

Visual Design and Fluid Navigation

HCI Fundamentals

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Academic Year 2026/2027

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

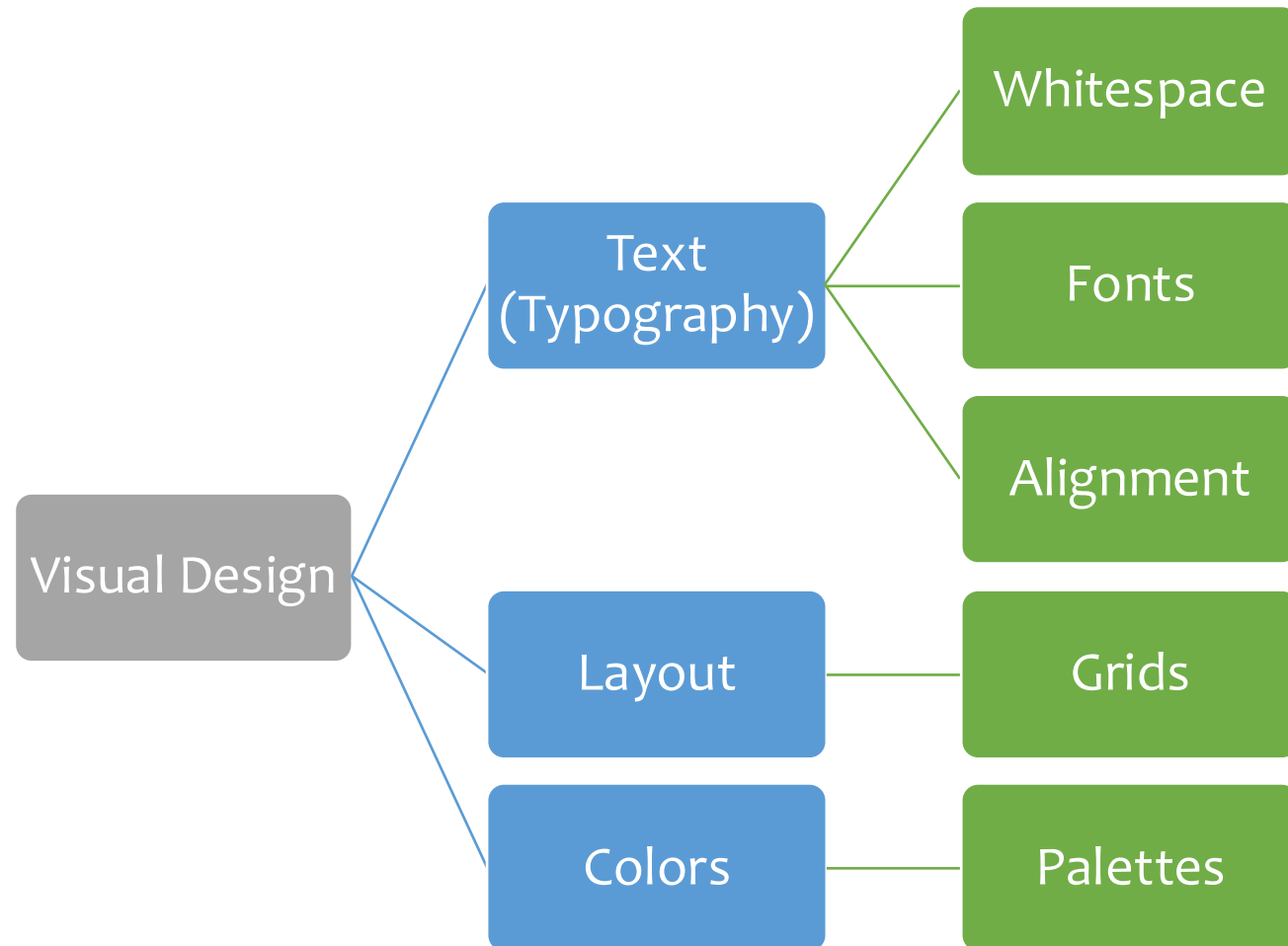
Text

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

Layout

Colors

Key Ingredients

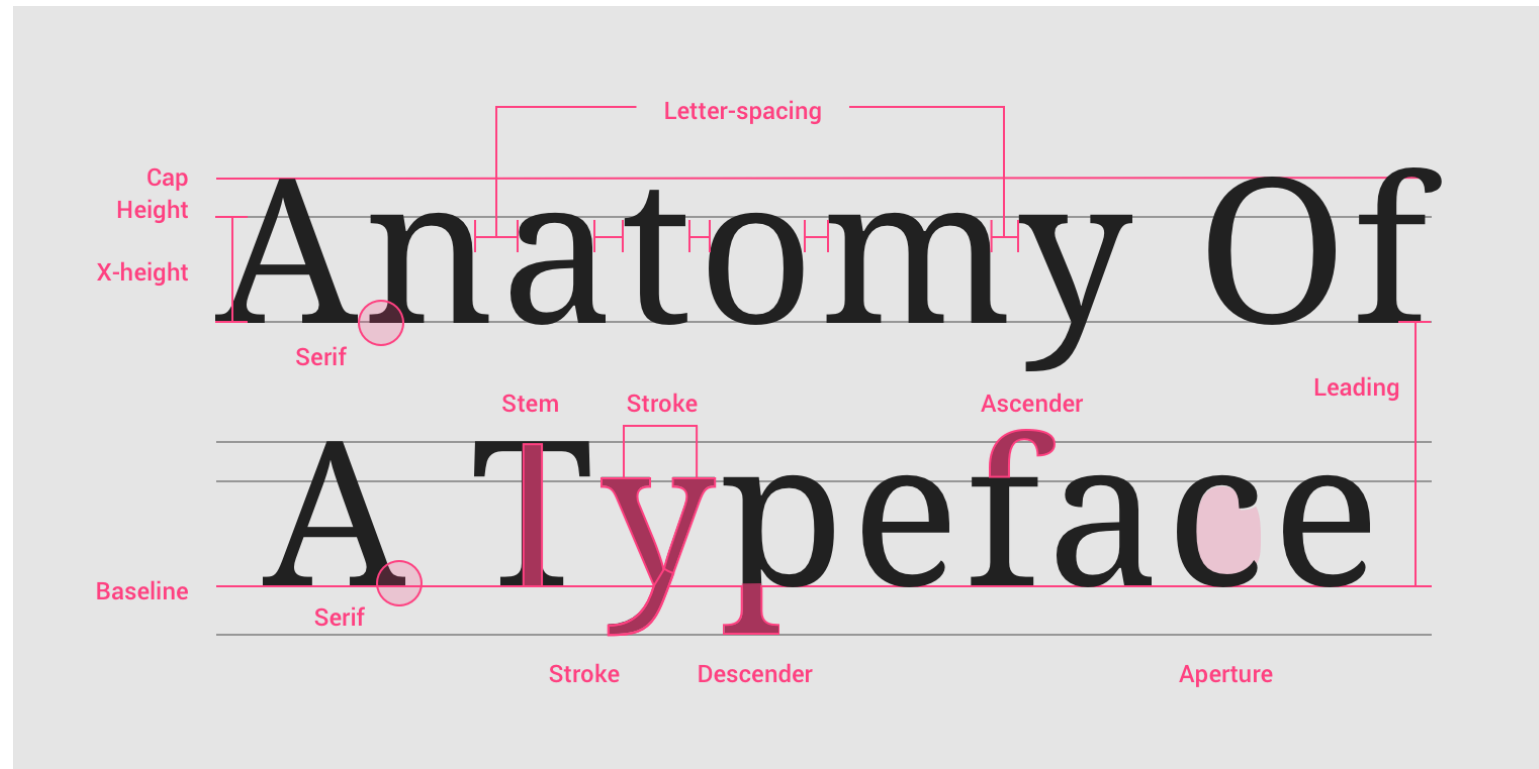


Text and Typography

Properties 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



The screen shows a payment confirmation for a residence certificate from the Comune di Gallarate. The text is poorly organized: the title 'Certificato di residenza' is small, the amount '€16,52' is large, and the card details are cluttered. The total amount '€ 20,02' is clearly visible at the bottom.



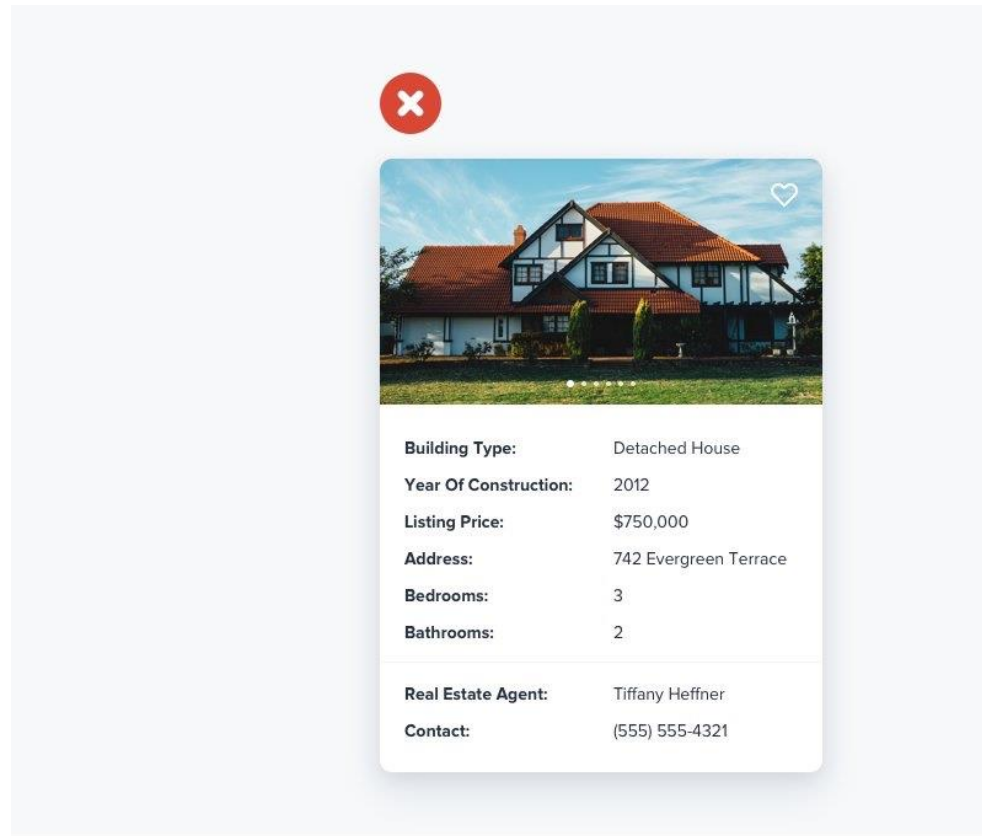
The screen shows the same payment confirmation but with improved text hierarchy. The title 'Certificato di residenza' is larger and more prominent. The amount '€16,52' is smaller and less prominent. The card details are more organized. The total amount '€ 20,02' is clearly visible at the bottom.

<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>

Text and Layout Convey Meaning

- The way text is arranged sends signals before a user reads a single word
- **Recognisable** page structures: header, nav, main content, sidebar, footer
- **Conventions** help users orient themselves instantly, so exploit familiarity
- Deviate from convention only for strategic reasons
 - unexpected layouts demand more effort

Exercise (~10 minutes)



www.refactoringui.com

- Redesign this UI to align with the 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?

