently displayed with the tagline "Where the world meets startups". A sidebar on the right contains a vertical menu with options like "Find a Startup Job", "Post a Job", "Raise Money Online", and "Invest in Startups". The main navigation bar at the top includes links for "SYNDICATES", "STARTUPS", "FUNDS", "STARTUP JOBS", "RECRUITING", and "MORE".

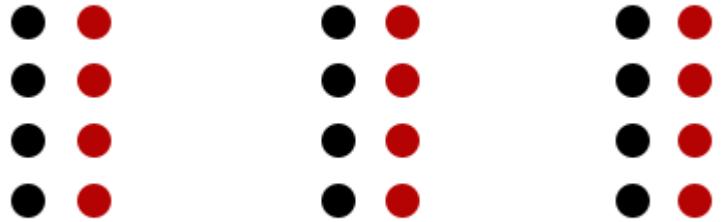
Examples: similarity



The GitHub sign-up page features a dark background with white text and light-colored input fields. The main heading is "Where software is built". Below it, a subtext reads: "Powerful collaboration, code review, and code management for open source and private projects. Public projects are always free. Private plans start at \$7/mo." A green "Sign up for GitHub" button is prominent. The input fields are labeled "Pick a username", "Your email", and "Create a password". A note below the email field specifies character requirements: "Use at least one lowercase letter, one number, and seven characters." A small disclaimer at the bottom states: "By clicking 'Sign up for GitHub', you agree to our terms of service and privacy policy. We will send you account related emails occasionally." A blue banner at the bottom asks: "Want to use GitHub on your servers?"

The LA STAMPA news website has a clean, modern design. At the top, there's a navigation bar with links for "GNN", "NEWSLETTER", social media icons, and "ABBONATI ACCEDI". The main title "LA STAMPA" is prominently displayed. Below the header, a news banner reads: "Aggiornato alle 22:45 - 04 novembre". The main content area features a grid of news items. Each item includes a thumbnail image, the title, the author's name, and a brief description. Some articles have video play buttons. The news topics range from politics to industrial issues and personal stories.

Examples: proximity



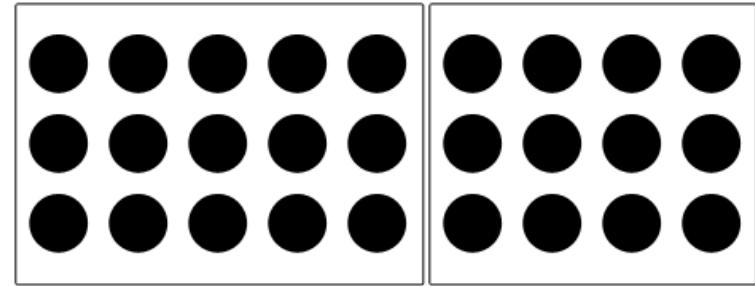
A screenshot of the Walmart website homepage. At the top, there's a navigation bar with the Walmart logo, a search bar, and account information. Below it, a banner says "Save big in every department". The main area features a grid of product categories: Electronics (iPad), Home (coffee maker), Exercise & Fitness (treadmill), Health (vitamins), Clothing & Jewelry (outfit), Furniture (chair), Cold Weather Prep (person in snow), Tax Preparation (TurboTax logo), Auto & Tires (tire), Office Supplies (paper shredder), Home Improvement (drill), and Outdoor Sports (tent). There are also promotional banners for "Jackson Hewitt" and "H&R Block".

A screenshot of the VICE news website homepage. At the top, there's a navigation bar with links for WATCH, SECTIONS, PHOTOS, MAGAZINE, TOPICS, CITY GUIDES, ELECTION 2016, OPINION, and MORE. Below it, a grid of news items: 1. "Medical Marijuana Users in Canada Can Legally Grow Their Own Weed Now" by Marisa Kishchenko, dated Feb 24, 2016, with an image of a cannabis plant. 2. "The Women Who Love Ted Cruz" by Josh Antweiler, dated Feb 24, 2016, with an image of two women kissing. 3. "How Donald Trump Won Nevada's Cliven Bundy Vote" by Grace Myler, dated Feb 24, 2016, with an image of Donald Trump wearing a cowboy hat. Other sections like STUFF and NEWS are also visible.



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

Examples: common region



Houzz Yesterday at 5:30am ·

11 Things You Didn't Think You Could Fit Into a Small Bedroom
<http://bit.ly/21k8Nvl>

11 Things You Didn't Think You Could Fit Into a Small Bedroom

Clever designers have found ways to fit storage, murals and even chandeliers into these tight sleeping spaces

WWW.HOUZZ.COM

Like Comment Share

157 Top Comments ▾

33 shares

Write a comment...

Frankie Sez Really great ideas for the 'minimalist' in some of us...
Like · Reply · 2 · Yesterday at 5:42am

Country Mountain Homes Space for books is a must!
Like · Reply · Yesterday at 10:07am

View 2 more comments



Examples: continuity

Customers Who Bought This Item Also Bought

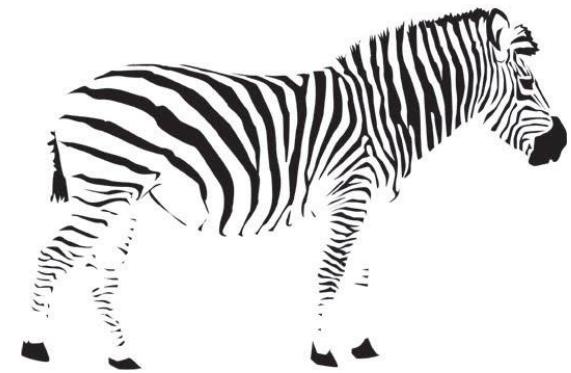
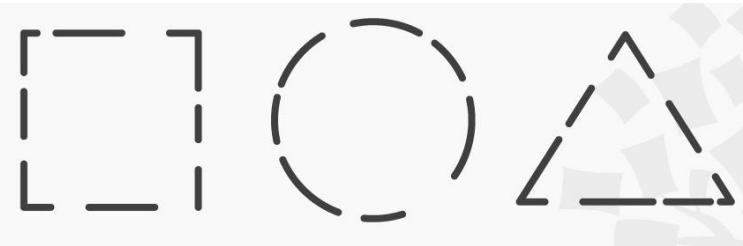
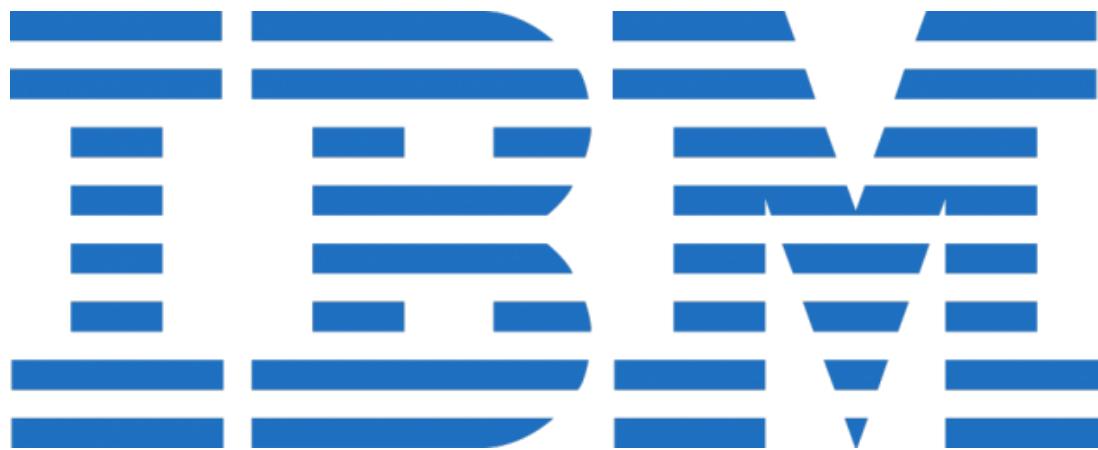
The screenshot shows a row of five book covers with their titles, authors, and brief descriptions. The books are: 'CROSSING THE CHASM' by Geoffrey A. Moore, 'THE LEAN STARTUP' by Eric Ries, 'The Innovator's Dilemma' by Clayton M. Christensen, 'THE INNOVATOR'S SOLUTION' by Clayton M. Christensen, and 'How Will You Measure Your Life?' by Clayton M. Christensen. Each book has a small image, the title, author, a short blurb, a star rating, the number of reviews, the format (Paperback or Hardcover), and the price.

Book Title	Author	Description	Format	Price
CROSSING THE CHASM	Geoffrey A. Moore	Marketing and Selling Disruptive Products	Paperback	\$12.35 ✓Prime
THE LEAN STARTUP	Eric Ries	How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses	Hardcover	\$16.66 ✓Prime
The Innovator's Dilemma	Clayton M. Christensen	The Revolutionary Book That Will Change the Way You Do Business	Hardcover	\$16.66 ✓Prime
THE INNOVATOR'S SOLUTION	Clayton M. Christensen	Innovate Your Way to Number One	Paperback	\$10.06 ✓Prime
How Will You Measure Your Life?	Clayton M. Christensen	How Will You Measure Your Life?	Hardcover	\$18.33 ✓Prime

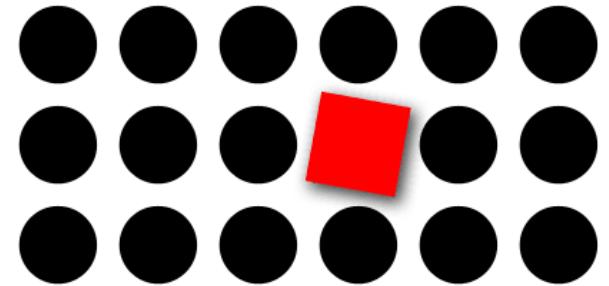
Page 1 of 20



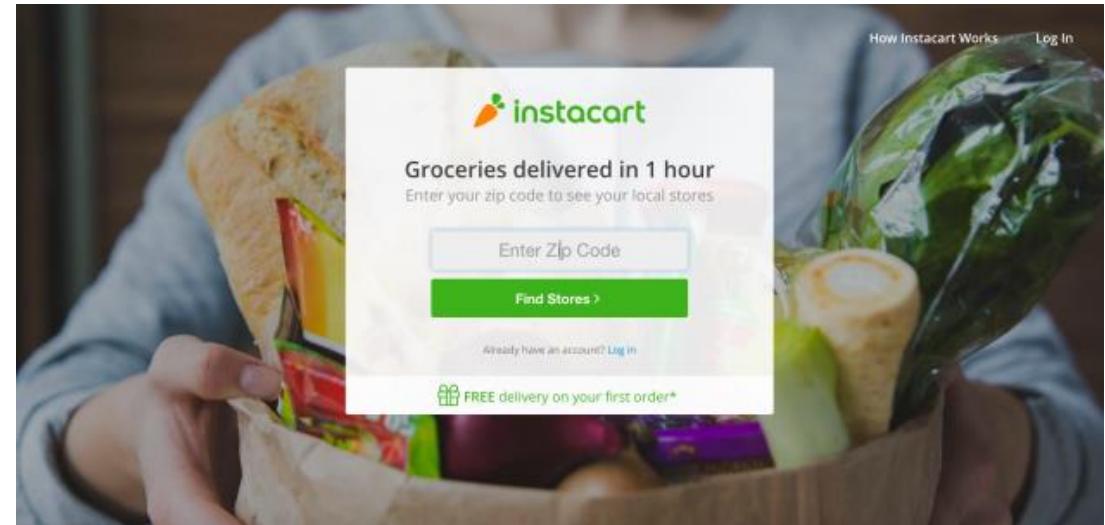
Examples: closure



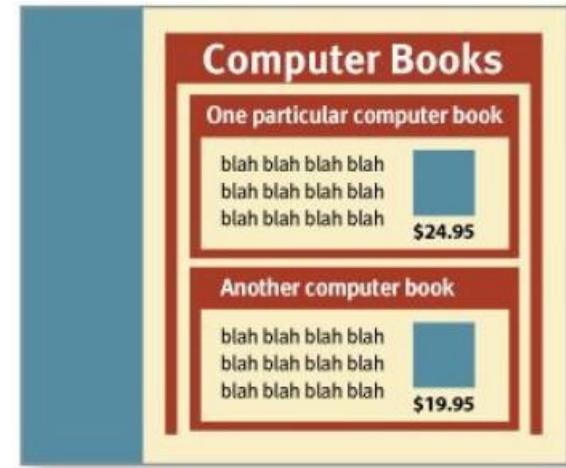
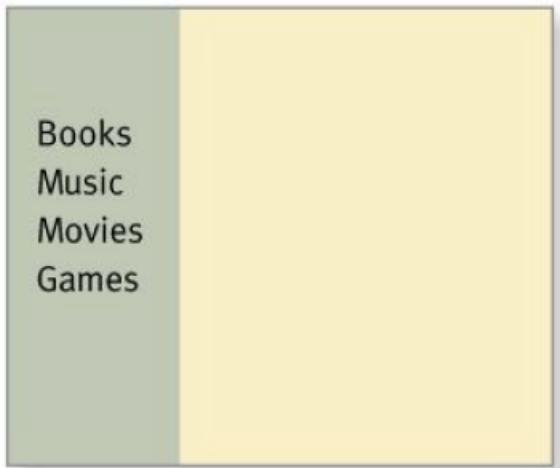
Examples: focal point



The Twilio website homepage features a dark background image of a busy city street. Overlaid text reads "BUILD APPS THAT COMMUNICATE WITH EVERYONE IN THE WORLD". Below this, smaller text says "A Messaging, Voice, Video and Authentication API for every application". At the bottom are two buttons: "See Use Cases" and "Get a free API key".