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

 **3 Bedrooms**  **2 Bathrooms**

REALTOR

 **Tiffany Heffner**
(555) 555-4321

Present data in a more useful way

Emphasize the most important content

Combine labels and values into human-readable phrases

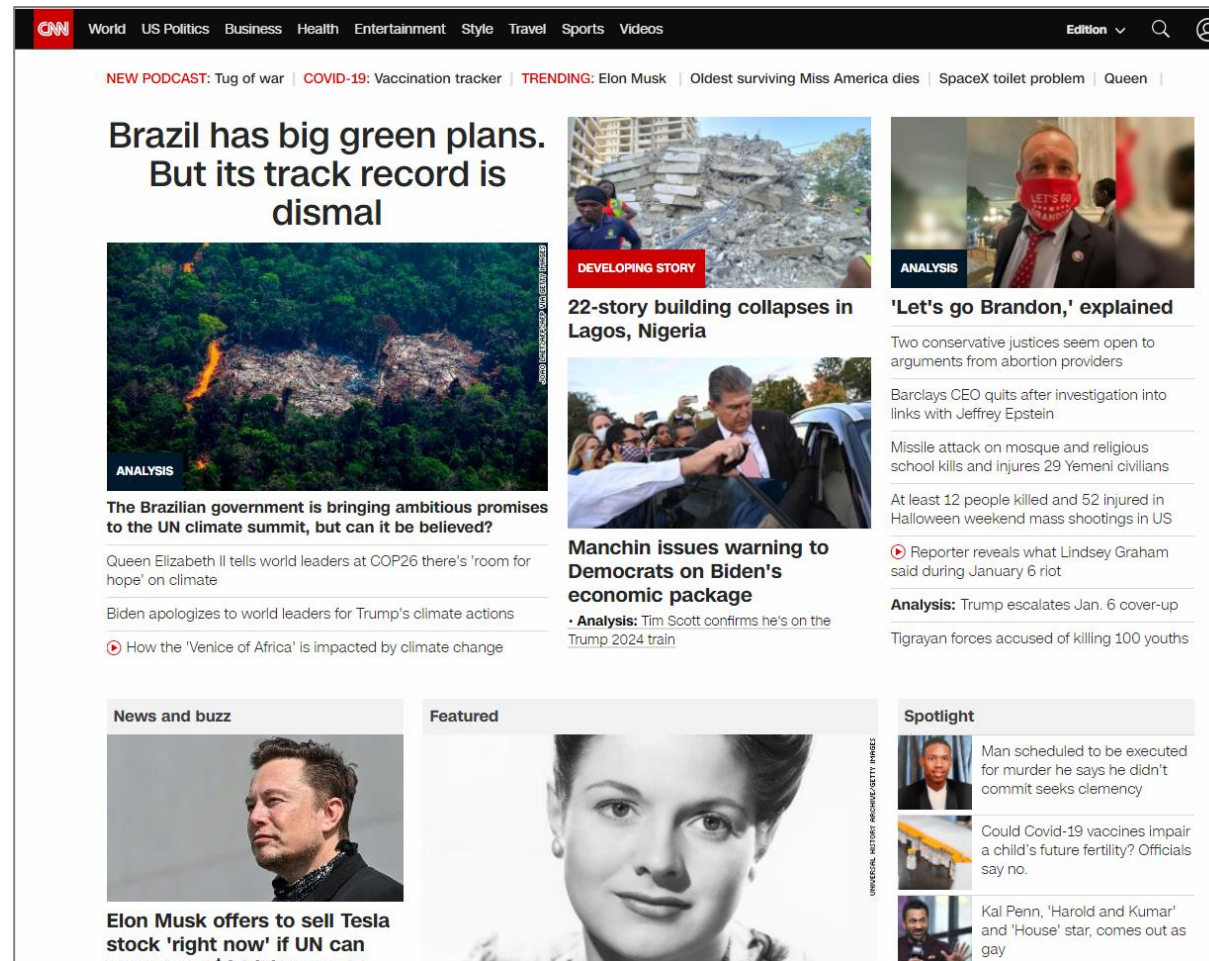
www.refactoringui.com

Refactoring UI

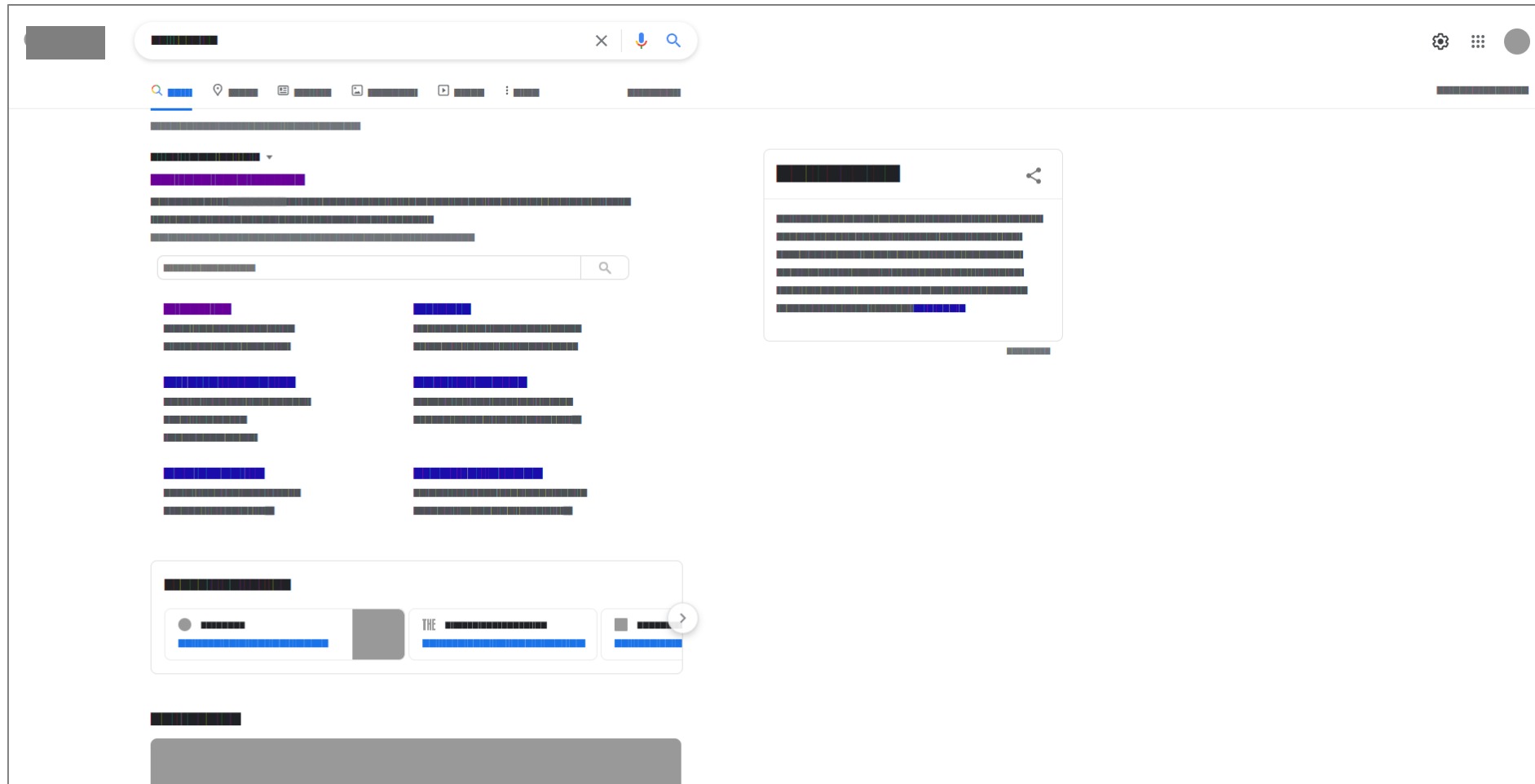
Recognizable Page Structure



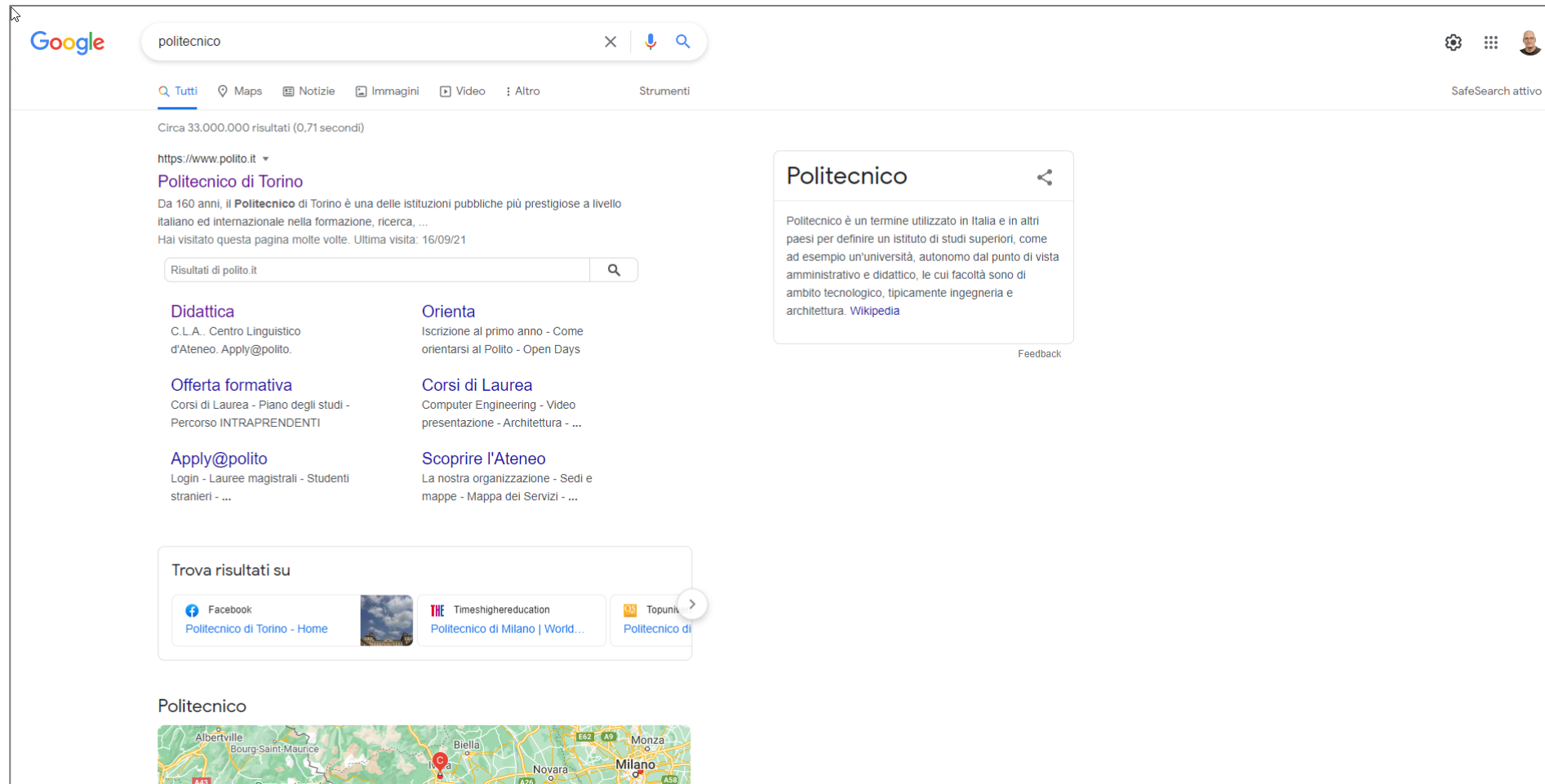
Recognizable Page Structure



Recognizable Page Structure



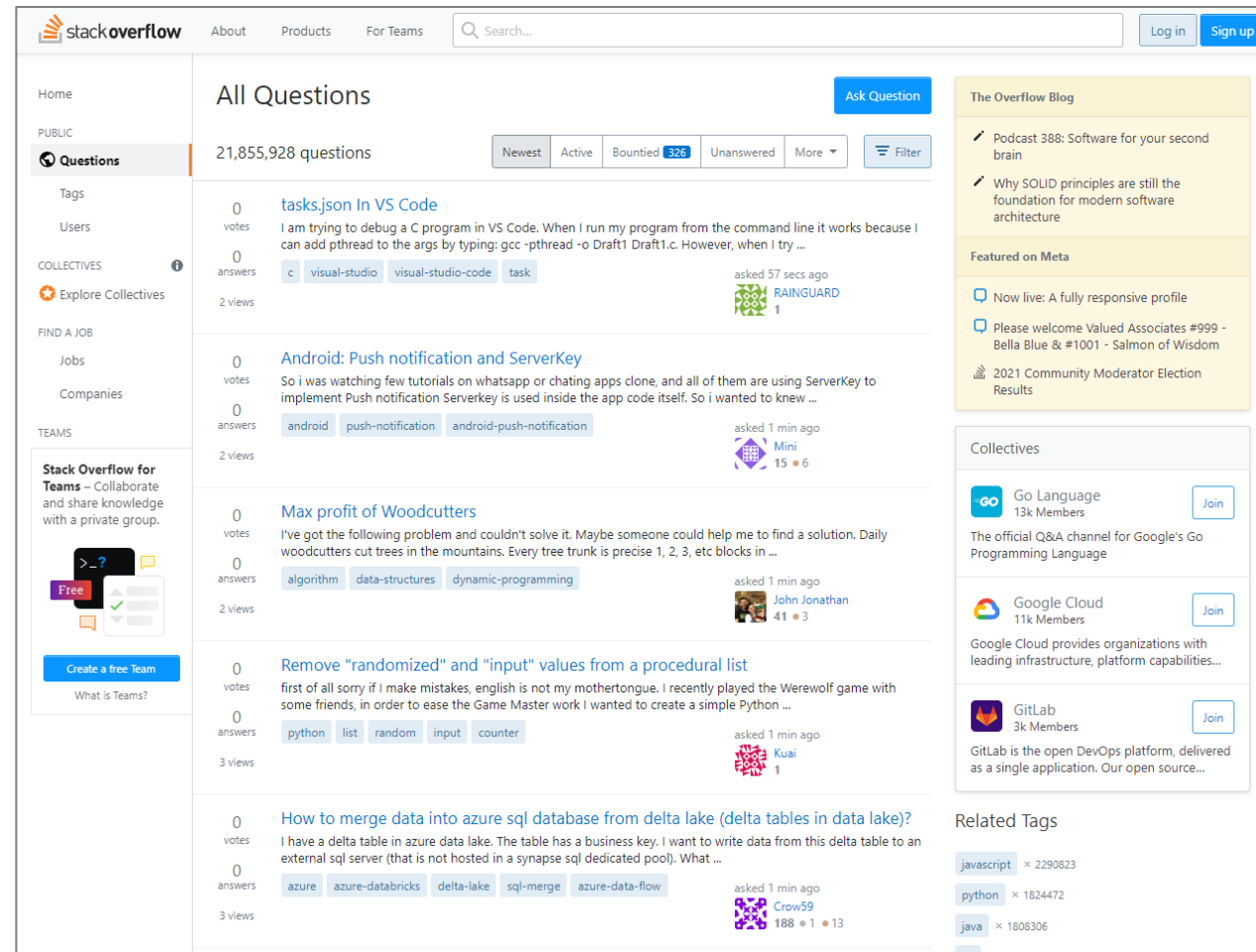
Recognizable Page Structure



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 header includes the TripAdvisor logo, a search bar, and links for reviews, travel, and alerts. The main navigation bar lists categories like New York City, Hotel, Cose da fare, Ristoranti, Voli, Case vacanza, Pacchetti vacanza, Crociere, and Autonoleggio. The breadcrumb trail shows the path: Stati Uniti > New York (NY) > New York City > Hotel New York City. A map on the left shows the location of New York City with a 'Guarda la mappa' button. The main heading is 'Hotel New York City e alloggi', followed by a subheading 'I migliori alberghi a New York City - Prezzi e recensioni per gli alloggi a New York City'. Below this, there are input fields for 'Arrivo' (check-in), 'Partenza' (check-out), and 'Ospiti' (1 camera, 2 adulti, 0 bambini). A sidebar on the left contains filters for 'COVID-19', 'Offerte', 'Prezzo', and 'Molto richiesti'. The main content area shows '911 strutture a New York City' and a list of hotels. The first hotel listed is 'Fairfield Inn & Suites New York Midtown Manhattan/Penn Station', which is highlighted with a 'Sponsorizzato' tag. The hotel details include a photo, a 4.5-star rating (1,865 reviews), a price of 161 € (with a crossed-out 263 €), and a 'Vedi l'offerta' button. The hotel's amenities and policies are listed on the right, including free Wi-Fi, a bar/lounge, a fitness center, and safety measures.

COVID-19

- ☐ Strutture che adottano misure di sicurezza

Offerte

- ☐ Cancellazione gratuita
- ☐ Prenota ora, paga quando soggiorni
- ☐ Strutture con Offerte Speciali

Prezzo

0 € - + 623 €

☐ Prezzo + tasse e spese