Examples (applying Gestalt)

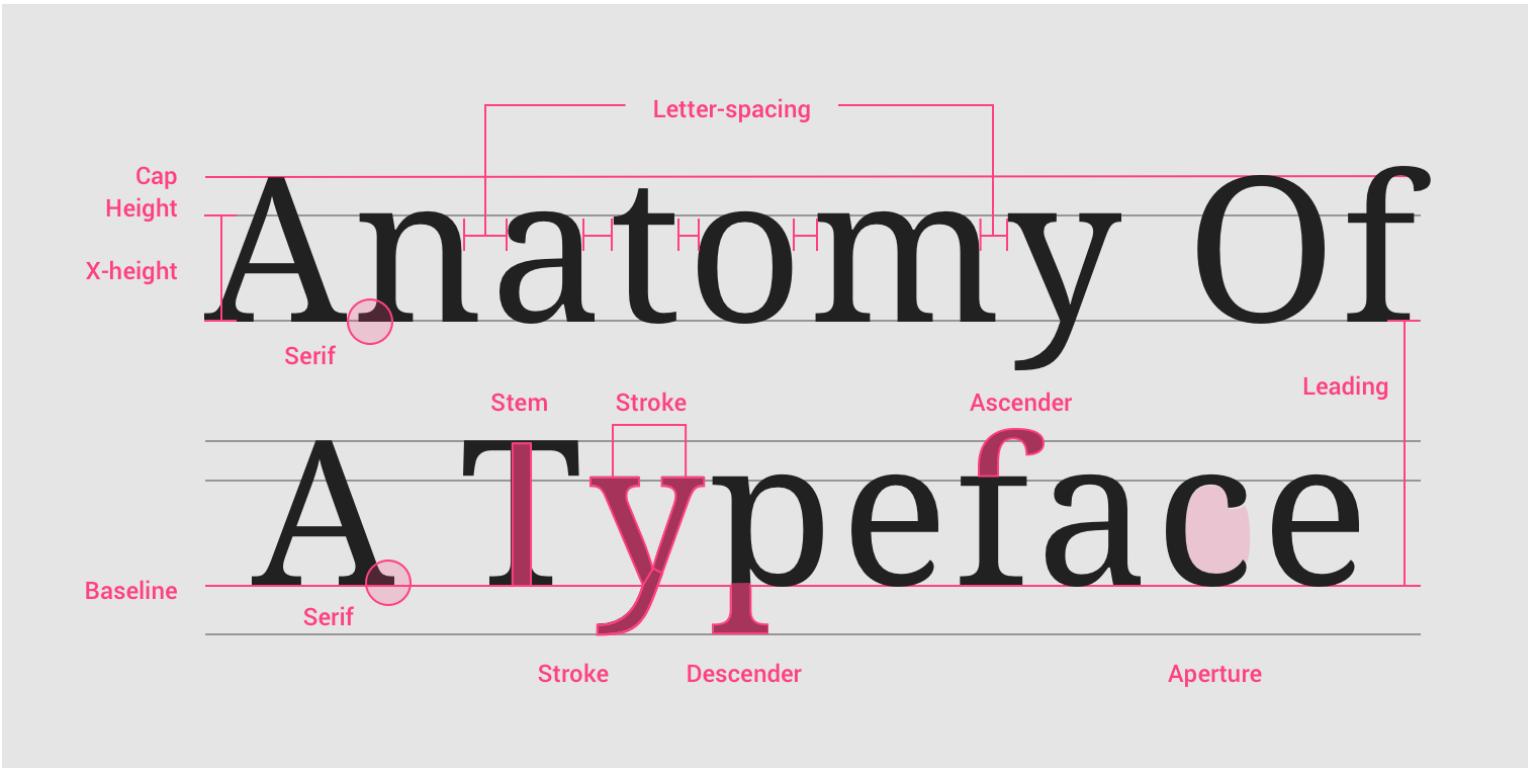


Typography

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

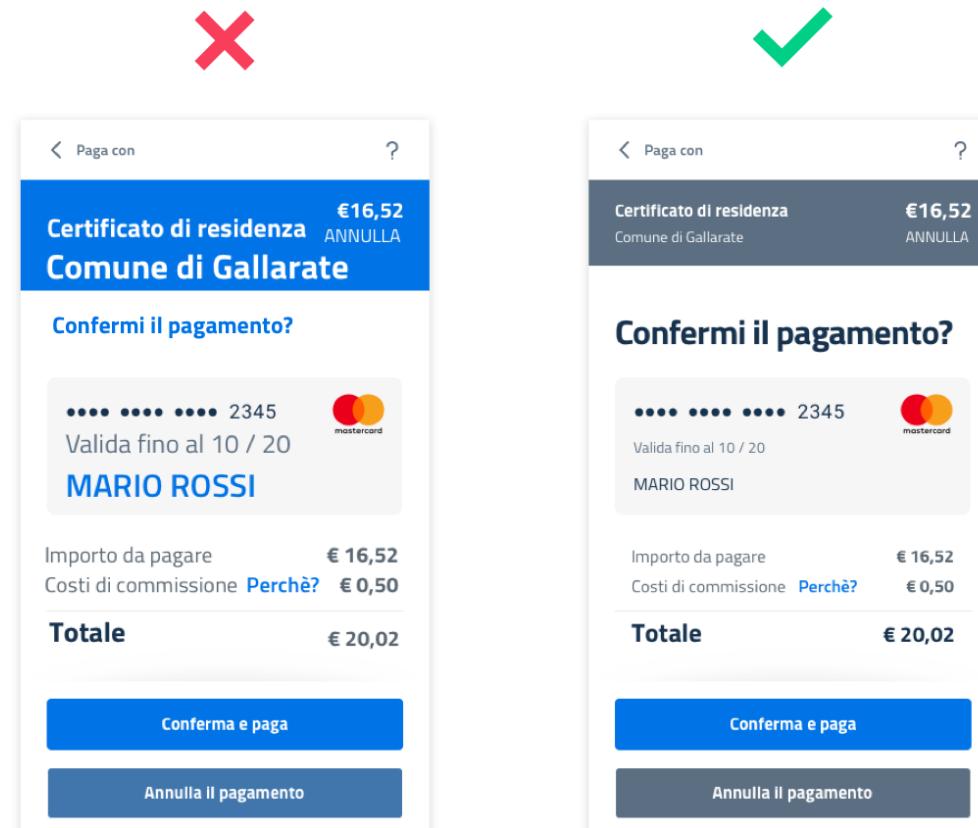
Scale Category	Typeface	Font	Size	Case	Letter spacing
H1	Roboto	Light	96	Sentence	-1.5
H2	Roboto	Light	60	Sentence	-0.5
H3	Roboto	Regular	48	Sentence	0
H4	Roboto	Regular	34	Sentence	0.25
H5	Roboto	Regular	24	Sentence	0
H6	Roboto	Medium	20	Sentence	0.15
Subtitle 1	Roboto	Regular	16	Sentence	0.15
Subtitle 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>

Example: Text conveys hierarchy

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>

Example: Text and Layout convey meaning




Building Type:	Detached House
Year Of Construction:	2012
Listing Price:	\$750,000
Address:	742 Evergreen Terrace
Bedrooms:	3
Bathrooms:	2
Real Estate Agent:	Tiffany Heffner
Contact:	(555) 555-4321




DETACHED HOUSE • 5Y OLD
\$750,000
742 Evergreen Terrace

REALTOR
 Tiffany Heffner
(555) 555-4321

3 Bedrooms 2 Bathrooms

- Present data in a more useful way
- Emphasize the most important content
- Combine labels and values into human-readable phrases

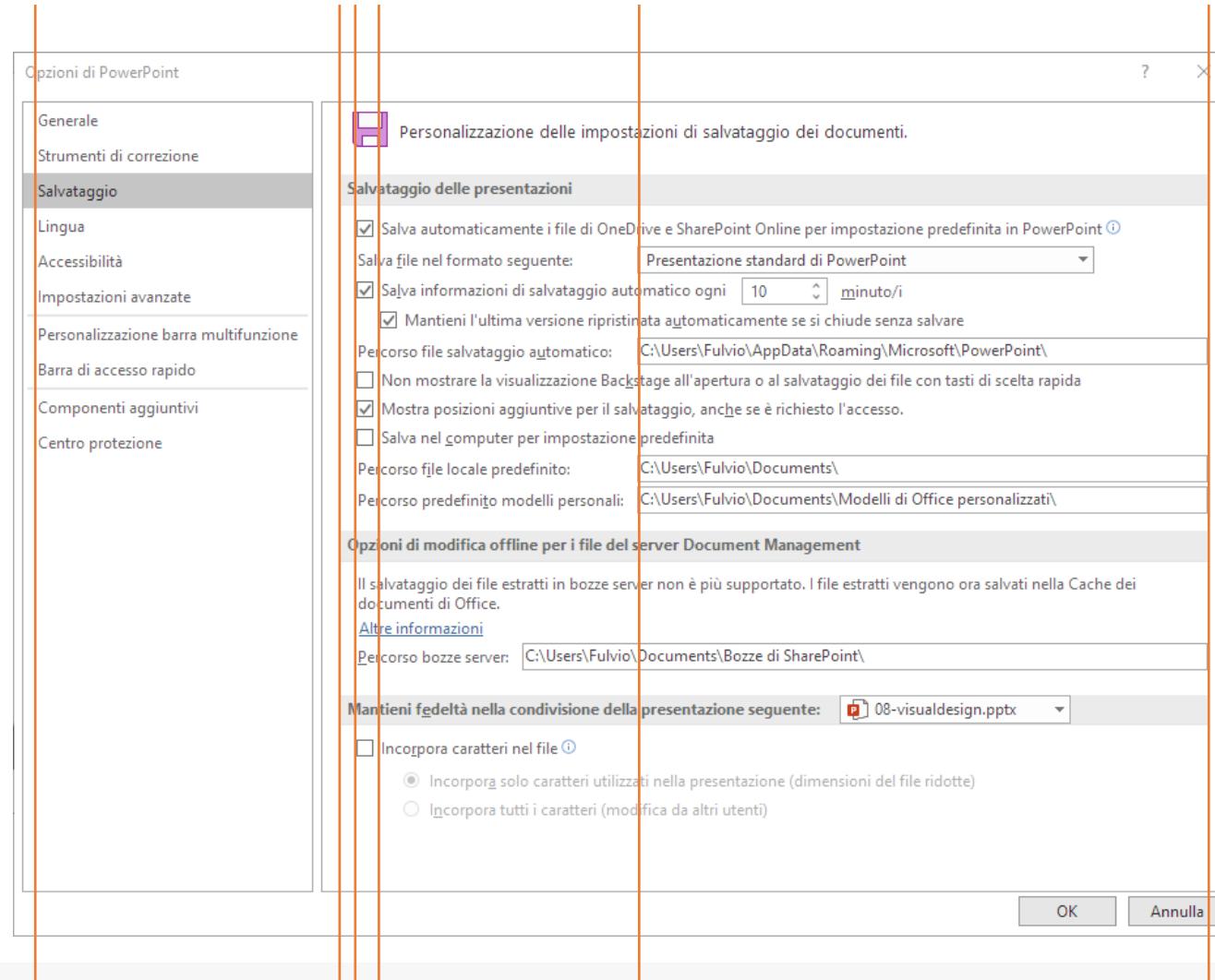
Grids and Alignment

Exploiting grouping and alignment to convey content, at different levels

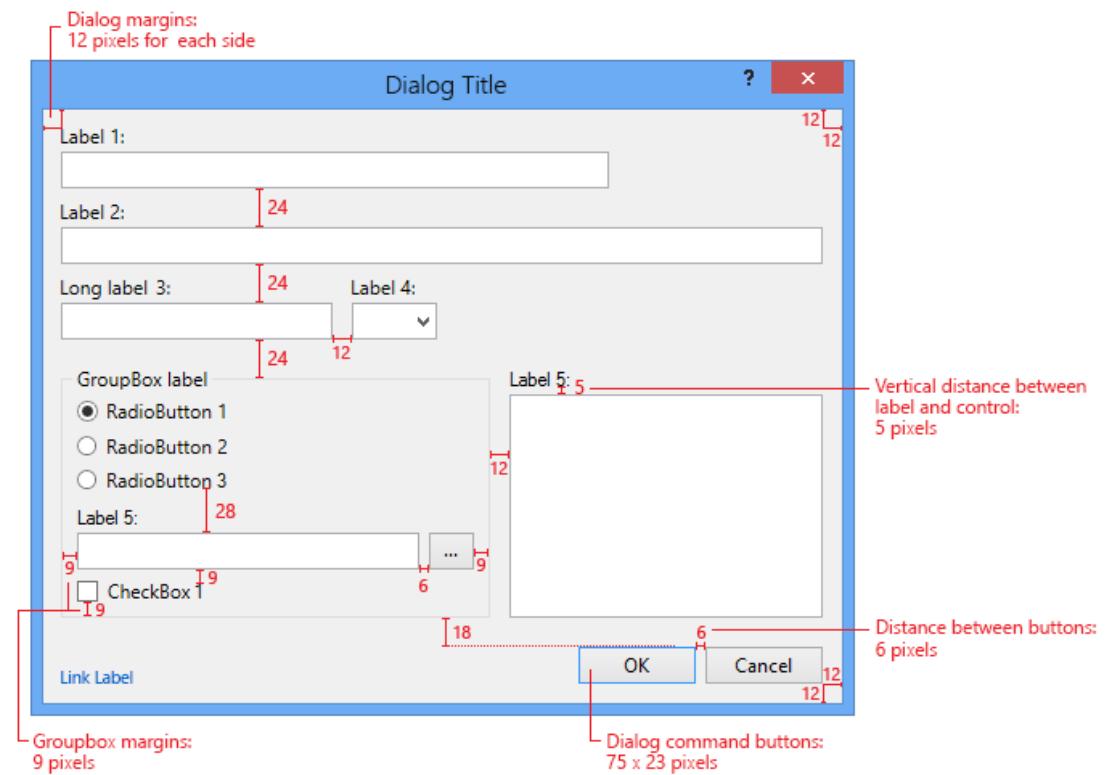
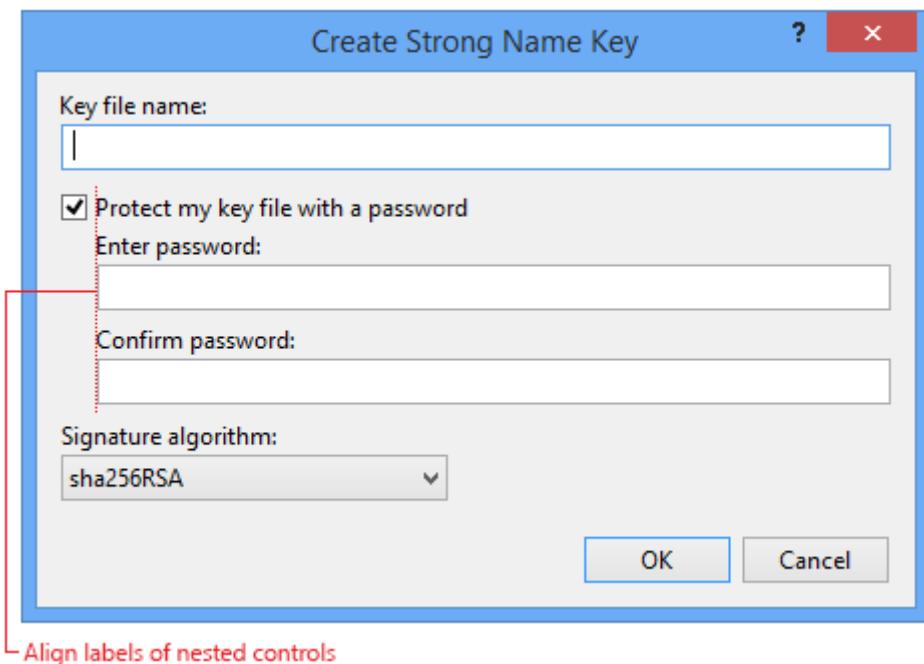
Alignment