Molto richiesti

- ☐ 4.5 e oltre 316
- ☐ 4 stelle 148
- ☐ Colazione inclusa 64
- ☐ 5 stelle 14

911 strutture a New York City

Ordina per: Qualità-prezzo

Viste di recente a New York City

Fairfield Inn & Suites...

4.5 (1.865)

~~263 €~~
161 €

Booking.com

Vedi l'offerta

Fairfield Inn & Suites New York Midtown Manhattan/Penn Station

Sponsorizzato

Info sull'hotel

- Visita il sito dell'hotel
- 00 1 212 563-0900
- Offerta Speciale

161 €

Vedi l'offerta

- ✓ Cancellazione gratuita
- ✓ Prenota ora, paga quando soggiorni

1.865 recensioni

- Connessione Wi-Fi gratuita
- Bar/Lounge
- Centro fitness
- Misure di sicurezza adottate

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](#) [印刷](#) [拡大](#)

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 [「三越伊勢丹」も不適切表示、他の百貨店にも拡大](#) [「ミニュー表示問題」](#) [「みずほ暴力団融資」](#) [「原発」](#) [「米論争騒ぎ」](#) 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](#)

スナップショット 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**
NEWS 24 **JNN**

日本人初の船長・若田さん、きょう宇宙へ
日本人で初めて国際宇宙ステーションの船長を務める若田光一さんが、日本時間7日午後の...

「特定秘密保護法案」きょうから国会審議
政府が指定する特定秘密を漏らした公務員らへの罰則を強化する特定秘密保護法案は、きょう...

猪木議員、金正恩氏の後見人・張成沢氏と会談
北朝鮮を訪問中のアントニオ猪木参議院議員らが、金正恩(キム・ジョンウン)第一書記の...

山西省連続爆発事件、共産党本部狙った計画的犯行か
6日、中国・山西省の共産党本部ビルで起きた連続爆発事件です。爆弾がビル周辺の数か所...

台風情報
Smart News
スマートニュース

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
- 「もんじゅ」で核物質管理に不備、原子力機関に厳重注意
- 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」運営会社の社長解任へ
- 安楽楽牧場「和牛産法」、関連会社などを疑念へ
- 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・川に少年突き落とし、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男児転落、意識不明の重体

政治 [一覧へ](#)

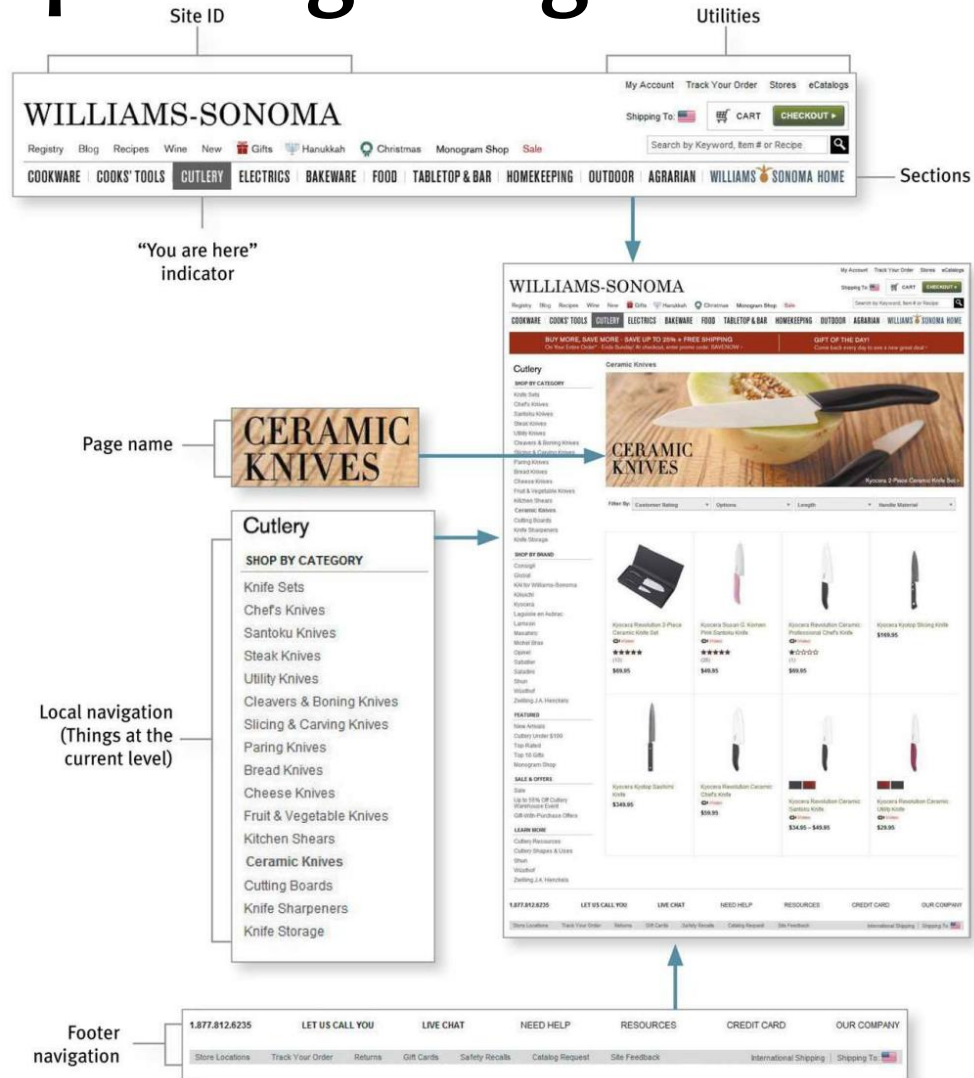
- NEW 「特定秘密保護法案」きょうから国会審議
- 日本版VSC法案、衆院特別会で可決
- 自衛隊が離島防衛演習、沖縄・宮古島に地対艦ミサイル展開
- 岸田外相、中国・韓国との民間交流が重要という認識を示す
- 「韓外子」遺産相続の民法改正案、自公が成立を目指す
- 原発事故の対応見直し、国が積極的関与へ

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 [RSS](#) [NEWS23](#) [連続動画](#) [サロニーア放送](#) [時事解説](#) [最近の噂](#) [ニュースバード](#) [ラジオ・パワースタリオン](#) [ビジネスアライヴ](#)
[TBS TOPページ](#) [TBS報道番組一覧](#) [JNN各局](#)

Conventions Help Recognizing 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*



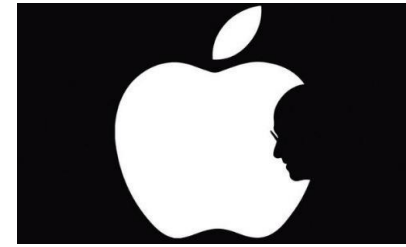
<https://www.interaction-design.org/literature/topics/gestalt-principles>

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

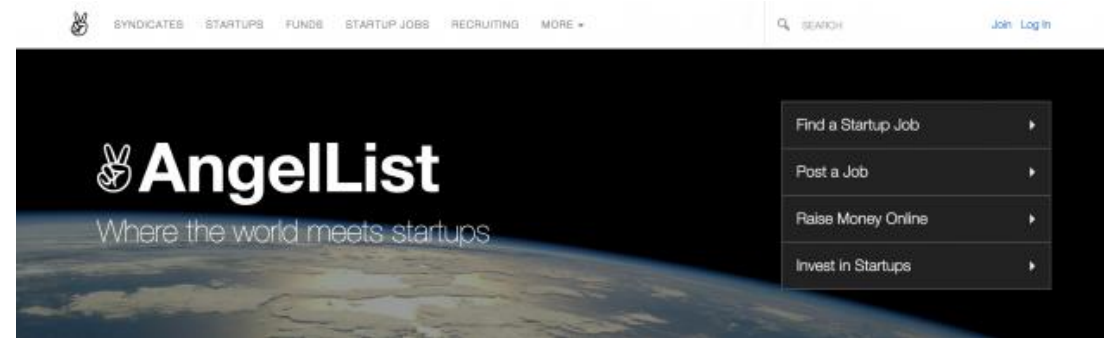
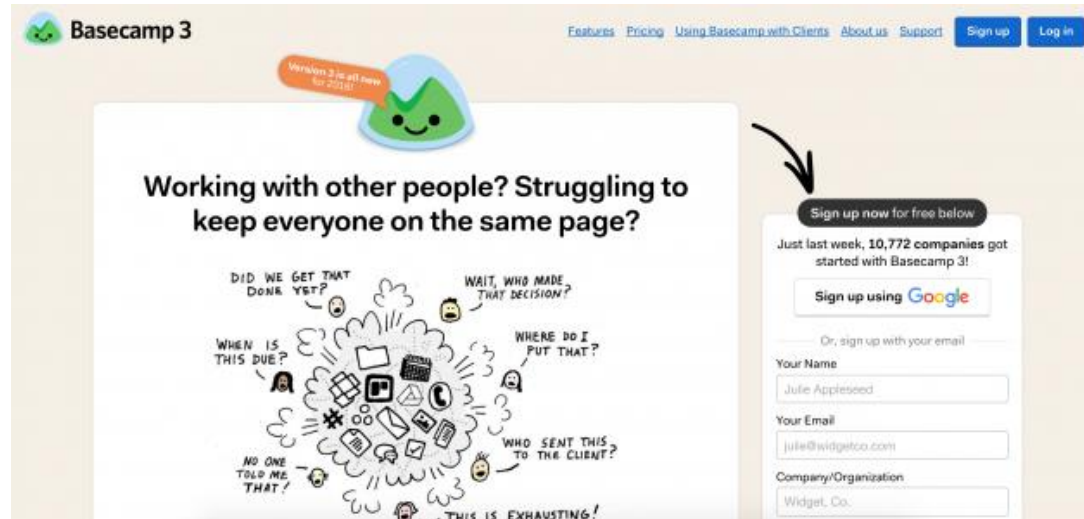
Some Gestalt Principles

- **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.

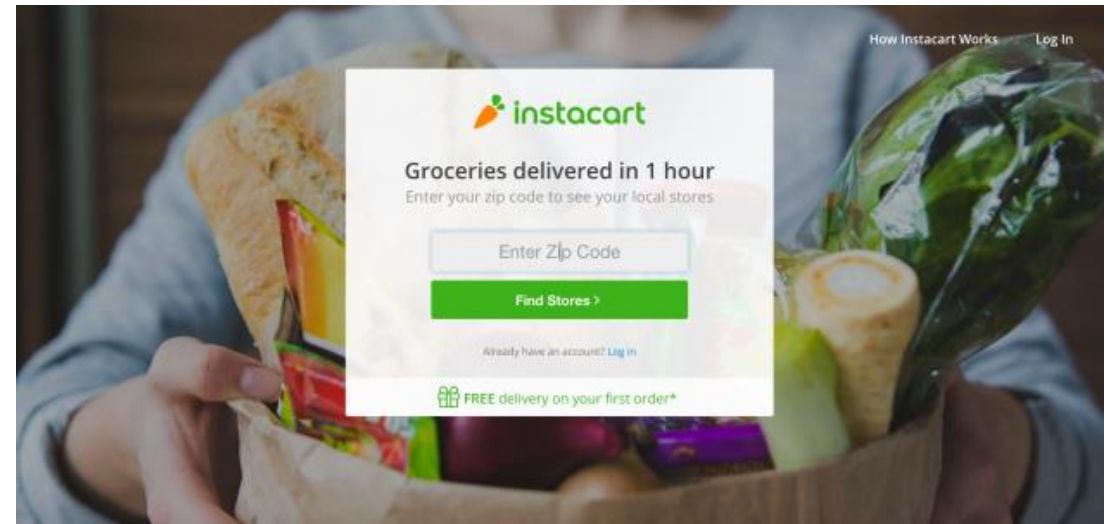
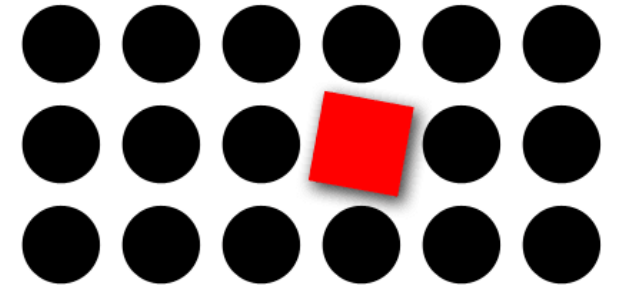
Examples: Figure-ground



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

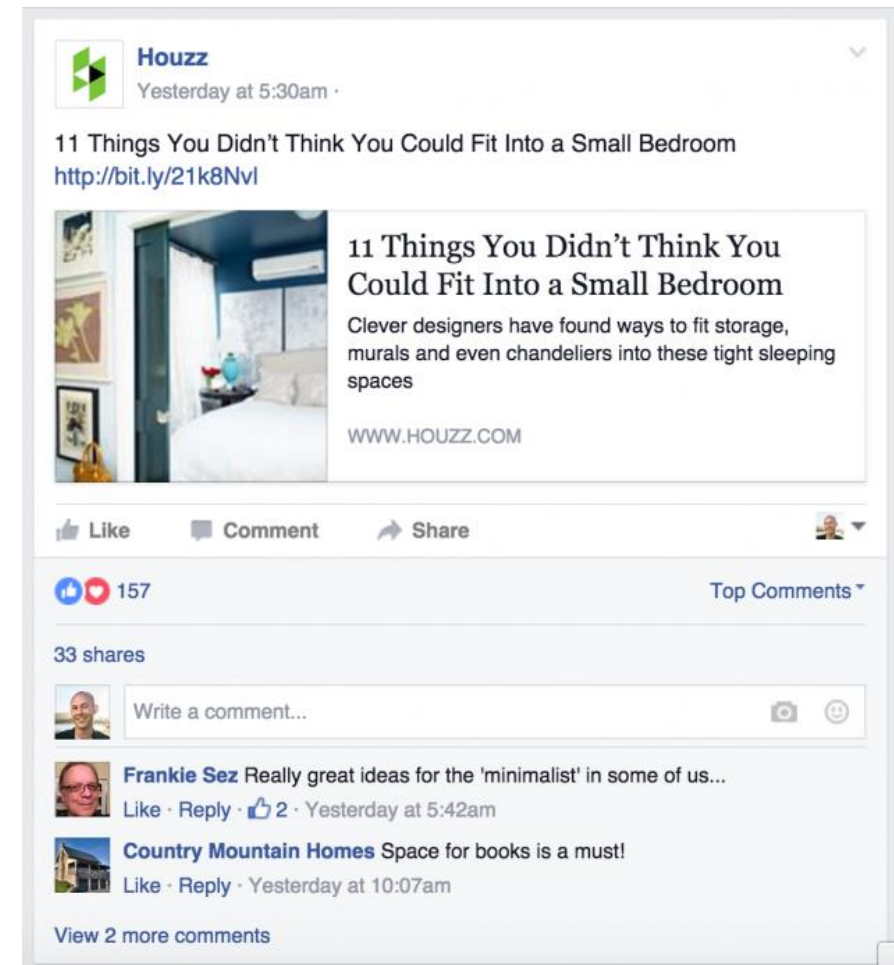
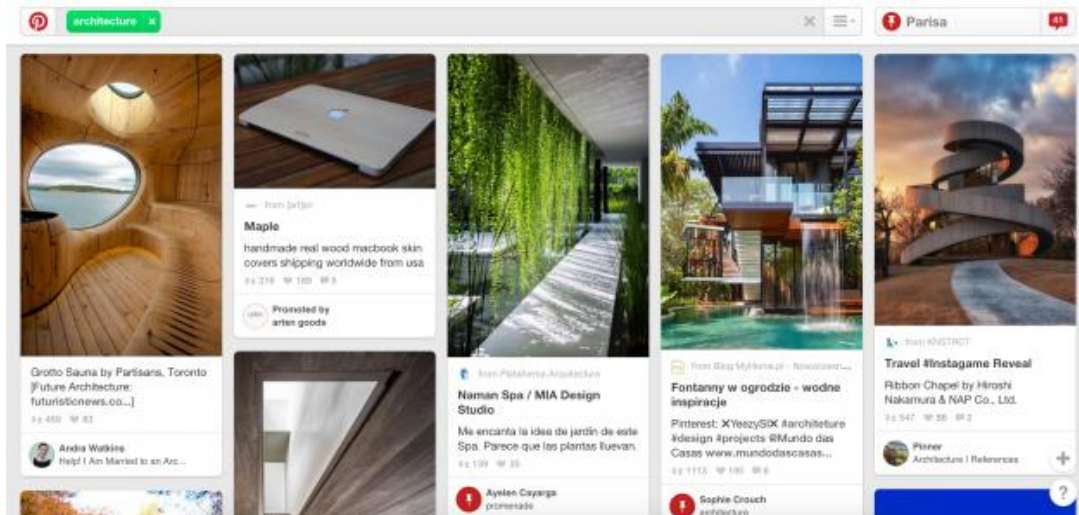
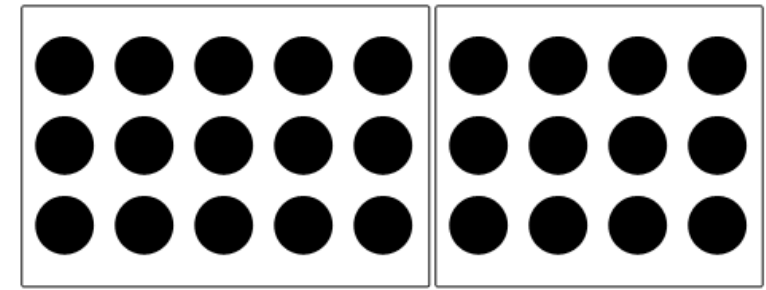