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

Example

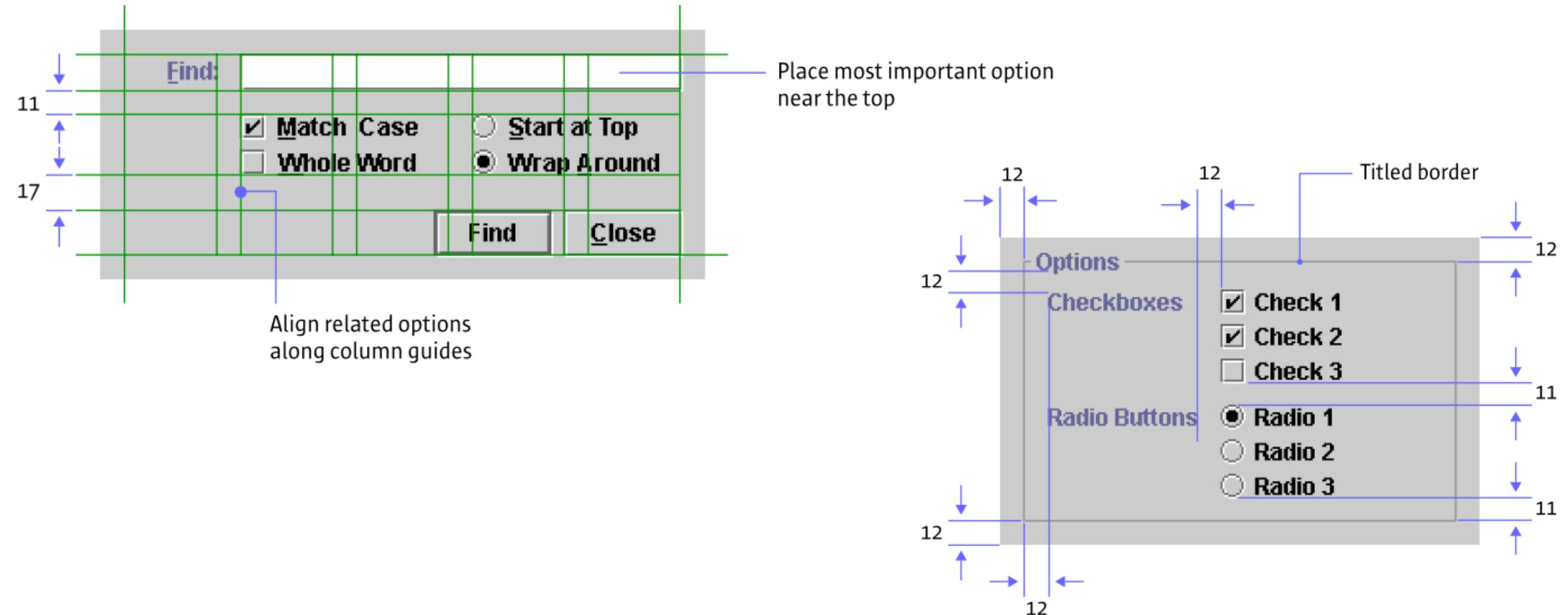


Examples



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

Examples

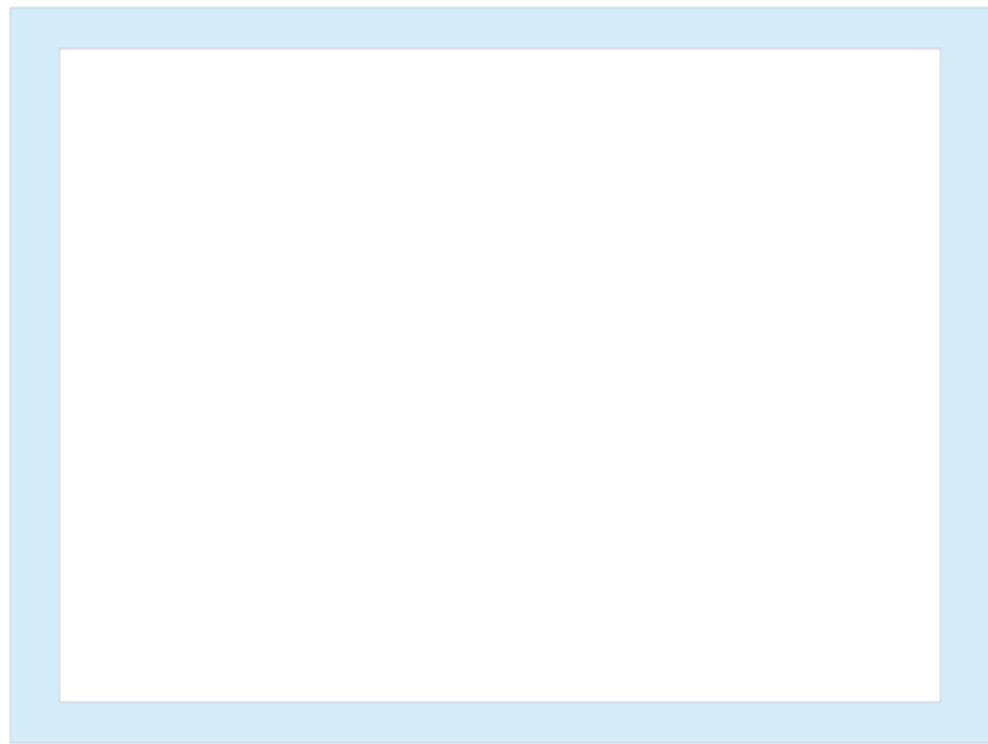


Grid Layout Ingredients

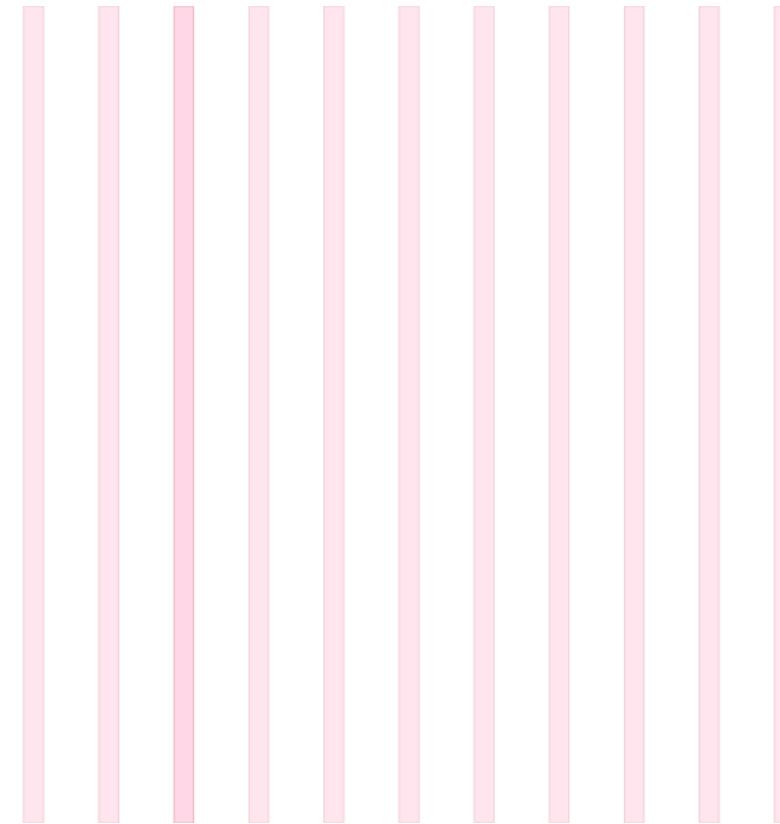
- **Guides:** The edge which you choose to align content with
- **Column:** A vertical division of content
- **Row:** A horizontal division of content
- **Margins:** The area surrounding your content
- **Gutters:** The margins between columns
- **Hang-line:** A horizontal guide to align content to hang 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