Examples: Focal Point



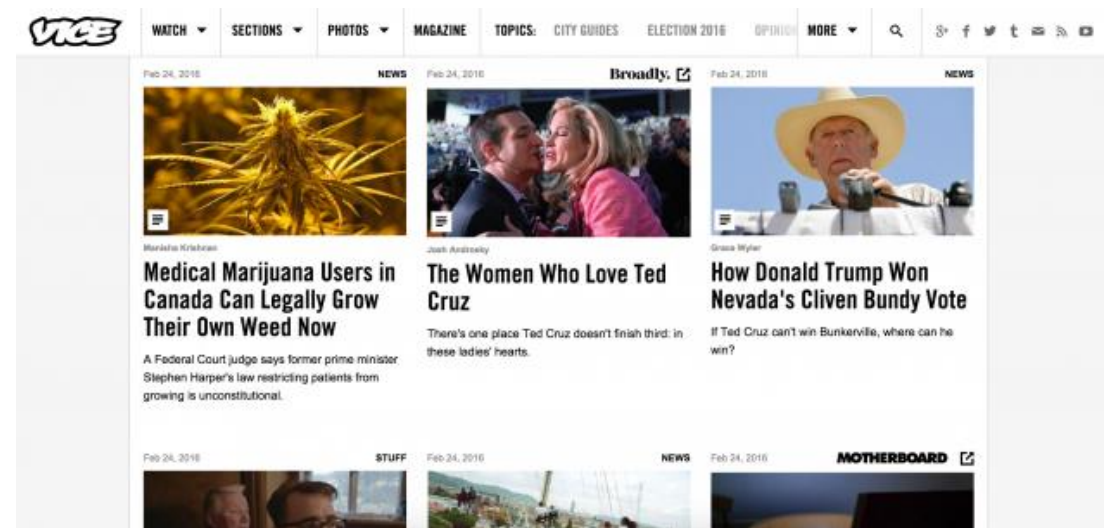
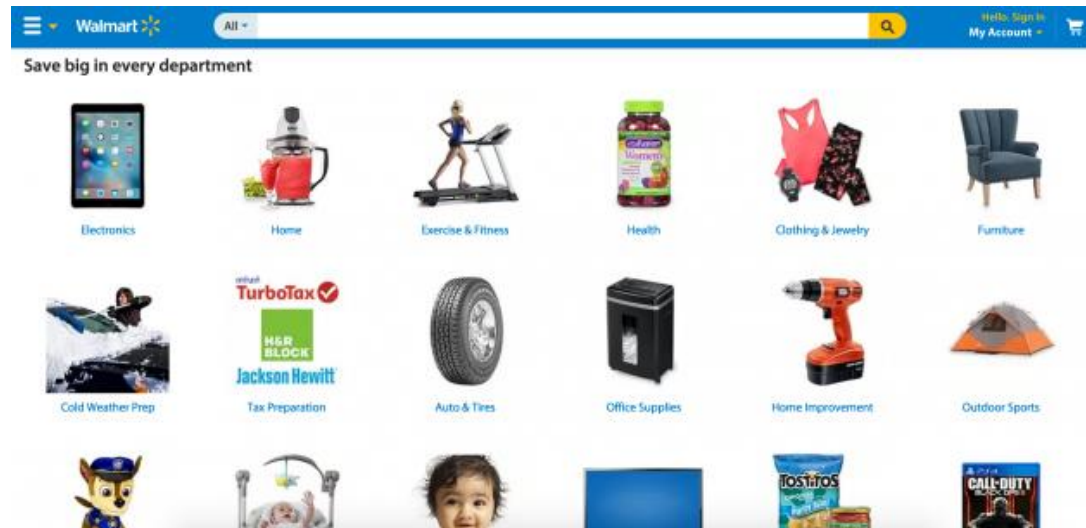
Examples: Common Region

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



Examples: Proximity

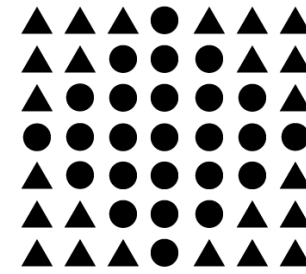
Proximity (Emergence): We group closer-together elements, separating them from those farther apart.

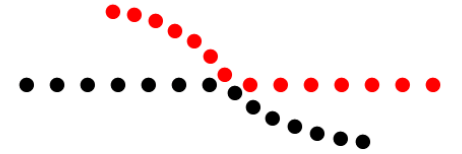


<https://www.usertesting.com/blog/gestalt-principles/>

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



Step 1

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



Step 2

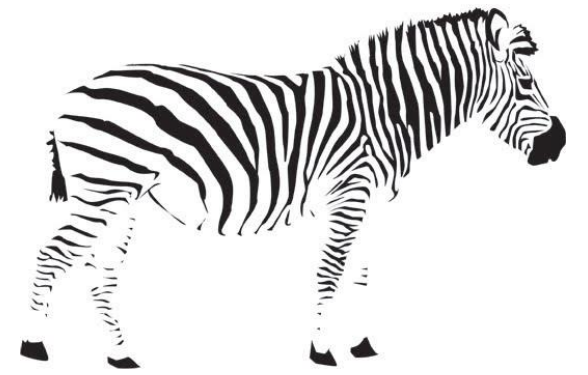
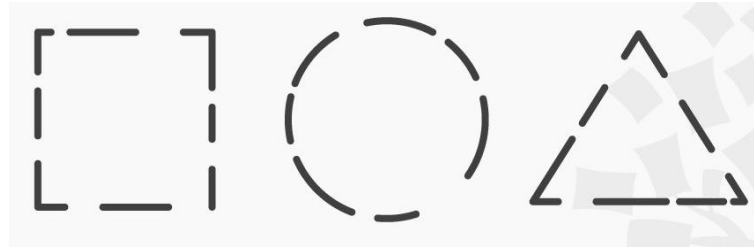
Our friendly servers organize your food for delivery - hot and ready to eat!