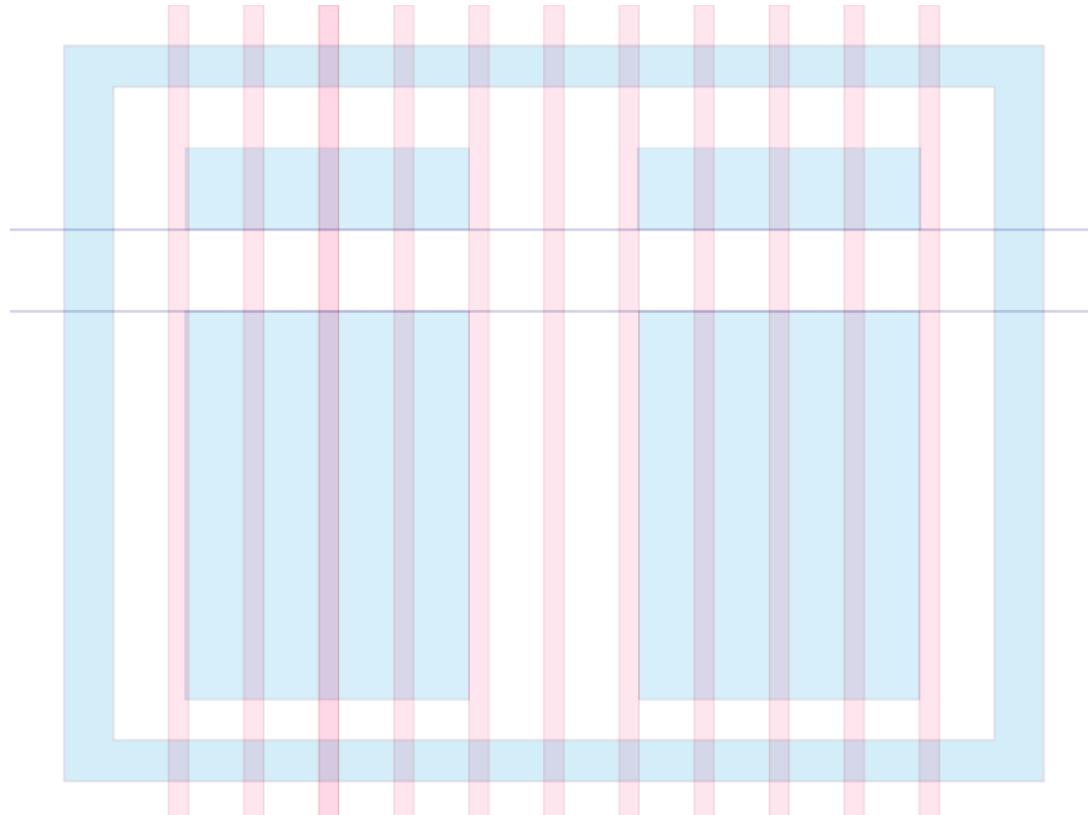


Columns & Gutters



Grid Layout Ingredients

Hanglines and Baselines

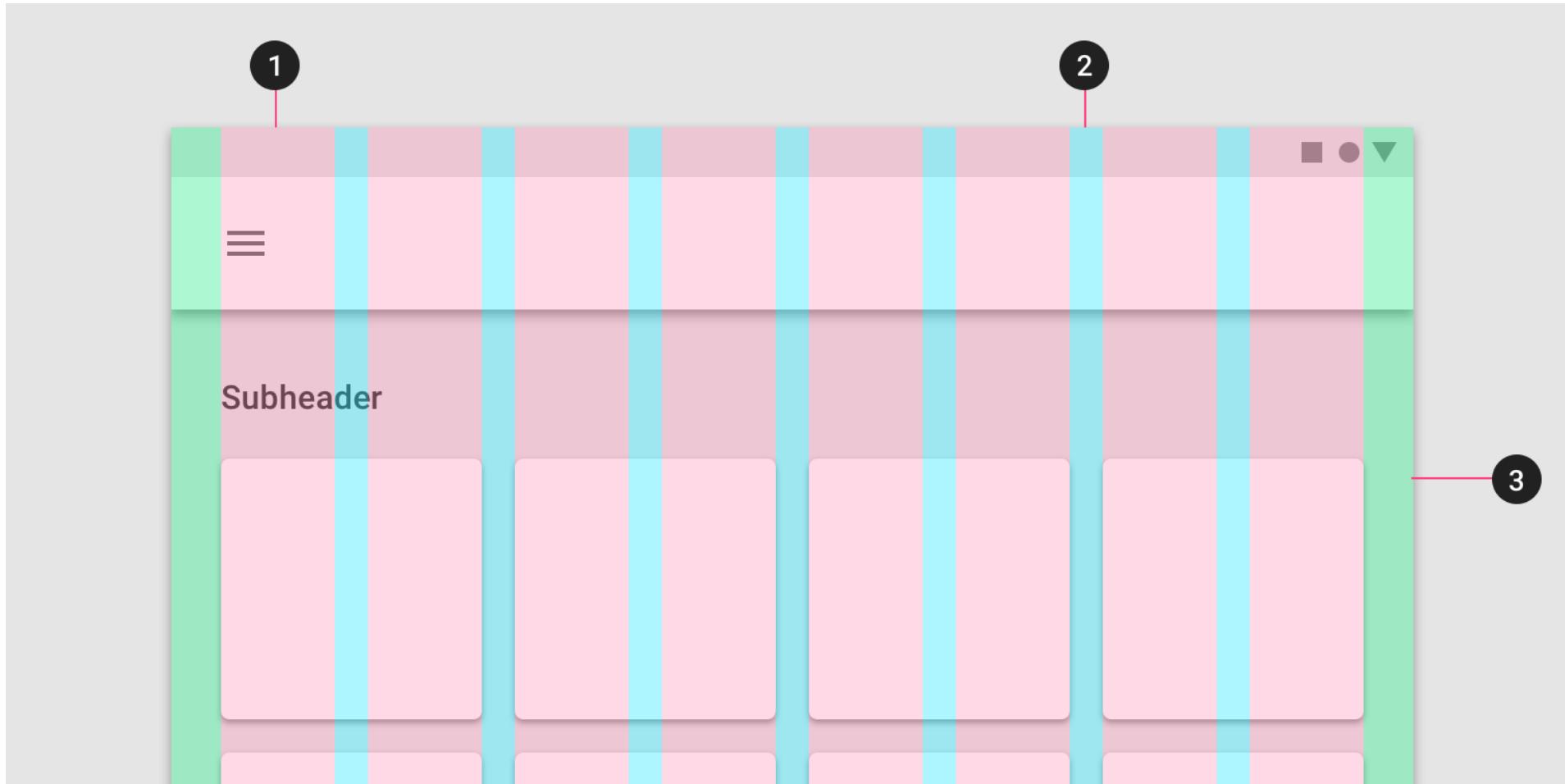


Baseline Grids



Example Grid-based layout

1. Columns
2. Gutters
3. Margins



Example: Bootstrap grid

Always 12 columns in total

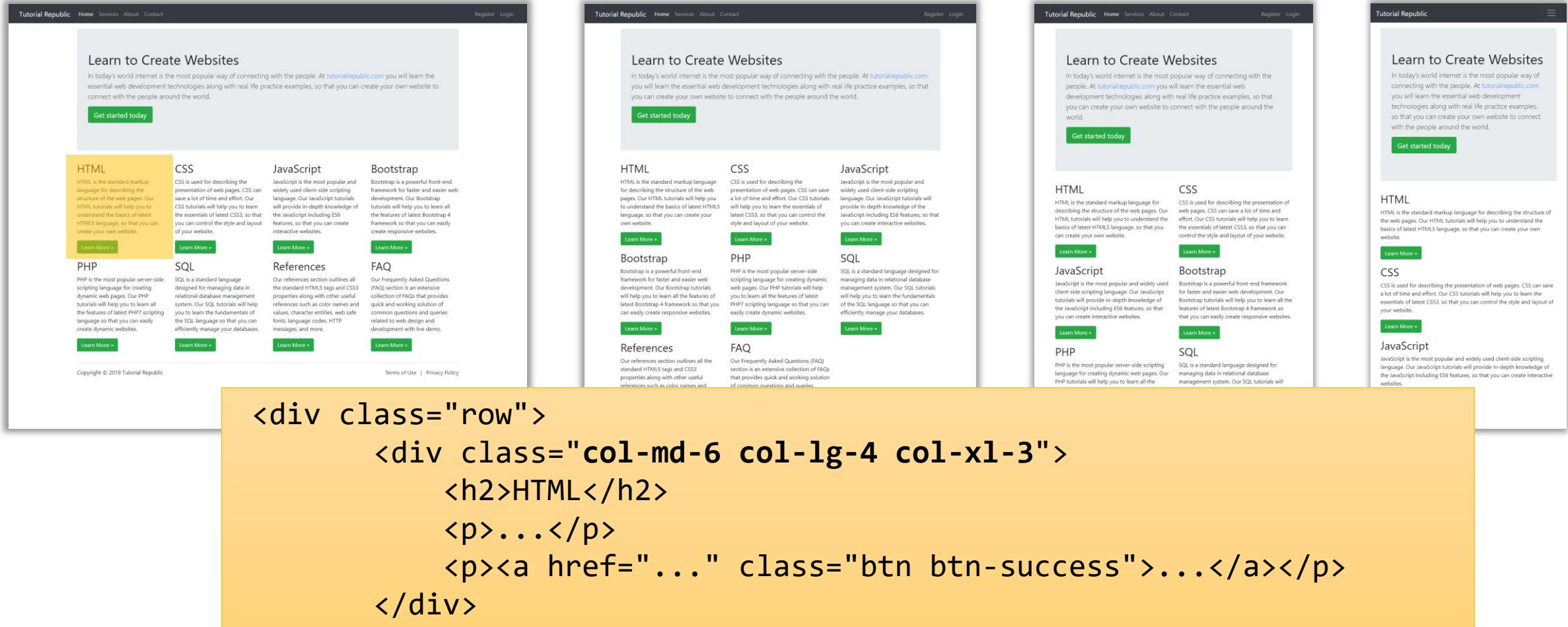
May choose to span a group of columns

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															

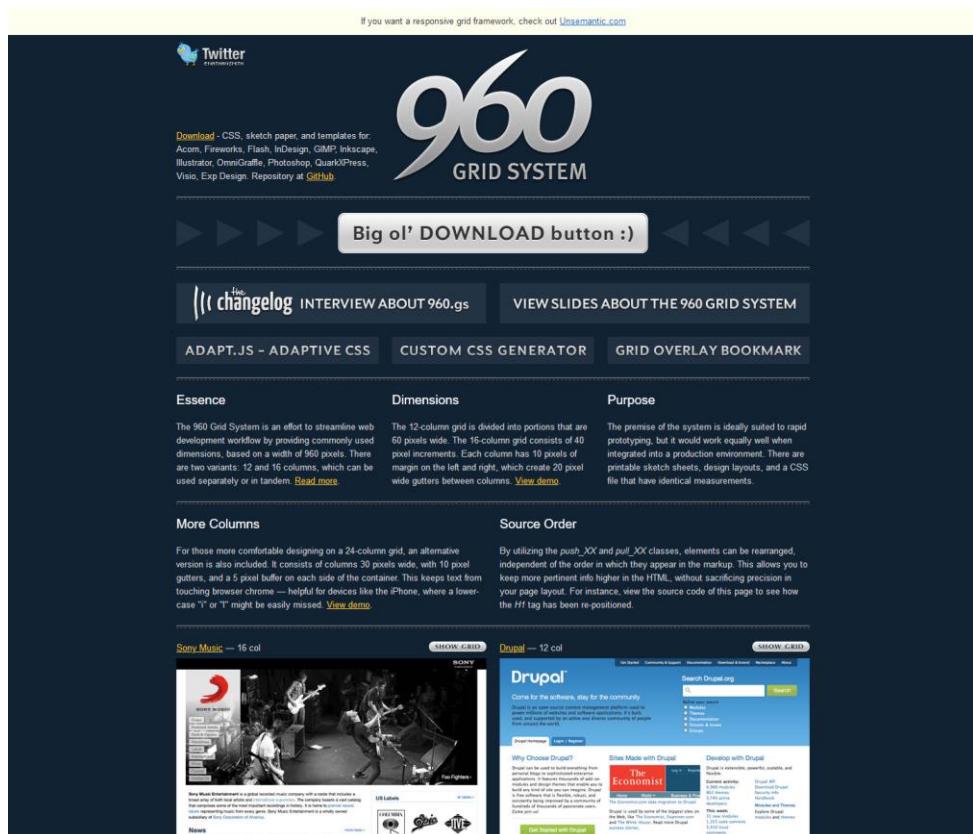
Responsive grid layout



<https://www.tutorialrepublic.com/twitter-bootstrap-tutorial/bootstrap-responsive-layout.php>

Other grid systems

960 grid (fixed width, 12 or 16 col)



<https://960.gs/>

Unsemantic (responsive, based on %)

A screenshot of the Unsemantic website. The header has the "unsemantic" logo in red and black. A navigation bar includes "Home", "About", "Demo", "CSS Documentation", "Sass Documentation", "Download Here", and "GitHub Repo". The main content area is titled "What is it?". It defines "Un•se•man•tic" as an adjective and a nonexistent word used by developers. It also describes it as a CSS framework. To the right, under "Example Usage", is a code snippet for a 3-column grid system. Other sections include "Successor to 960.gs", "SE-Oh?", "Built with Sass", "Responsive Demo", "Adapt.js Demo", and "Browser Support". The "Responsive Demo" section shows media queries for "grid-12", "grid-16", and "grid-24". The "Adapt.js Demo" section lists "Adapt.js Demo" and "Adapt.js Demo – RTL text". The "Browser Support" section states that Unsemantic supports all major browsers. A note at the bottom indicates the site is a reference to the arch nemesis of semantic grids.

<https://unsemantic.com/>

Grid structure

Main body:
Mix of 2x and 3x
columns

Alternating row
types



Title area outside the grid

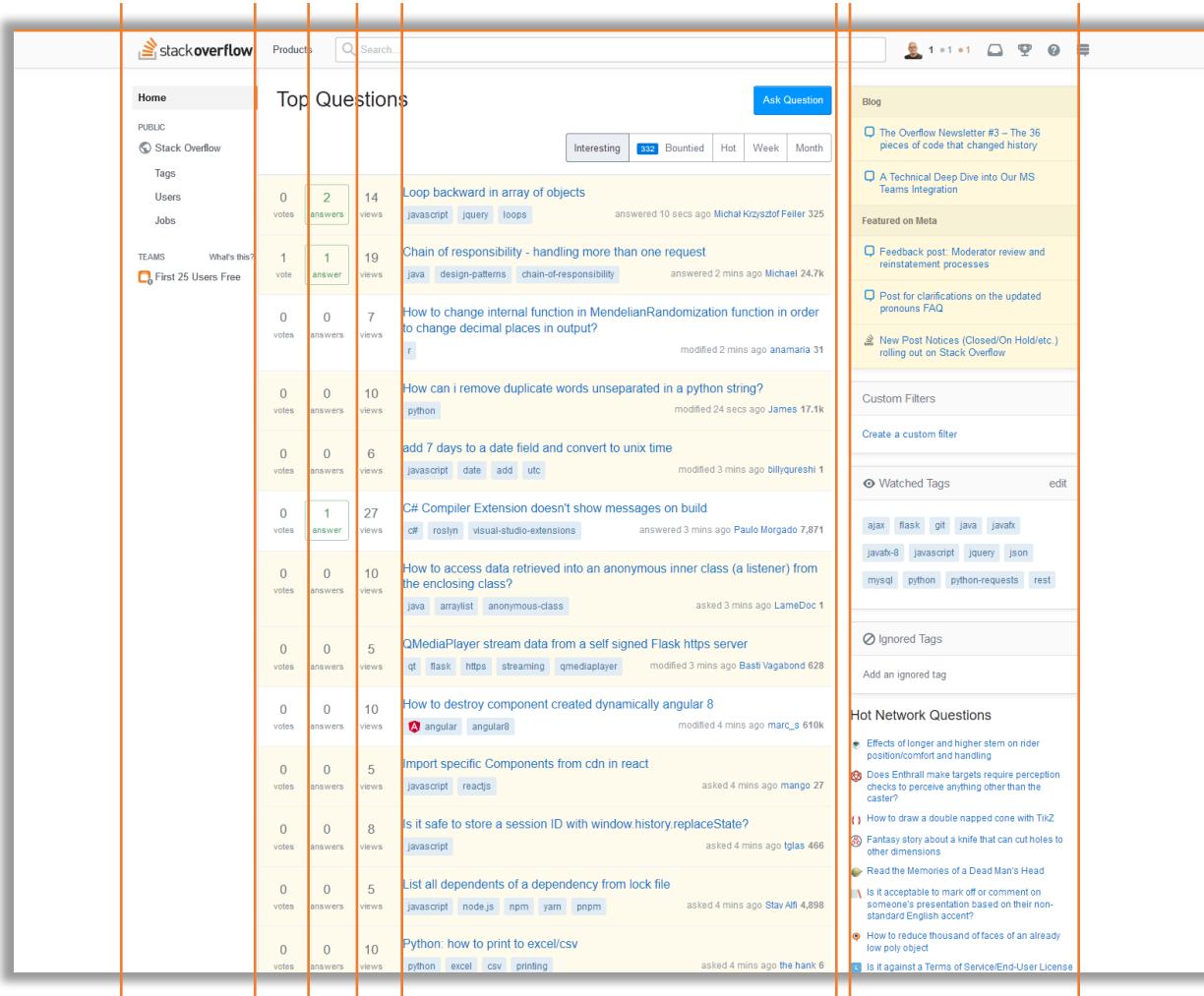
Right column for other types of articles

Grid structure

Main content
(center, wide)

Navigation
(left, smaller)

Related content
(right, smaller)



Example (2019)

Software								Top
1° anno								
Periodo	Codice	Lingua	Insegnamento	Crediti	Docente	Note	Vincoli	
1	01PDW0V	IT	<u>Information systems</u> ING-INF/05 (6)	6	M. Morisio	View		
1	02GOLOV	IT	<u>Architetture dei sistemi di elaborazione</u>	10	P. Bernardi E. Sanchez Sanchez	View		
			Oppure					
1	02LSEOV	IT	<u>Computer architectures</u>	10	P. Montuschi	View		
1	01SQJ0V	IT	<u>Data Science and Database Technology</u>	8	S. Chiusano	View		
			Oppure					
1	01SQMOV	IT	<u>Data Science e Tecnologie per le Basi di Dati</u>	8	E. Baralis	View		
1	01OTW0V	IT	<u>Computer network technologies and services</u>	6	M. Baldi	View		
			Oppure					
1	02KPNOV	IT	<u>Tecnologie e servizi di rete</u>	6	G. Marchetto	View		
2	02JEUOV	IT	<u>Formal languages and compilers</u>	6	R. Sisto	View		
2	05BIDOV	IT	<u>Ingegneria del software</u>	8	G. Bruno	View		
			Oppure					
2	04GSPOV	IT	<u>Software engineering</u>	8	M. Morisio	View		
2	01UDFOV	IT	<u>Applicazioni Web I</u>	6	E. Masala	View		
			Oppure					
2	01TXY0V	IT	<u>Web Applications I</u>	6	F. Cormo	View		
2	02GRSOV	IT	<u>Programmazione di sistemi</u>	10	G. Cabodi	View		
			Oppure					
2	01NYH0V	IT	<u>System and device programming</u> ING-INF/05 (10)	10	S. Quer	View		
2° anno								
Periodo	Codice	Lingua	Insegnamento	Crediti	Docente	Note	Vincoli	
1	01TYMOV	IT	<u>Insegnamento a scelta 1</u> <u>Information systems security</u> ING-INF/05 (6)	6		View		
			Oppure					
1	01UDUOV	IT	<u>Sicurezza dei sistemi informativi</u> ING-INF/05 (6)	6		View		
1	01SQNOV	IT	<u>Software Engineering II</u> ING-INF/05 (6)	6		View		
1,2	01TYDOV	IT	<u>Crediti liberi</u>	6				
1,2	29EBHOV	IT	<u>Tesi</u>	30				
2			<u>Insegnamento a scelta 2</u>	6				
Insegnamento a scelta 1								
Periodo	Codice	Lingua	Insegnamento	Crediti	Docente	Note	Vincoli	
1	01TYDOV	IT	<u>Cloud Computing</u>	6		View		
1	01PDCOV	IT	<u>Digital control technologies and architectures</u> ING-INF/04 (6)	6		View		
1	01TXZ0V	IT	<u>Distributed systems programming</u> ING-INF/05 (6)	6		View	Si	
1	01NWPOV	IT	<u>Elaborazione dell'audio digitale</u>	6		View		
1	01UDGOV	IT	<u>Energy management for IoT</u> ING-INF/05 (6)	6		View	Si	
1	02JSK0V	IT	<u>Human Computer Interaction</u>	6		View		
1	01SQJ0V	IT	<u>Machine Learning and Artificial Intelligence</u>	6		View		
1	01PDX0V	IT	<u>Modern design of control systems</u> ING-INF/04 (6)	6		View		
1	01OUUV0V	IT	<u>Optimization methods and algorithms</u>	6		View		
1	01CET0V	IT	<u>System and device programming</u> MAT/09 (6)	6		View		

Example (same page in 2020)

Software

▼ 1° anno 2020/2021

Periodo	Codice	SSD	Insegnamento	Lingua	Crediti	Docente	Note	Orario
1	01PDW0V	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	01OTW0V	ING-INF/05 (6)	Computer network technologies and services	🇬🇧	6	G. Marchetto (161 iscr.)	🕒	
oppure								
1	02KPN0V	ING-INF/05 (6)	Tecnologie e servizi di rete	🇮🇹	6	G. Marchetto (253 iscr.)	🕒	
2	02JEU0V	ING-INF/05 (6)	Formal languages and compilers	🇬🇧	6	R. Sisto (60 iscr.)	🕒	
2	05BID0V	ING-INF/05 (8)	Ingegneria del software	🇮🇹	8	G. Bruno (132 iscr.)	🕒	
oppure								
2	04GSPOV	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	01TXY0V	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	01NYH0V	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	01TYM0V	ING-INF/05 (6)	Information systems security	🇬🇧	6		🕒	
oppure								
1	01UDU0V	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		🕒	

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: United States ▾

Phone Number: Learn more

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

Weekend Delivery: Select your preference ▾

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

Italia

Nome e cognome

Indirizzo

Via e numero civico

Scala, piano, interno ecc. (Opzionale)

Città

Provincia

Codice postale

Numero di telefono

Può essere utilizzato per aiutare consegna

Aggiungi istruzioni di consegna

Consegna nel fine settimana

Seleziona la tua disponibilità

Aggiungi indirizzo

Some guidelines

- 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

Colors

The most dangerous weapon in your toolset

Colors...



Colors

- Be careful, don't 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

Example

The image displays two identical screenshots of the Stack Overflow homepage, side-by-side, illustrating a user interface comparison or a specific feature.