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



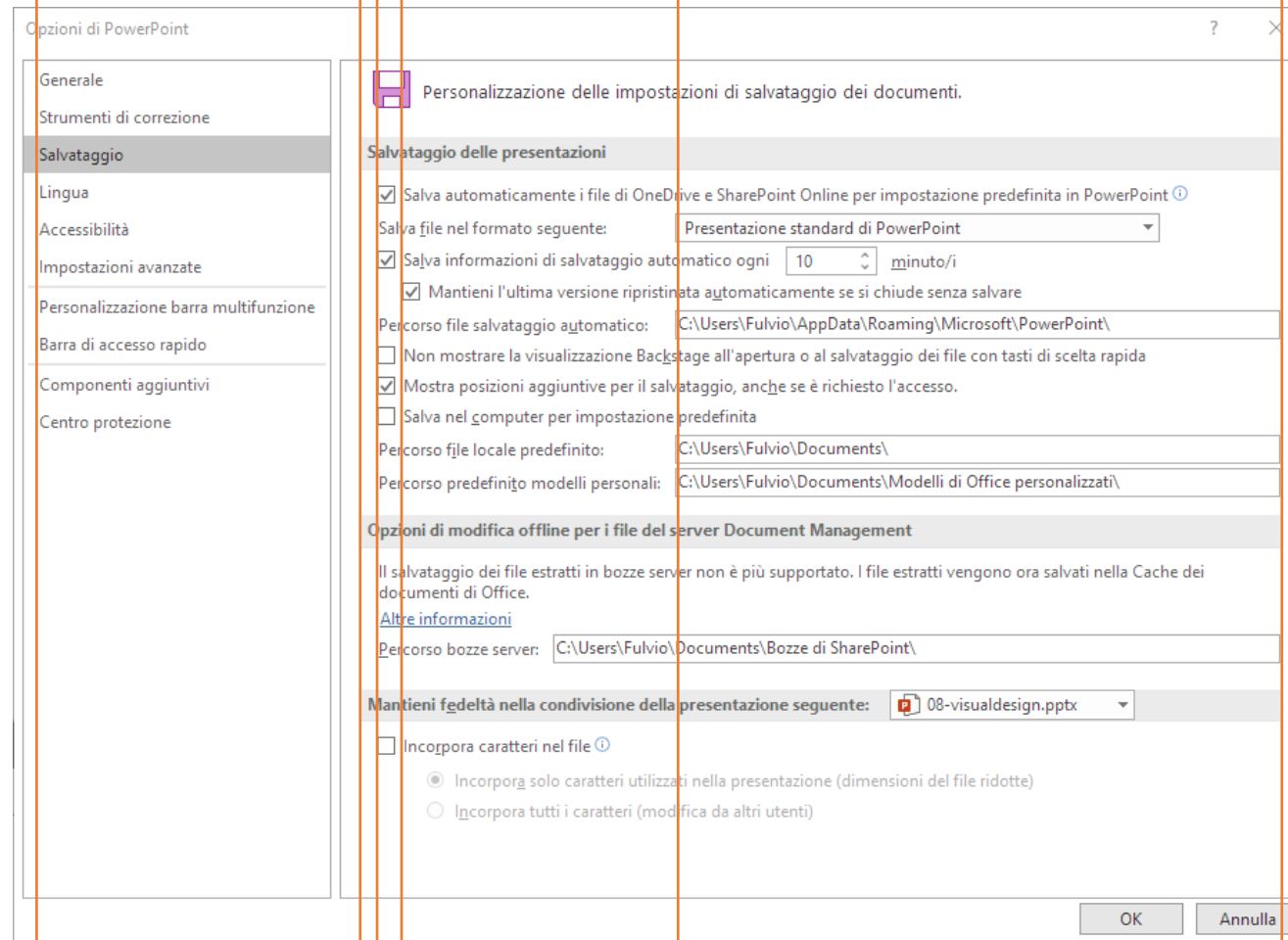
Alignment

Exploiting grouping and alignment to convey content, at different levels

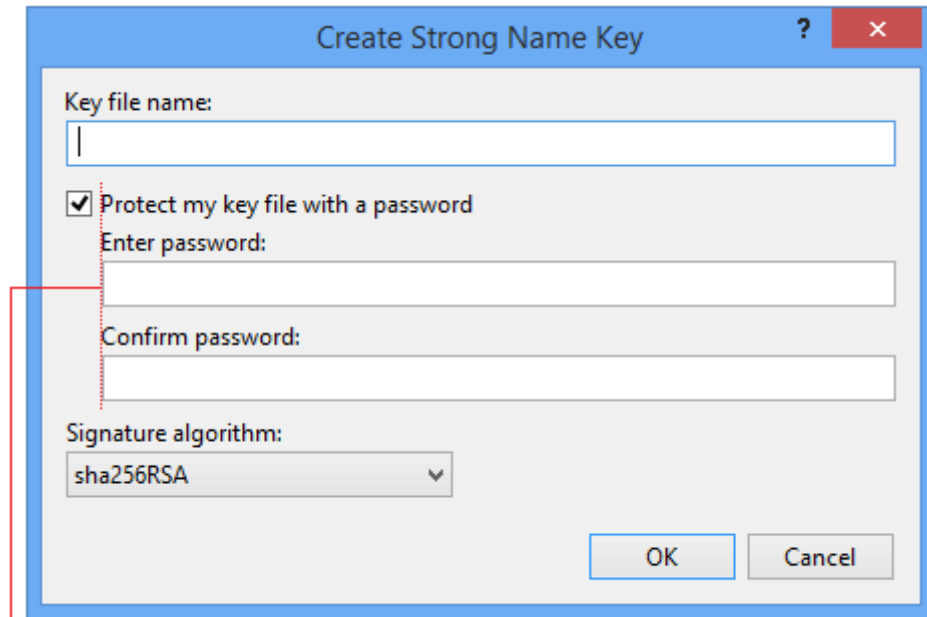
Alignment

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

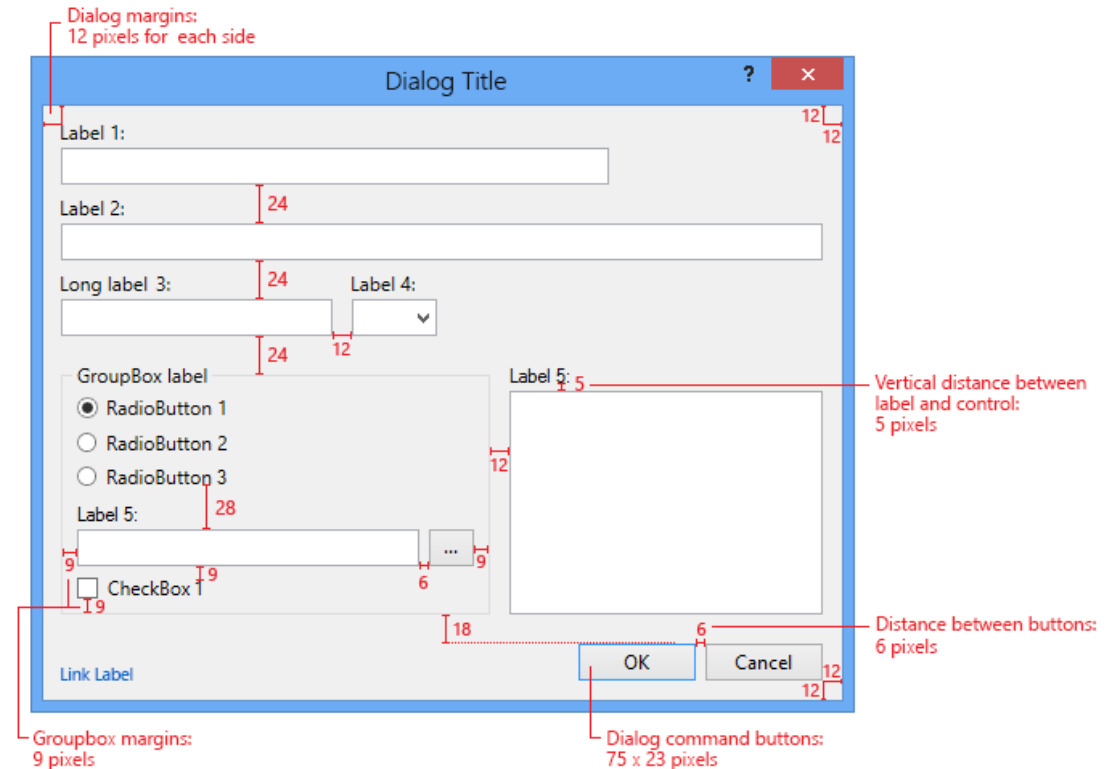
Example



Examples

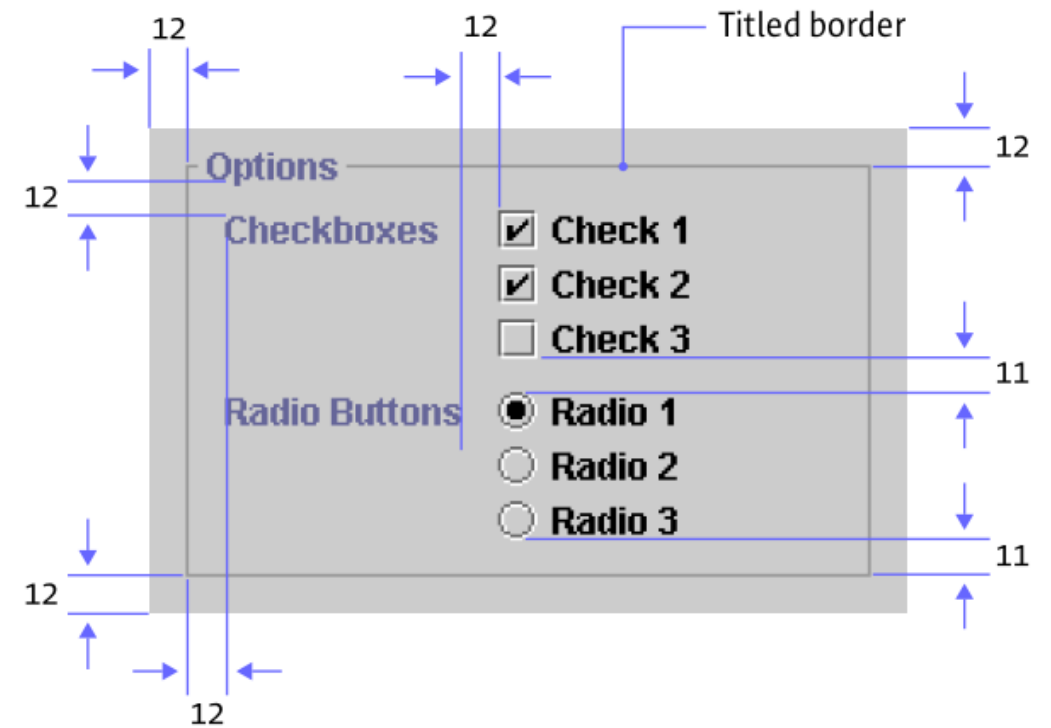
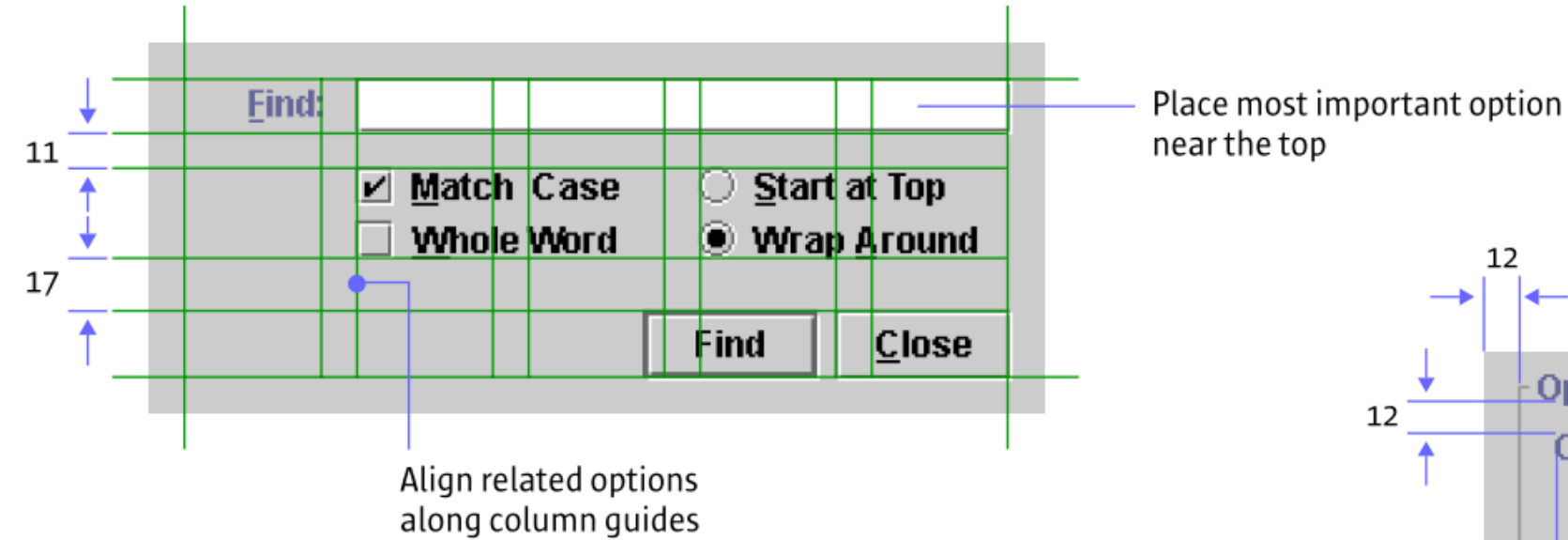


Align labels of nested controls



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

Examples

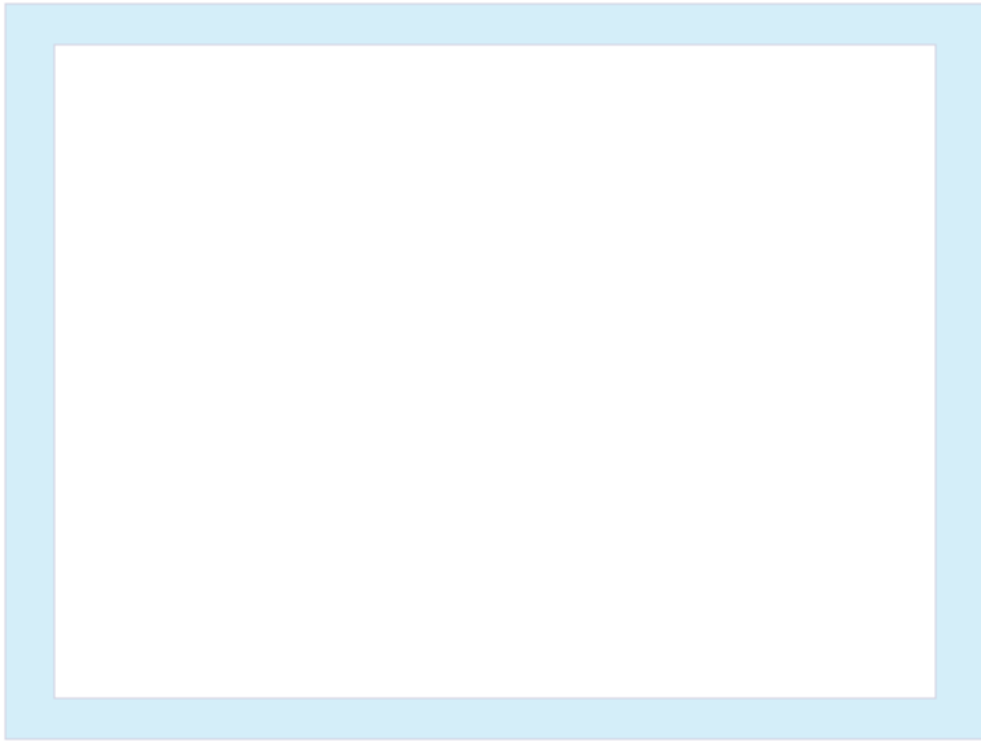


Grid Layout Ingredients

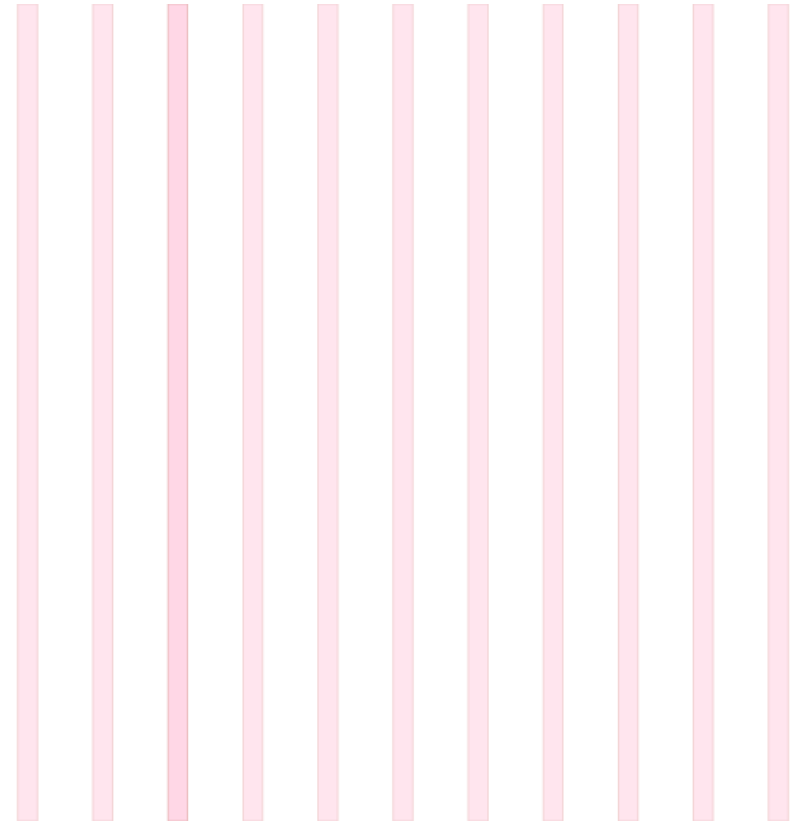
- **Guides:** The edge which you choose to align content with
- **Column:** A vertical division of content
- **Row:** A horizontal division of content
- **Margins:** The area surrounding your content
- **Gutters:** The margins between columns
- **Hang-line:** A horizontal guide to align content to hang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

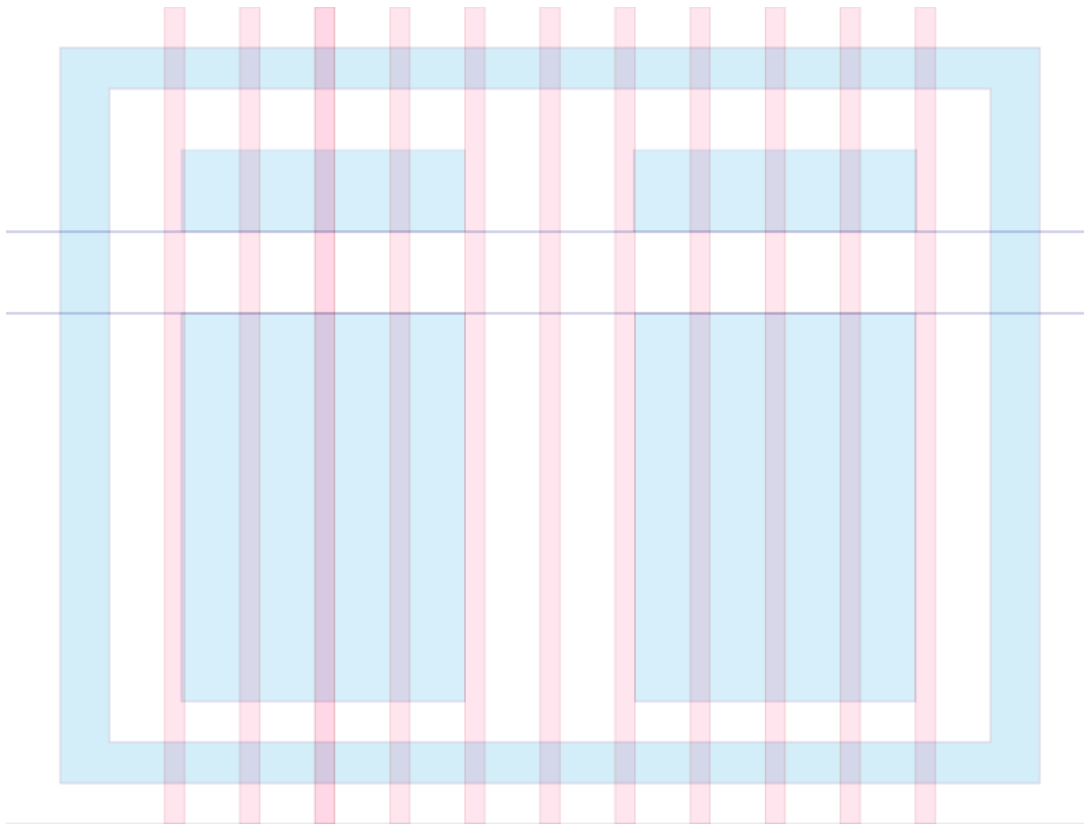


Columns & Gutters



Grid Layout Ingredients

Hanglines and Baselines

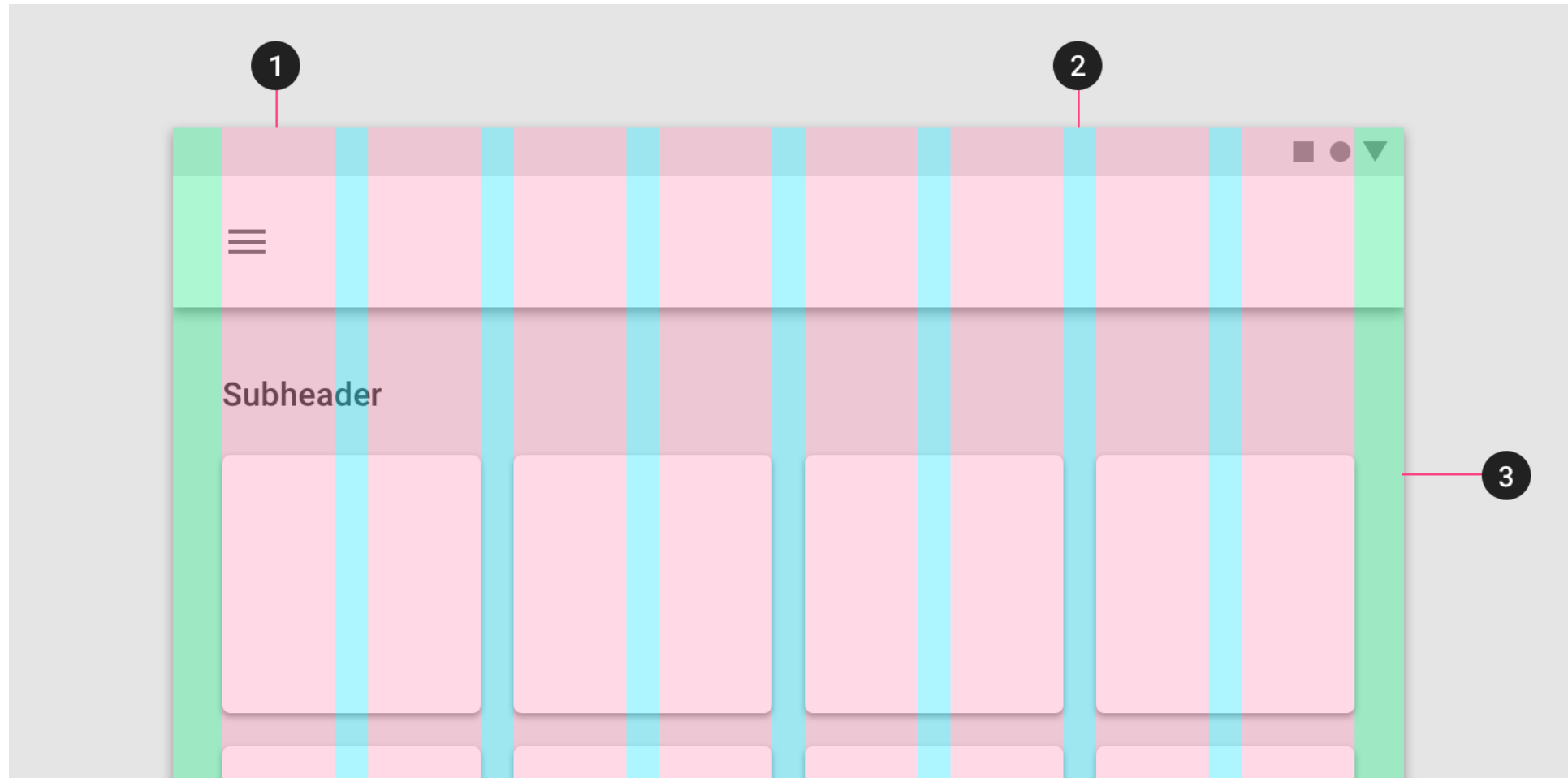


Baseline Grids



Example Grid-based layout

1. Columns
2. Gutters
3. Margins



Grid Structure

Main body:
Mix of 2x and 3x
columns

Alternating row
types



Title area outside the
grid

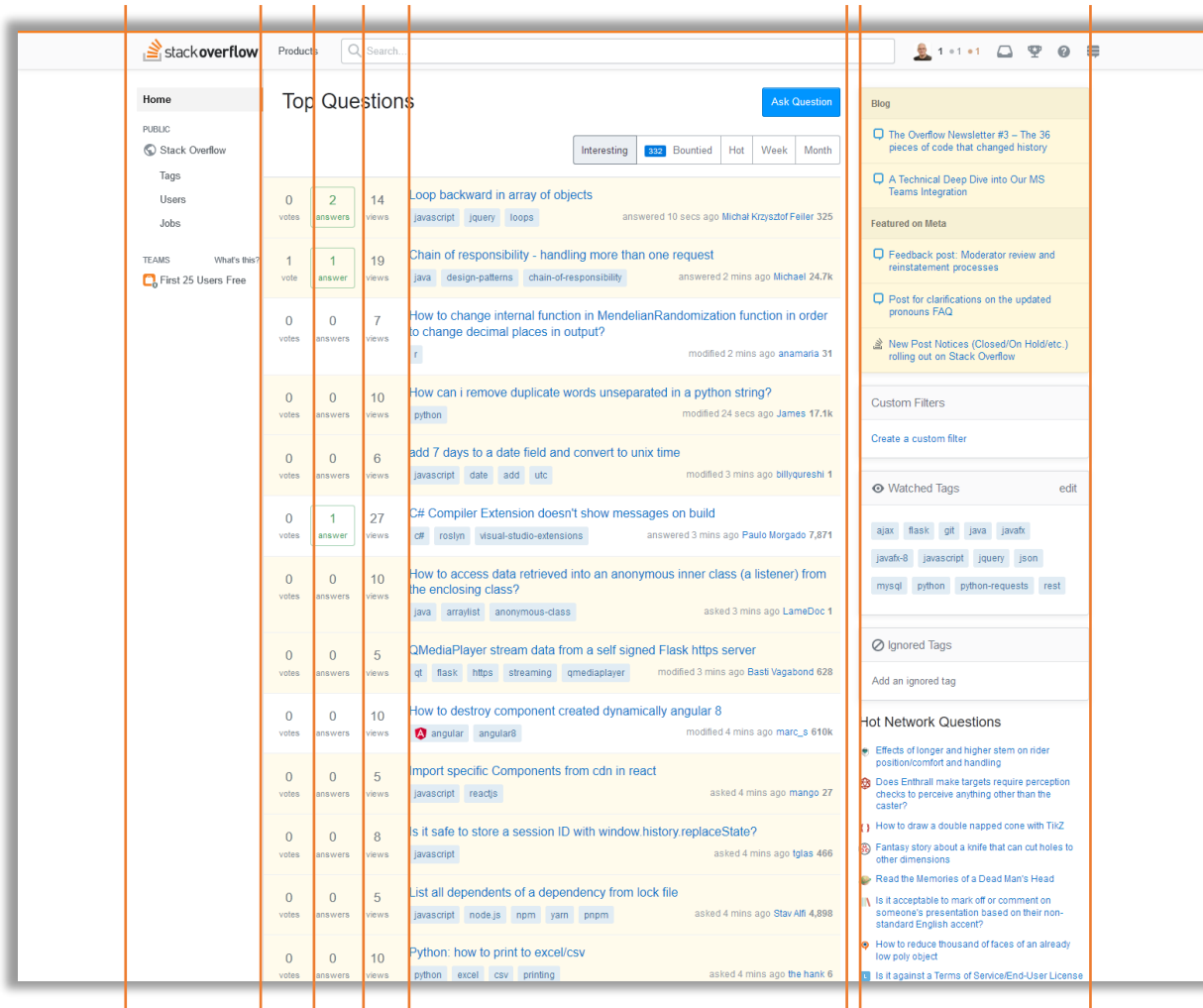
Right column for
other types of
articles

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

Example (2019)

Software

1° anno

Periodo	Codice	Lingua	Insegnamento	Crediti	Docente	Note	Vincoli
1	01PDW0V	EN	Information systems ING-INF/05 (6)	6	M. Morisio		
1	02GOLOV	IT	Architetture dei sistemi di elaborazione ING-INF/05 (10) Oppure	10	P. Bernardi E. Sanchez Sanchez		
1	02LSE0V	EN	Computer architectures ING-INF/05 (10)	10	P. Montuschi		
1	01SQJOV	EN	Data Science and Database Technology ING-INF/05 (8) Oppure	8	S. Chiusano		
1	01SQMOV	IT	Data Science e Tecnologie per le Basi di Dati ING-INF/05 (8)	8	E. Baralis		
1	01OTW0V	EN	Computer network technologies and services ING-INF/05 (6) Oppure	6	M. Baldi		
1	02KPN0V	IT	Tecnologie e servizi di rete ING-INF/05 (6)	6	G. Marchetto		
2	02JEU0V	EN	Formal languages and compilers ING-INF/05 (6)	6	R. Sisto		
2	05BID0V	IT	Ingegneria del software ING-INF/05 (8) Oppure	8	G. Bruno		
2	04GSP0V	EN	Software engineering ING-INF/05 (8)	8	M. Morisio		
2	01UDFOV	IT	Applicazioni Web I ING-INF/05 (6) Oppure	6	E. Masala		
2	01TXYOV	EN	Web Applications I ING-INF/05 (6)	6	F. Corno		
2	02GRSOV	IT	Programmazione di sistema ING-INF/05 (10) Oppure	10	G. Cabodi		
2	01NYHOV	EN	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	EN	Information systems security ING-INF/05 (6) Oppure	6			
1	01UDUOV	IT	Sicurezza dei sistemi informativi ING-INF/05 (6)	6			
1	01SQNOV	EN	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	EN	Cloud Computing ING-INF/05 (6)	6			
1	01PDCOV	EN	Digital control technologies and architectures ING-INF/04 (6)	6			
1	01TXZOV	EN	Distributed systems programming ING-INF/05 (6)	6			Si
1	01NWPOV	IT	Elaborazione dell'audio digitale ING-INF/05 (6)	6			
1	01UDGOV	EN	Energy management for IoT ING-INF/05 (6)	6			Si
1	02JSKOV	EN	Human Computer Interaction ING-INF/05 (6)	6			
1	01SQIOV	EN	Machine Learning and Artificial Intelligence ING-INF/05 (6)	6			
1	01PDXOV	EN	Modern design of control systems ING-INF/04 (6)	6			
1	01OUVOV	EN	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	01TXYOV	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		🔴	

Grid Design 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

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



**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-5pm. I lease the cheapest PCP and contract hire cars in the UK! - I am Ling, accept 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!