Left Screenshot (Original UI):

- Top Questions:**
 - Loop backward in array of objects (2 answers, 14 views)
 - Chain of responsibility - handling more than one request (1 answer, 19 views)
 - How to change internal function in MendelianRandomization function in order to change decimal places in output? (0 answers, 7 views)
 - How i remove duplicate words unseparated in a python string? (0 answers, 10 views)
 - add 7 days to a date field and convert to unix time (0 answers, 6 views)
 - # Compiler Extension doesn't show messages on build (1 answer, 27 views)
 - How to access data retrieved into an anonymous inner class (a listener) from the enclosing class? (0 answers, 10 views)
 - QMediaPlayer stream data from a self signed Flask https server (0 answers, 5 views)
 - How to destroy component created dynamically angular 8 (0 answers, 10 views)
 - Import specific Components from cdn in react (0 answers, 5 views)
 - Is it safe to store a session ID with window.history.replaceState? (0 answers, 8 views)
 - List all dependents of a dependency from lock file (0 answers, 5 views)
 - Python: how to print to excel/csv (0 answers, 10 views)
- Blog:**
 - The Overflow Newsletter #3 – The 36 pieces of code that changed history
 - A Technical Deep Dive into Our MS Teams Integration
 - Feedback post: Moderator review and reinstatement processes
 - Post for clarifications on the updated pronouns FAQ
 - New Post Notices (Closed/On Hold/etc.) rolling out on Stack Overflow
- Custom Filters:**
 - Create a custom filter
- Watched Tags:**
 - edit
 - ajax flask git java javafx
 - javascript jquery json
 - mysql python python-requests rest
- Ignored Tags:**
 - Add an ignored tag
- Hot Network Questions:**
 - Effects of longer and higher stem on rider position/comfort and handling
 - Does Entrail make targets require perception checks to perceive anything other than the caster?
 - How to draw a double napped cone with TikZ
 - Fantasy story about a knife that can cut holes to other dimensions
 - Read the Memories of a Dead Man's Head
 - Is it acceptable to mark off or comment on someone's presentation based on their non-standard English accent?
 - How to reduce thousand of faces of an already low poly object
 - Is it against a Terms of Service/End-User License

Example

The image shows two side-by-side screenshots of the Politecnico di Torino website. The left screenshot is in dark mode, and the right screenshot is in light mode. Both screenshots feature a large banner for the 'festival della TECNOLOGIA' (Torino, 7-10 NOV 2019) with the tagline 'Tecnologia è Umanità'. Below the banner, there are sections for 'EVENTI' (Events), 'AVVISI E SCADENZE' (Announcements and Deadlines), and 'ACCESSO RAPIDO' (Quick Access). The right screenshot shows significantly improved color contrast, making the text and links more legible against the white background.

Left Screenshot (Dark Mode):

- Header:** ITA | ENG | Login | argomenti o persone
- Banner:** festival della TECNOLOGIA (TORINO, 7-10 NOV 2019), Tecnologia è Umanità
- Events:**
 - Dal 14.06 Walking Beyond: camminate urbane attraverso la città contemporanea Giugno - Dicembre 2019
 - Dal 23.10 The Polar oceans and global climate change 23 October - 18 November 2019
 - Dal 04.11 Network dynamics in the social, economic and financial sciences 4-8 November 2019
 - Dal 05.11 OptArch2019 5 - 7 November 2019
- Announcements and Deadlines:**
 - 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)
- Quick Access:** Apply@PolTo 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

Right Screenshot (Light Mode):

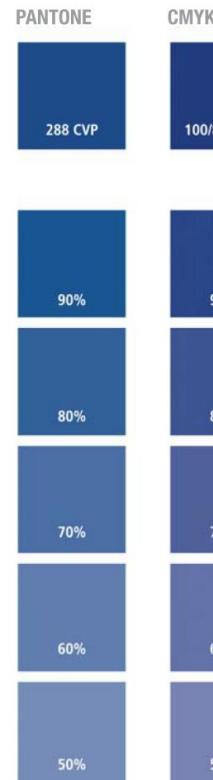
- Header:** ITA | ENG | Login | argomenti o persone
- Banner:** festival della TECNOLOGIA (TORINO, 7-10 NOV 2019), Tecnologia è Umanità
- Events:**
 - Dal 14.06 Walking Beyond: camminate urbane attraverso la città contemporanea Giugno - Dicembre 2019
 - Dal 23.10 The Polar oceans and global climate change 23 October - 18 November 2019
 - Dal 04.11 Network dynamics in the social, economic and financial sciences 4-8 November 2019
 - Dal 05.11 OptArch2019 5 - 7 November 2019
- Announcements and Deadlines:**
 - 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)
- Quick Access:** Apply@PolTo 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

Palettes

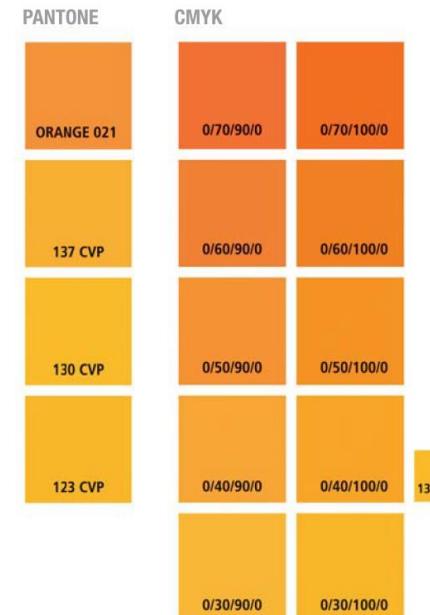
Allegato 1

ABACO COLORI POLITO

BLU



ARANCIO



COMBINAZIONI

CMYK	
100/80/0/30	0/70/100/0
100/80/0/30	0/60/100/0
100/80/0/30	0/50/100/0
100/80/0/30	0/40/100/0
100/80/0/30	0/30/100/0

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

- SadieSews on Vengeful 225
Really nice look, with this! (:
- MisteryMoments on CoffeeBerries
I love your Template Design Style.. thanks
- renniecat on Cold Night
Beautiful!
- GoldenHuesinBlue on Golden Fall
Wow, very nice!
- TongrenGirl on Comfort
Wow...so beautiful!!!
- TongrenGirl on Extraordinary
I love this!!!!
- TongrenGirl on Deep Waters
Ooooo, fantastic colors!!!!
- TongrenGirl on Race to Spring
Very nice!!!
- TongrenGirl on Race to Spring
Thanks so much for coloring my

ALL WEDDING HOME FASHION WEB PRINT CRAFT DIGITAL ART

LATEST BLOG POSTS

-  Why Marketing Automation is Rocket-Fuel for Remote Workforce
0 Comments
-  How to Become a Full-Time Creative and Do What You Love
0 Comments
-  Colors, Human Growth Hormones, and Creativity
0 Comments

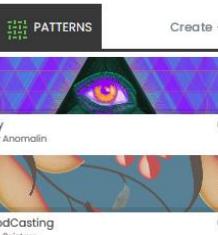
[View More](#)

PALETTES



Nineteen
by Júlia Freire
garden palette 2
by macarver

PATTERNS



try
by Anomalin
PodCasting
by 3sisters

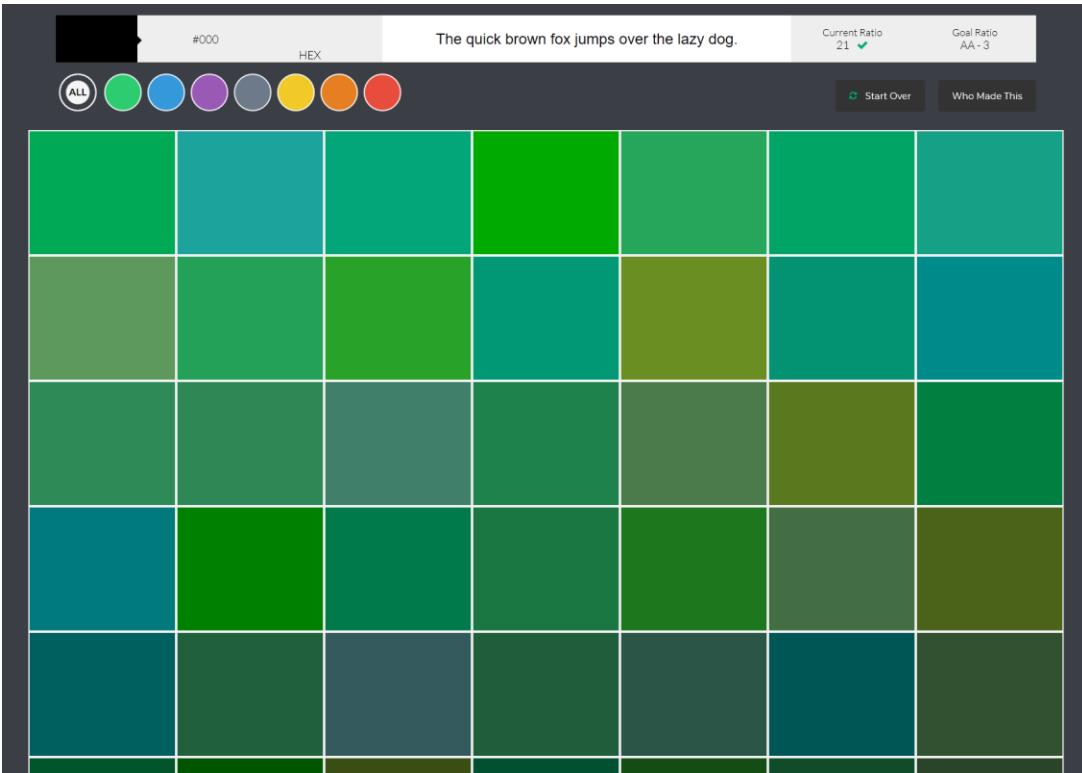
COLORS



light gray purple
by macarver
slate purple
by macarver

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

Color contrast



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

<http://colorsafe.co/>

Example

- Colors needing an explanation legend
- Time intervals are shaded with 2 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

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: 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

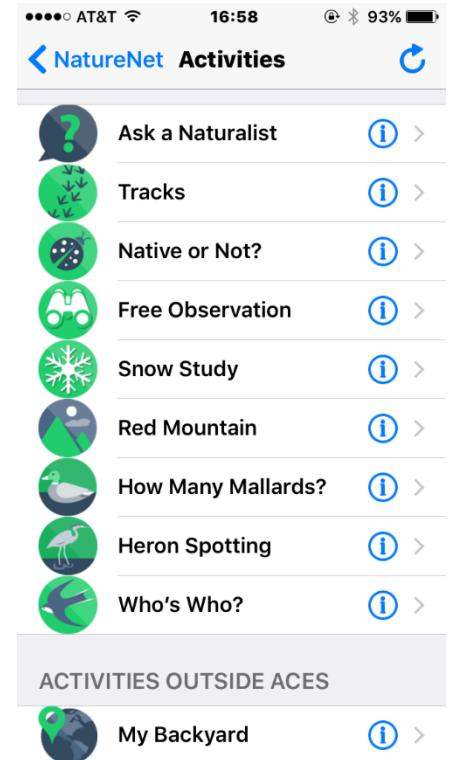
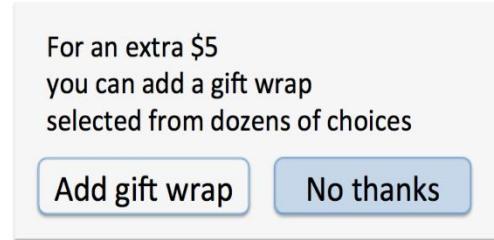
«Informavores» must quickly find the information they need

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

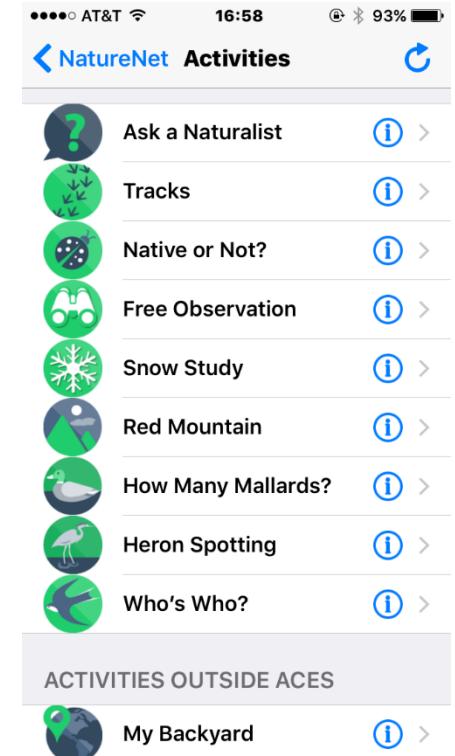
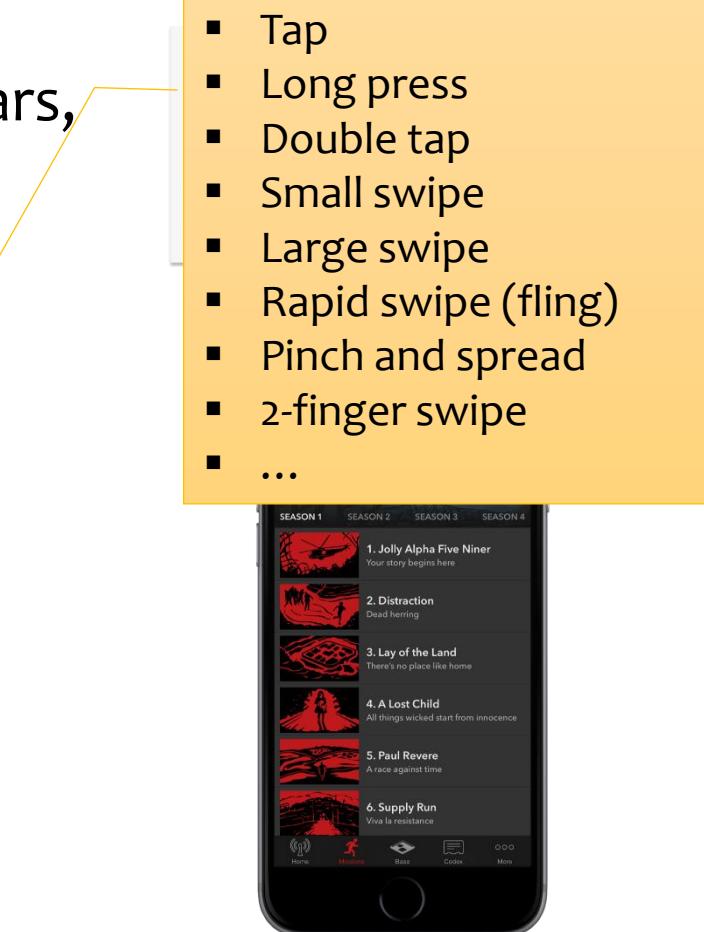
Navigation by selection

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



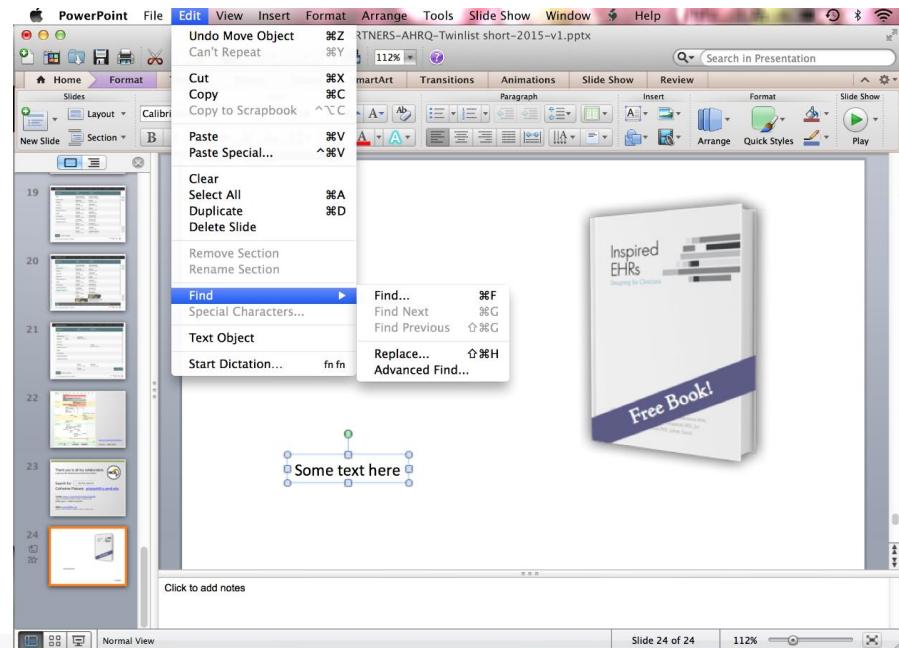
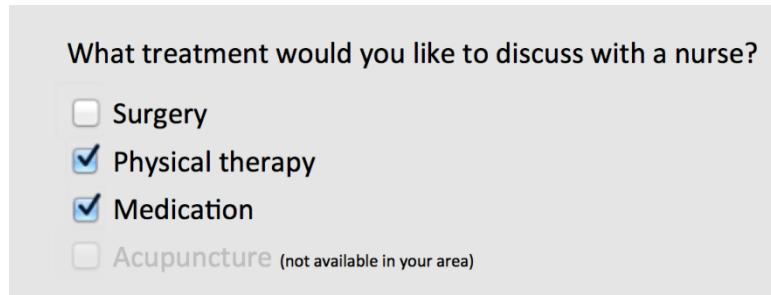
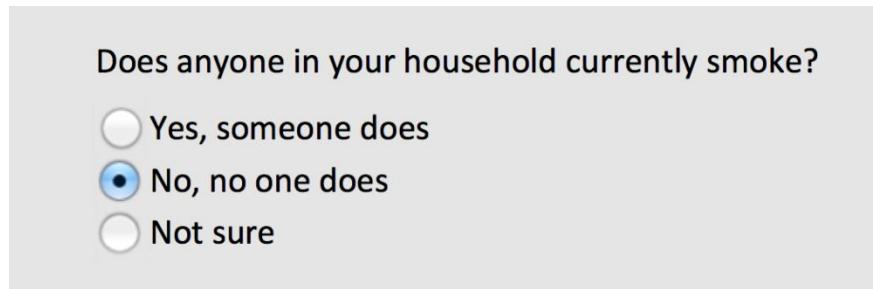
Navigation by selection

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



Navigation by selection

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



Menus

The screenshot shows the NASA website homepage with a complex navigation menu at the top. The menu items include: Missions, Galleries, NASA TV, Follow NASA, Downloads, About, NASA Audiences, and a Search bar. Below the menu, there is a main content area featuring several news stories and images. One prominent story is about the Mars Rover Curiosity. Other stories include: "One-Year Crew Halfway There" (astronauts in a space station module), "Eclipse" (NASA scientist discussing a supermoon eclipse), "Image of the Day" (Good Morning from the International Space Station), "The Real Martians" (Curiosity rover on Mars), "Space Travel" (New Green Propellants Complete Milestones), "Fire and Smoke" (Rough Fire Still Burning in California), and "Real Martians Moment: We're Learning More!" (Curiosity rover on Mars). There is also a "SDO Solar Mission" section showing an Earth-Moon double photobomb. A sidebar on the right contains a "Tweets" feed for the #3DPrintedHabitatChallenge and a "Follow" button for @NASA.

The screenshot shows the NASA TV website homepage. The menu is much simpler, featuring only the NASA logo, a search bar, and a navigation icon. The main content area displays a video player showing two astronauts working in a space station module, with the caption "One-Year Crew Halfway There". Below this, there is another video player showing three people in a laboratory setting, with the caption "SDO Catches an Earth-Moon Double Photobomb".

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

Screenshot of the REI website illustrating tree-like content organization.

The top navigation bar includes: Help, Wish List, Gift Registry, Classes & Events, Store Locator, 0 items in the shopping cart, and Checkout.

Welcome message: Welcome to REI! | Log In or Register

FREE SHIPPING With \$50 minimum purchase.

Main menu categories: SHOP REI, SHOP REI OUTLET, TRAVEL WITH REI, LEARN, BLOG, MEMBERSHIP, STEWARDSHIP.

Sub-categories under SHOP REI: Camp & Hike, Climb, Cycle, Fitness, Run, Paddle, Snow, Travel, Men, Women, Kids, Footwear, More, Deals.

Category sections:

- 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.
- Bike Components**: Brakes, Saddles/Seat Posts, Tires, Tubes and Wheels, Tools and Maintenance, Drivetrain Components, Pedals, Handlebars.
- Messengers/Backpacks**: Panniers/Bike Bags.

A promotional sidebar: GIVE THE GIFT OF GEAR ANYTIME, ANYWHERE. REI gift & e-gift cards. Buy now >

Product filters and search: Car Racks, Novara Cycling, Cycling Deals, All Cycling, Deals (31).

Product details for three items:

- REI Rainwall Rain Jacket - Girls'**: \$31.83 - \$64.50, 5 star rating (1). Compare.
- REI Rainwall Rain Pants - Kids'**: \$49.50, 5 star rating (1). Compare.
- REI Sahara Convertible Pants - Girls'**: \$44.50, 5 star rating (9). Compare.

Product filters and search: Features (Moisture wicking, Quick drying, Sun-protective fabric, Waterproof, Insulated, Earflaps, Made in USA), See 8 More, Brand (Clear, 686).

Callouts: 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

Tool Prenotazioni

Selezionare l'ambito per il quale ci si intende prenotare

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- 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

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

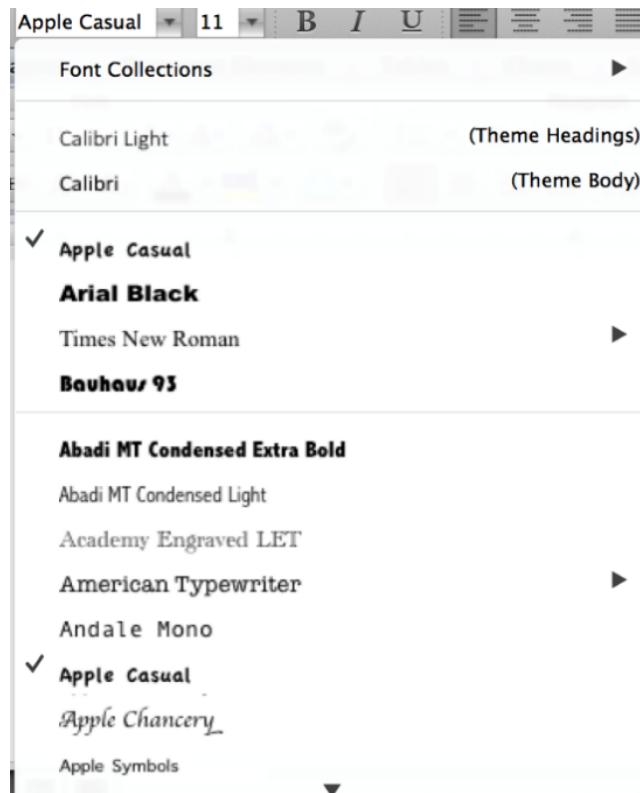
A partire da giorno 15 luglio 2020, è consentito l'uso della seguente Sala Studio della Sede Centrale:
- Sala studio al Secondo Piano di C.so Castelfidardo 39, codice locale TO_CIT11_XP02_001

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

		14 Set 2020 - 18 Set 2020						
		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								

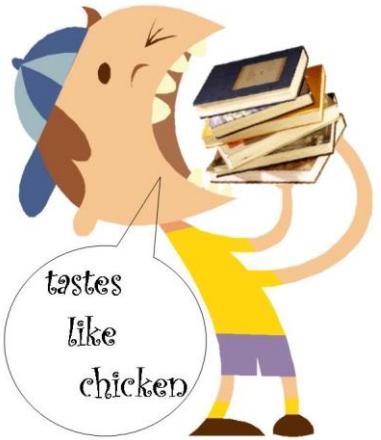
Menu grouping (example)

- 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...
 - Don't 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...

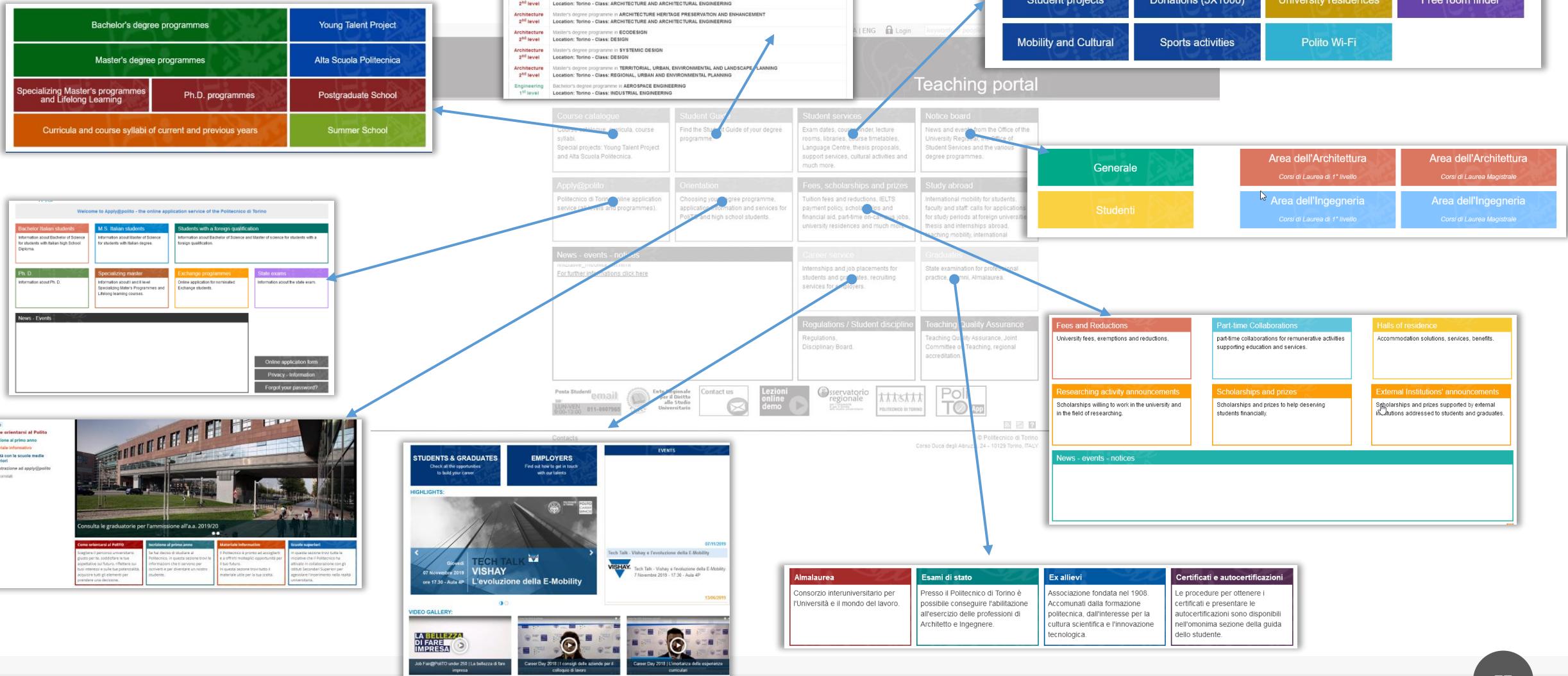
Example

The screenshot shows the homepage of the Politecnico di Torino Teaching portal. At the top, there is a navigation bar with links for 'The Politecnico' (highlighted in blue), 'Teaching' (orange), 'Research' (red), 'Business' (purple), and 'International Campus' (yellow). Below the navigation bar is the Politecnico di Torino logo and the text 'POLITECNICO DI TORINO'. A large blue header bar contains the text 'Teaching portal'. The main content area is organized into several colored boxes:

- Course catalogue** (orange): Course catalogue, curricula, course syllabi. Special projects: Young Talent Project and Alta Scuola Politecnica.
- Student Guide** (light orange): Find the Student Guide of your degree programme.
- Student services** (orange): Exam dates, course finder, lecture rooms, libraries, course timetables, Language Centre, thesis proposals, support services, cultural activities and much more.
- Notice board** (orange): News and events from the Office of the University Registrar, the Office of Student Services and the various degree programmes.
- Apply@polito** (light blue): Politecnico di Torino online application service (all levels and programmes).
- Orientation** (light blue): Choosing your degree programme, application information and services for PoliTO and high school students.
- Fees, scholarships and prizes** (orange): Tuition fees and reductions, IELTS payment policy, scholarships and financial aid, part-time on-campus jobs, university residences and much more.
- Study abroad** (orange): 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** (light blue): notizie e eventi. For further informations [click here](#).
- Career service** (purple): Internships and job placements for students and graduates, recruiting services for employers.
- Graduates** (purple): State examination for professional practice, alumni, AlmaLaurea.
- Regulations / Student discipline** (blue): Regulations, Disciplinary Board.
- Teaching Quality Assurance** (blue): Teaching Quality Assurance, Joint Committee on Teaching, regional accreditation.

At the bottom of the page, there are links for 'Posta Studenti', 'email' (with a phone number: 011-8997965), 'Ente Regionale per il Diritto allo Studio Universitario' (with a logo), 'Contact us' (with an envelope icon), 'Lezioni online demo' (with a play button icon), 'Osservatorio regionale' (with a green icon), 'POLITECNICO DI TORINO' (with a logo), and 'PoliTO App' (with a smartphone icon). There are also social media icons for YouTube, Facebook, and Twitter, along with a link to the university's address: Corso Duca degli Abruzzi, 24 - 10129 Torino, ITALY.

Example



Example

Survey@Polito

Administration -- Logged in as: **corno**

Survey Smart Home Survey (ID:365355)

Title: Smart Home Survey (ID 365355)
Survey URL (English): <https://survey.polito.it/365355/lang-en>

Description: This very short survey aims at exploring the future and expected user interaction between user and smart environments, in particular smart homes. The research goal is to update, and compare, the research findings of a similar survey held in year 2010 (5 years ago). The expected completion time for this survey is 5 minutes or less.

Welcome: Thank you for agreeing to take part in this survey. All the answers you give are anonymous, and the data-set will be released as open data after the survey ends. You may choose to reply in any of the supported languages, preferably your mother tongue.

End message: Thanks for completing the survey. The results will be available on the website <http://elite.polito.it> The paper describing the previous survey (in 2010) is available at: <http://porto.polito.it/2380988/>

Administrator: Fulvio Corno (fulvio.corno@polito.it)

Start date/time: -

Expiry date/time: -

Template: default

Base language: English

Additional languages: French
German
Italian
Portuguese
Spanish

End URL: e-Lite research group webpage

Number of questions/groups: 11/3

Survey currently active: Yes

Survey table name: beta_survey_365355

Hints: Answers to this survey are anonymized.
It is presented group by group.
Participants can save partially finished surveys
Basic email notification is sent to: fulvio.corno@gmail.com
Regenerate question codes: [\[Straight\]](#) [\[By group\]](#)

LimeSurvey Version 1.92+ Build 120919

Common Problems

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

Icons

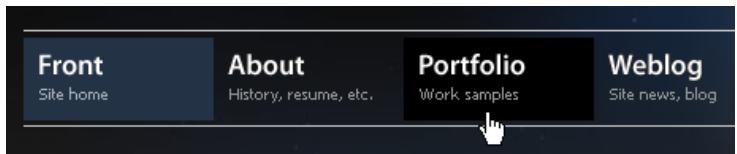
- Icons facilitate recognition over recall
 - When they are consistently used, and frequently visible
- Redundant coding helps recognition and memorization
 - Icon + Text + Tooltip + Context



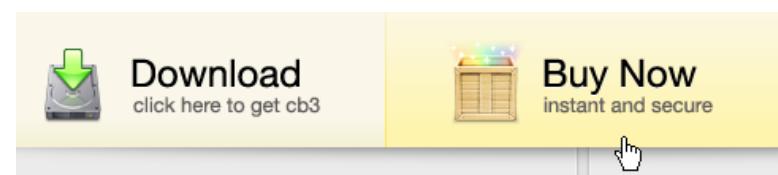
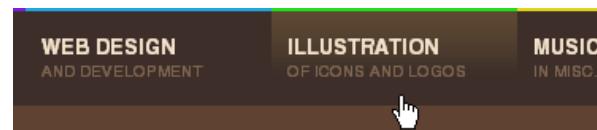
Links

- 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](#)

“Speaking” block navigation



A vertical navigation menu on the right side of the page. It includes links for 'Front Page', 'Our Portfolio', 'Who We Are', 'What We Do', and 'Contact Us'. Each link has a small icon and a brief description. A mouse cursor is hovering over the 'Who We Are' link.



A vertical navigation menu on the right side of the page. It includes links for 'Newsletter' (Free newsletter), 'Store' (Maximize your ministry), 'Events' (Attend an event near you), 'Podcast' (Free audio training), and 'Coaching' (Networks for Worship Leaders). Each link has a small icon and a brief description. A mouse cursor is hovering over the 'Events' link.

Forms

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

Create an IEEE Account [?](#)

* Required field

Provide your personal information

* Given/First name: Catherine

Middle name:

* Last/Family/Surname: Plaisant

Enter e-mail address & password

The e-mail provided here will be the username of your account.

* E-mail address: cplaisant@

* Re-enter e-mail address:

⚠ The e-mail address provided is not in a valid e-mail format (for example: j.doe@nomail.com). Please try again.

* Password: ✓ Your password is good

Passwords must be between 8 and 64 characters, and include at least one number. [More...](#)

* Confirm password:

Set security questions

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

* Security question 1:
Select

* Type your answer:

* Security question 2:
Select

* Type your answer:

[Privacy & Opting Out of Cookies](#)

Create Account and Continue Joining [Cancel](#)

Form Elements and UI Elements

The collage illustrates a variety of user interface elements:

- Checkboxes: NonFederal (99) and Federal (57).
- Radio buttons: Yes and No.
- Dropdown menu: Find your state or... Go.
- Date pickers: SEP 18th 2010 and JUN 22.
- Social sharing buttons: Send, Post, Tweet.
- Sliders: ON OFF.
- List boxes: Are like dropdowns, But they let you make multiple selections, Like checkboxes do.
- Navigation bar: Menu Item, Messages (1), About Us.
- Text input fields: Text input fields let you input text.
- General Settings: General Settings, Your Profile, Sign Out.
- Calendar: Sep. 2010 calendar showing the month of September 2010.
- File browser: A grid of icons representing file types.
- Image gallery: A grid of small images with arrows for navigation.
- Search bar: Navigation Crystal Clear, Navigation Menu, Navigation Soft Style, Navigation Class (selected), Navigation Plastic.
- Search bar: Enter Keywords, Search Option One, Search Option Two, Search Option Three.
- Search bar: Enter Keywords, Category, SEARCH.
- Search bar: Search, Everything, Entries, Photos (selected), Videos, Audio.
- Tags: Costs (72), Health Conditions (54), Improving Care (53), Prevention (50), Rights, Protections and Benefits (135), Insurance Coverage (141).
- Progress bar: A horizontal progress bar with five numbered steps (1, 2, 3, 4, 5).
- Step labels: 1. Skills, 2. Location, 3. Finish.
- Step buttons: 1 Step, 2 Step, 3 Step.
- Page navigation: 1 2 3 4 5 6 7 8 9 10 next, Previous 1 2 3 4 5 6 ... 33 34 Next.
- Page navigation: Prev 1 2 3 4 5 6 ... 33 34 Next.
- Form buttons: Clean, Fresh, Modern, Unique, X, +.
- Text area: 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. Vestibulum ante ipsum primis.
- Text area: READ MORE.

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

Example: redesign this

Attenzione, i seguenti insegnamenti sono in corso di sospensione potranno essere sostenuti entro la sessione sotto indicata. Se terminata la sessione d'esame non risulteranno ancora superati, verranno sostituiti con l'insegnamento riportato in tabella.

Codice	Nome insegnamento	Crediti	Cod Ins Sostituto	Nome Ins Sostituto	Crediti sostituto	Scadenza esame
12BHDLZ	Informatica	8	14BHDLZ	Informatica	8	9/2021

Se non è ancora stato specificato un sostituto, il referente del corso provvederà in seguito a segnalare con quali esami sostituire gli spenti

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/>

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

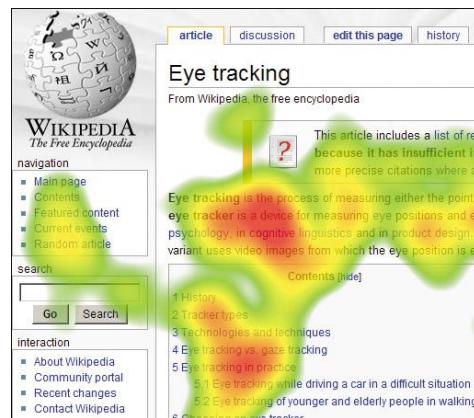
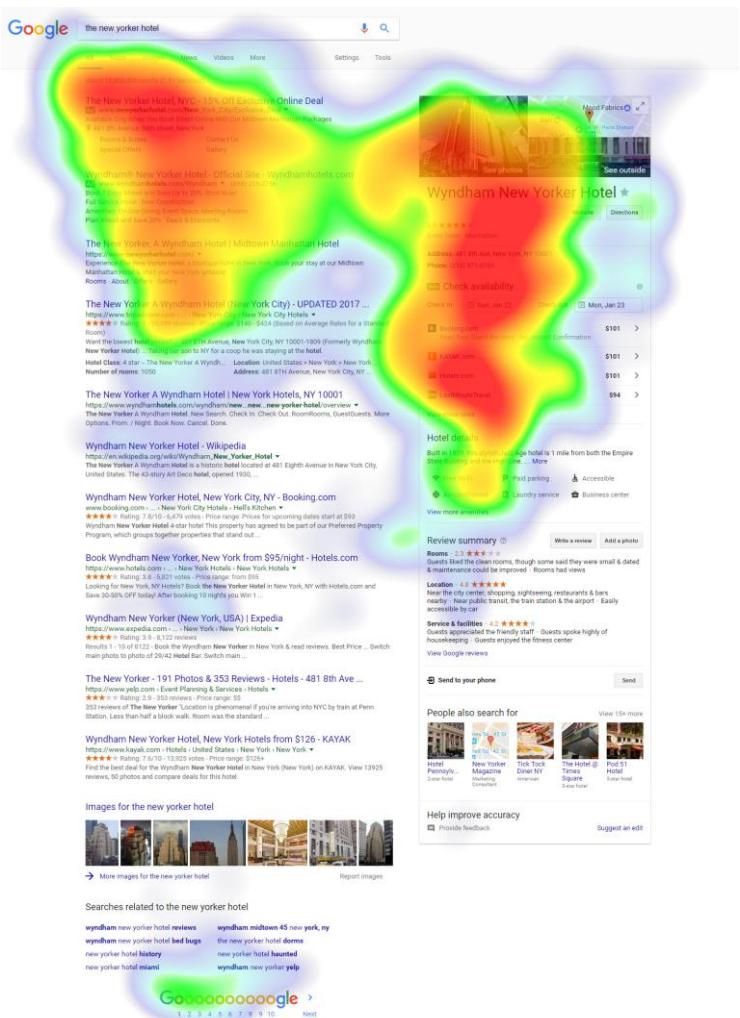
Location on the page

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

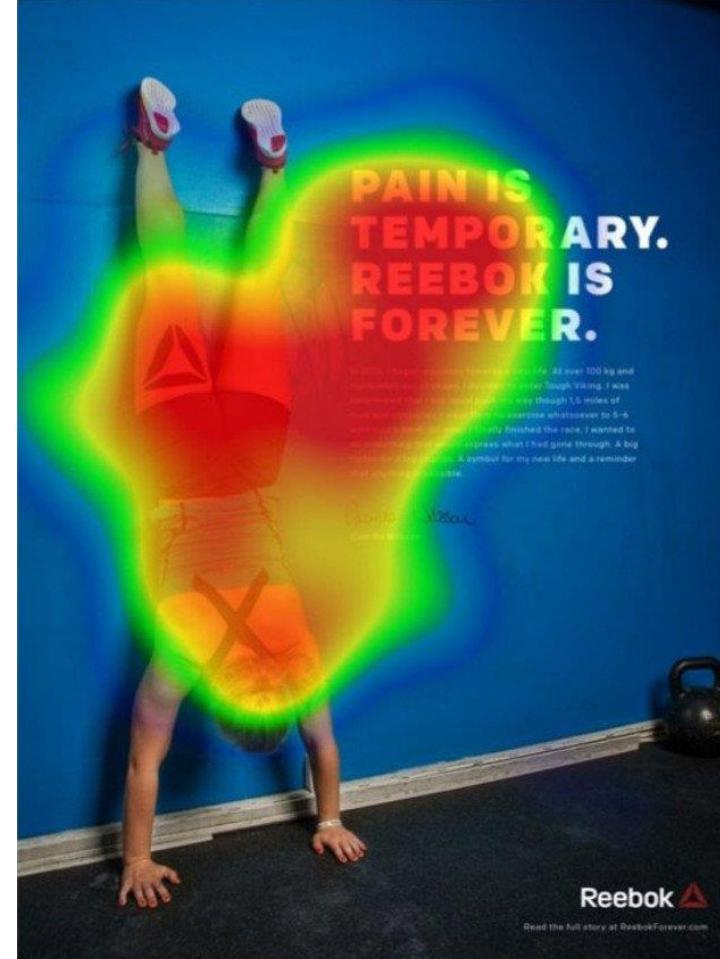
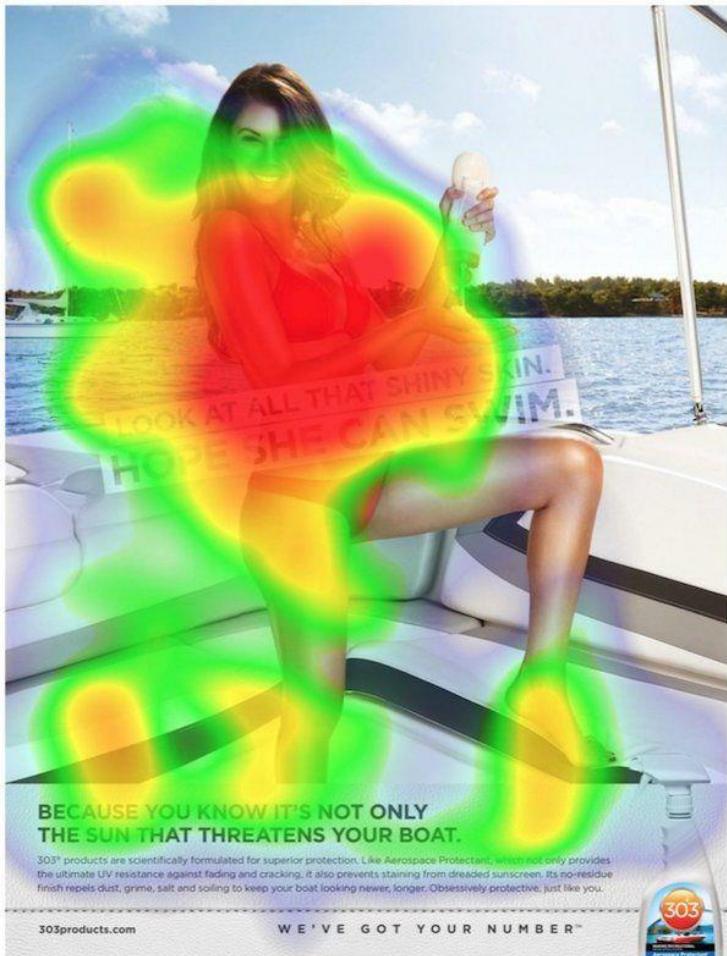
Search “eye tracking heat map” and see the major patterns

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

F-shaped pattern



Did anyone ever look at the product name?

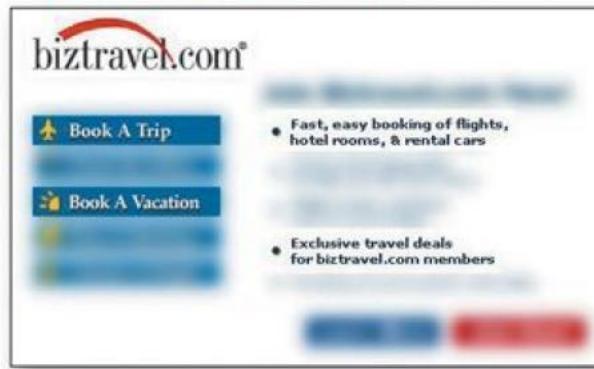


Scanning

WHAT DESIGNERS BUILD...



WHAT USERS SEE...



I want to buy a ticket.



How do I check my frequent flyer miles?

Experiment

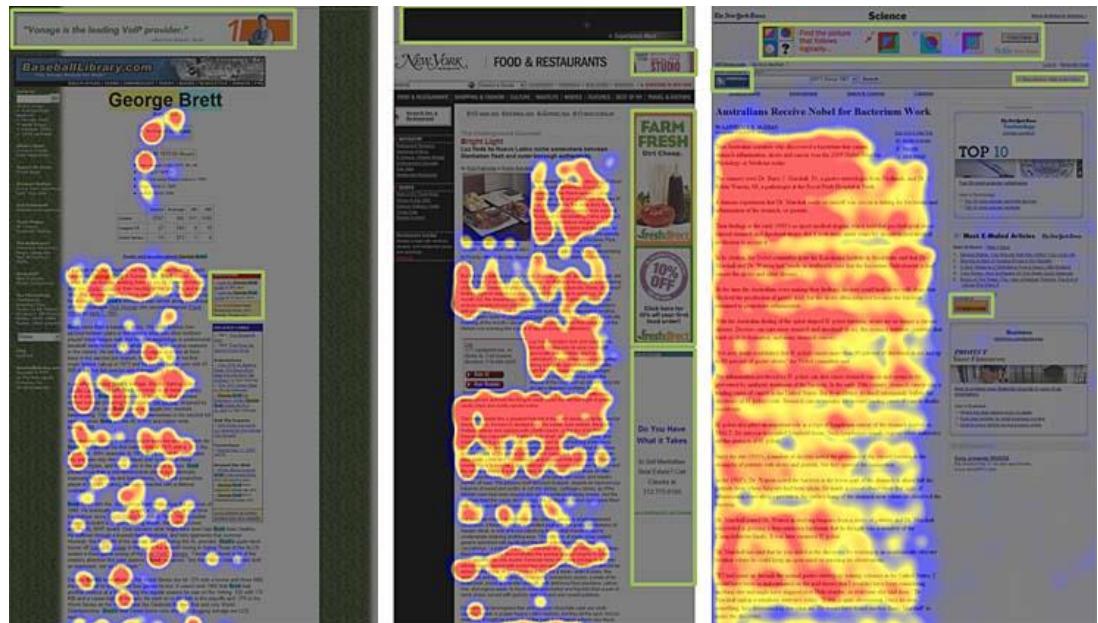
Site Version	Sample Paragraph	Usability Improvement (relative to control condition)
Promotional writing (control condition) using the "marketese" found on many commercial websites	Nebraska is filled with internationally recognized attractions that draw large crowds of people every year, without fail. 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	<p>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:</p> <ul style="list-style-type: none"> •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	<p>In 1996, six of the most-visited places in Nebraska were:</p> <ul style="list-style-type: none"> •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, don't 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

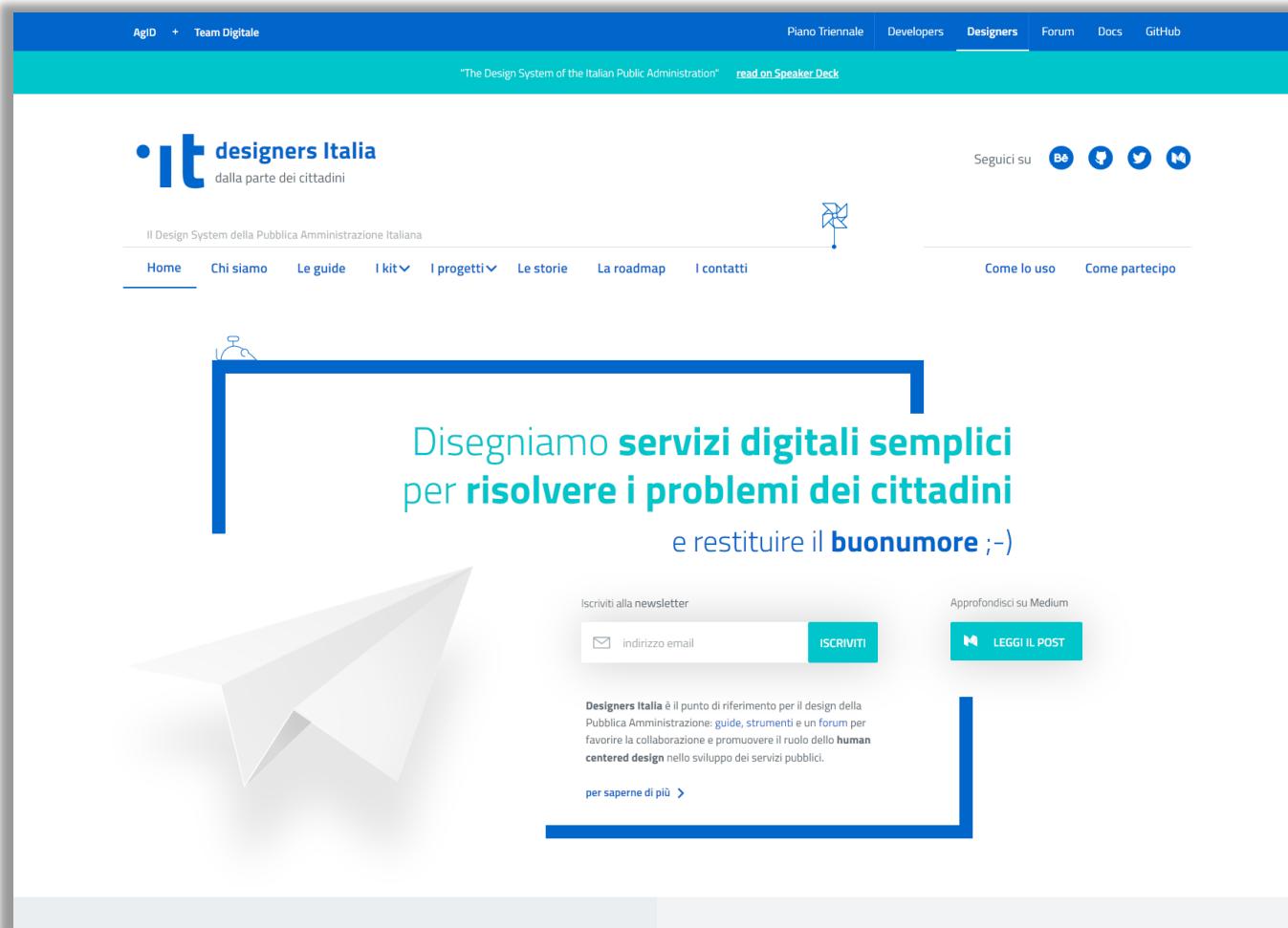
- The brain learns to avoid uninteresting content
- Banners and Advertisements are recognized subconsciously (by their appearance) and are never considered
 - Ads also “poison” adjacent elements
- Lesson learned: never create a message / title / warning / etc. that might look like an ad. (Faux ads)



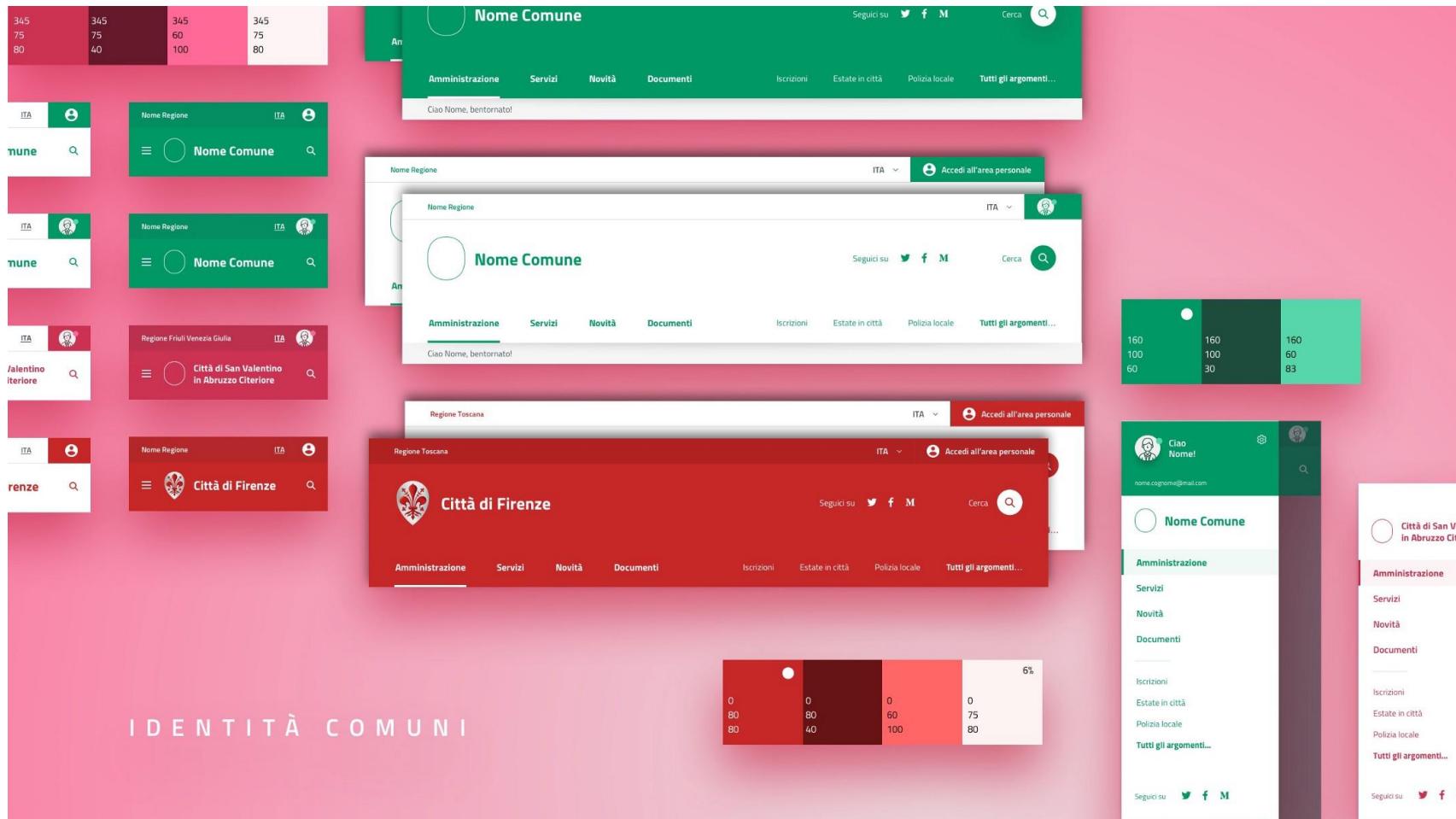
The Design System of the Italian Public Administration

An example toolkit for visual design (targeted at Public Administration websites and services, mainly)

<https://designers.italia.it/>

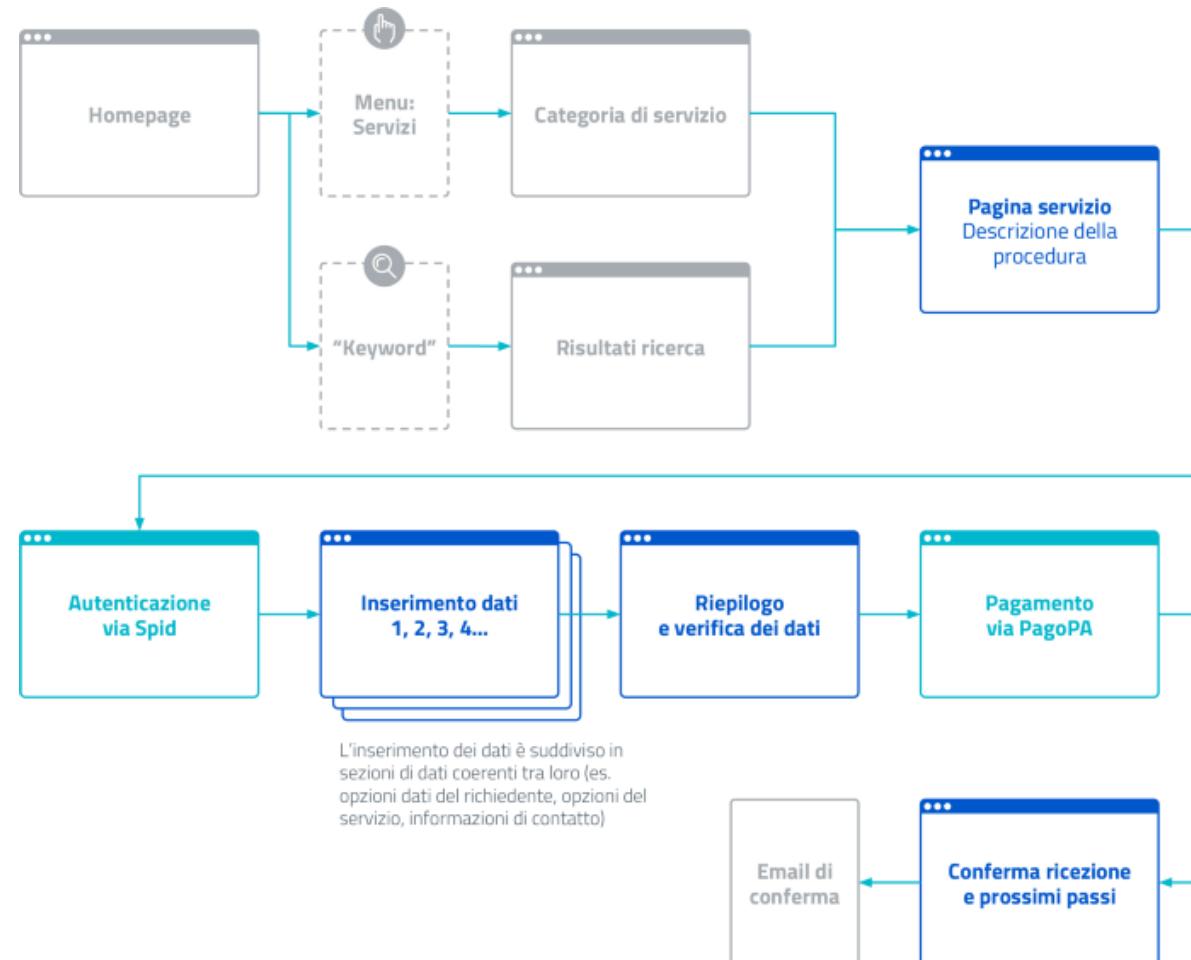


Application of the Design Kit: a City Website



<https://medium.com/designers-italia/un-progetto-non-comune-175f1fe8cab5>

A City Website: standard navigation path



A City Website: example page

The screenshot displays a city website interface for 'Nome Comune'. The top navigation bar includes links for 'Amministrazione', 'Servizi', 'Notizie', 'Documenti', 'Bando', 'Tutte le attivita', 'Politica Comunale', and 'Tutti gli argomenti...'. A search bar and a 'Accedi alla tua persona' button are also present.

The main content area features a title 'Iscrizioni Asili Nido e Sezioni Primavera' with a sub-instruction: 'Come iscrivere i propri figli agli Asili Nido e alle Sezioni Primavera Comunitarie o nelle strutture accreditate'. Below this, there's a sidebar titled 'NOTIZIE DELLA PAGINA' listing topics like 'Chi può fare richiesta', 'Come iscriversi', 'Come avviene', 'Strumenti d'accesso', 'Scadenze e aggiornamenti', 'Casi particolari', 'Registri', and 'Ulteriori informazioni'.

The central content area contains sections for 'Introduzione', 'Chi può fare richiesta', 'Come iscriversi', and 'Come avviene'. It also includes a sidebar for 'Argomenti' (Educazione, Famiglia, Infanzia, Bambini 0-10 anni) and a 'NOTIZIE DELLA PAGINA' sidebar.

To the right, a sidebar titled 'Servizi' lists services: 'Registrazione elettronica', 'Parcheggi ZTL', 'Lavorare con il Comune', and 'Domande e istruzioni'. A large green box at the bottom right displays statistics: '58 Numero di servizi erogati' and '14000 Numero di richieste gestite annualmente'.

At the bottom, there are links for 'Sospeso', 'Domande e iscrizioni', 'Autorizzazioni e concessioni', and 'Certificati e dichiarazioni'.

References

- 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 Elmquist, 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=PLLssT5z_DsK_nusHL_Mjt87THSTIgrsyJ



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