1 DELIVERY TODAY

Ford Ka+
To Arthur
ATTLEBOROUGH, NR17

21 DELIVERIES IN LAST WEEK

Renault Captur
To Cath
PONTEFRAC, WF81

Mercedes GLC Coupe
To Bill
BEDLINGTON, NE22

BMW 2 Series Convert...
To Pingu
DERBY, DE56

Nissan Qashqai
To Arlene
GLASGOW, G11

Volvo XC60 Estate
To Saif
HILTON KEYNES, MK8

Seat Leon
To Ben
BARNLEY, S70

Skoda Kodiaq Estate
To Hannah
HAY-ON-WYE, HR3

Renault Clio
To Paul
MIDDLEBROUGH, TS7

Renault Clio
To Paul
MIDDLEBROUGH, TS7

Seat Arona
To Steve
LONDON, SE18

Seat Leon
To Adam
HATFIELD, AL10

Audi A3 Sportback
To Chris
WYMONDHAM, NR18

**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'

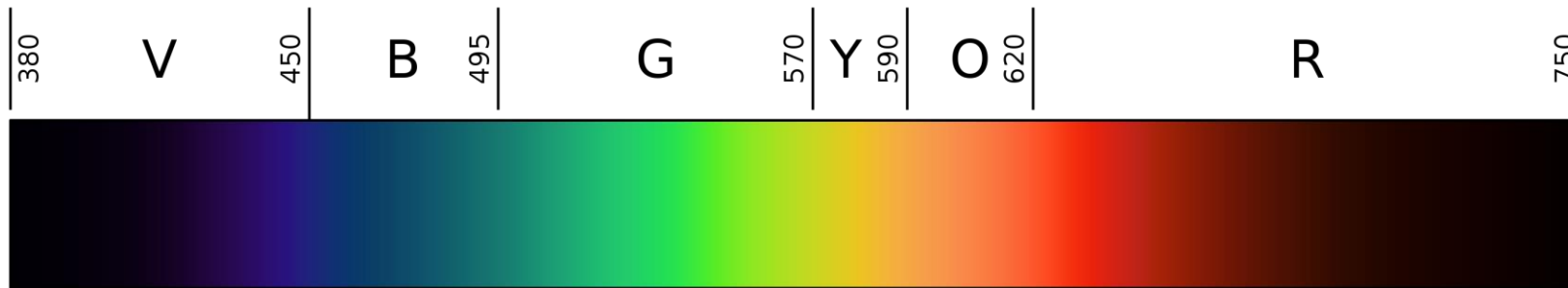
Ling replies in... **0:05:03**

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

Working with Colors

- 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 and use it consistently
- Use a limited and consistent palette with slight tonal 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

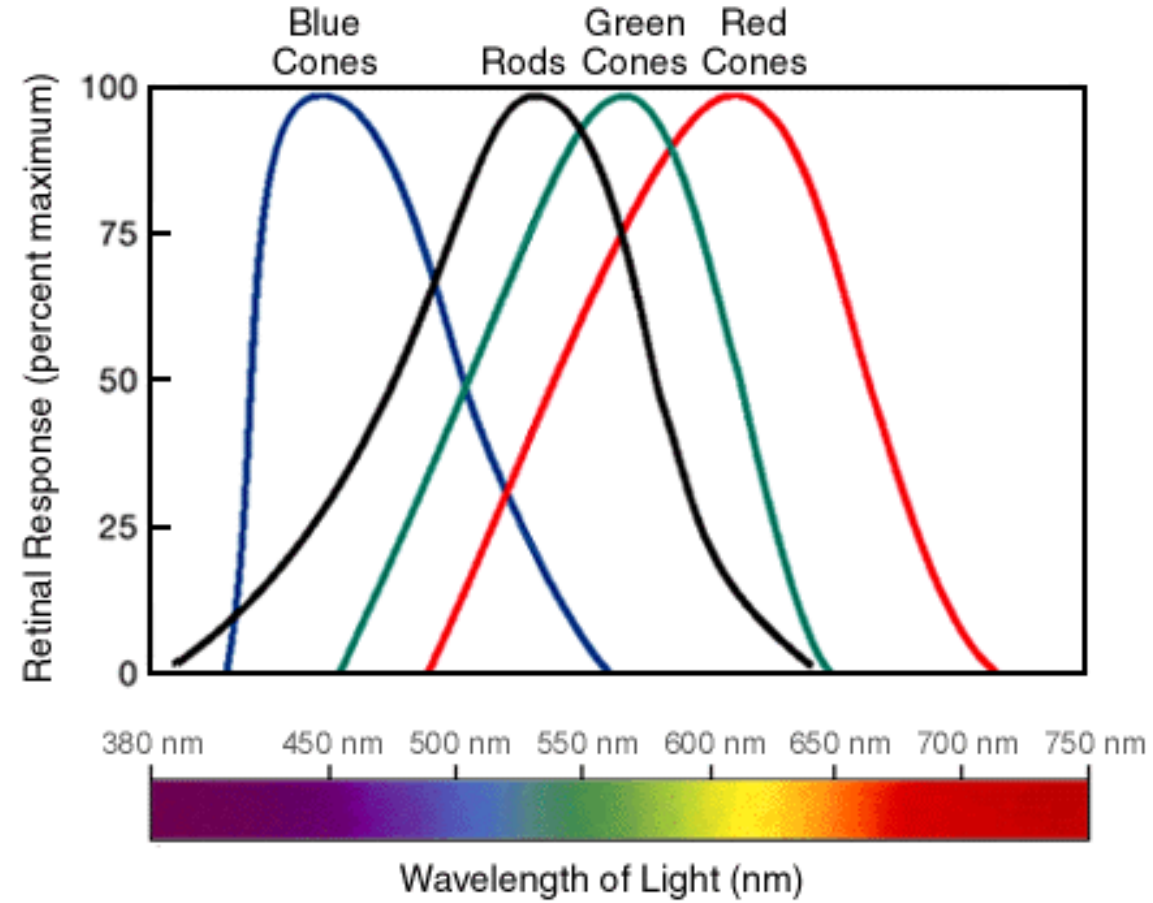


- UV spectrum ends on the left, IR starts on the right
- Wavelengths are in nm
- Source: https://commons.wikimedia.org/wiki/File:Linear_visible_spectrum.svg

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

The screenshot shows the Stack Overflow homepage with the 'Top Questions' section. The left sidebar includes navigation links for Home, PUBLIC (Stack Overflow, Tags, Users, Jobs), and TEAMS (What's this?, First 25 Users Free). The main content area displays a list of questions with filters for Interesting (32), Bountied, Hot, Week, and Month. The questions are sorted by votes and answers. The right sidebar contains a Blog section with links to 'The Overflow Newsletter #3', 'A Technical Deep Dive into Our MS Teams Integration', 'Feedback post: Moderator review and reinstatement processes', and 'Post for clarifications on the updated pronouns FAQ'. Below the Blog is a 'Featured on Meta' section with links to 'Feedback post: Moderator review and reinstatement processes', 'Post for clarifications on the updated pronouns FAQ', and 'New Post Notices (Closed/On Hold/etc.) rolling out on Stack Overflow'. The 'Custom Filters' section allows users to create a custom filter. The 'Watched Tags' section shows a list of tags: ajax, flask, git, java, javafx, javah, javascript, jquery, json, mysql, python, python-requests, rest. The 'Ignored Tags' section allows users to add an ignored tag. The 'Hot Network Questions' section lists questions such as 'Effects of longer and higher stem on rider position/comfort and handling', 'Does Enthalpy 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', and 'Is it against a Terms of Service/End-User License'.

This screenshot is identical to the one on the left, showing the Stack Overflow homepage with the 'Top Questions' section. The layout, content, and filters are the same, including the left sidebar with navigation links, the main content area with question lists and filters, and the right sidebar with the Blog, Featured on Meta, Custom Filters, Watched Tags, Ignored Tags, and Hot Network Questions sections.

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 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

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)

ACCESSO RAPIDO

Apply a 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
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ITA | ENG | Login | argomenti o persona

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

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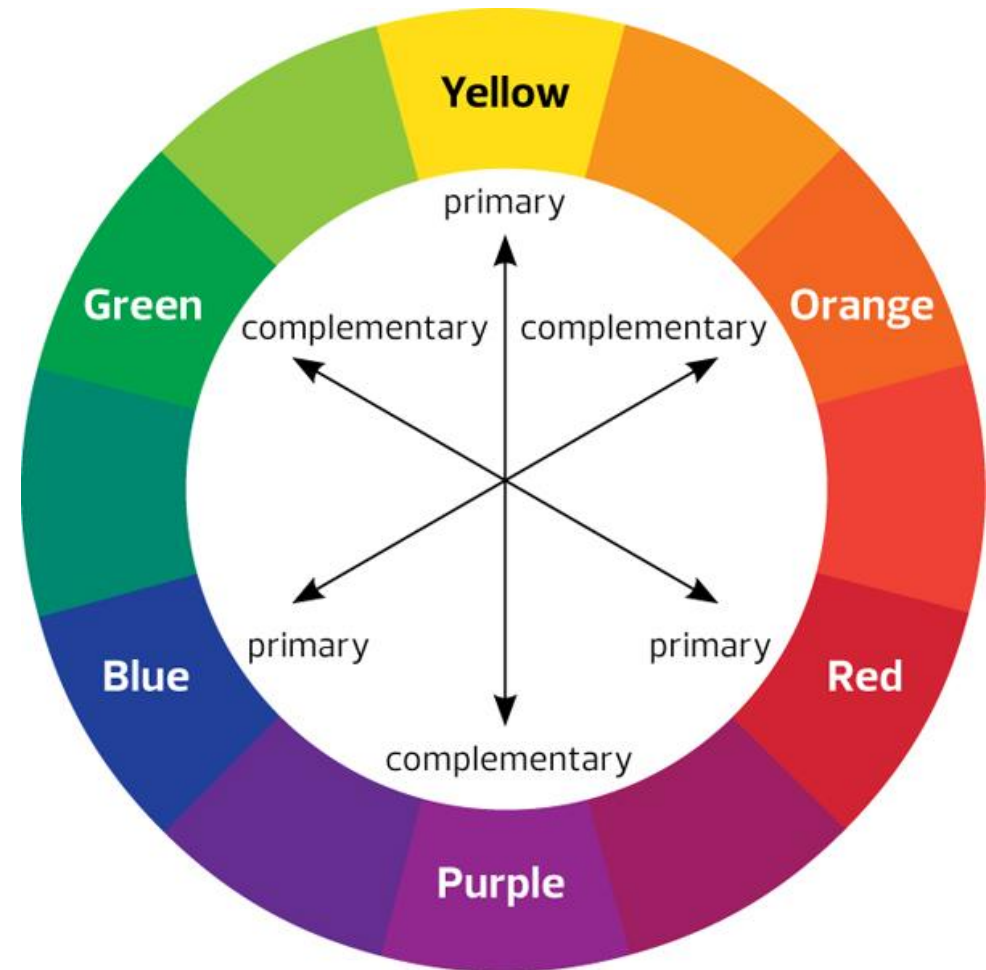
ACCESSO RAPIDO

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- Per le imprese
- Servizi web Amministrazione
- Sedi e mappe
- Concorsi e selezioni
- PoliToComunica
- Rassegna stampa
- Alumni

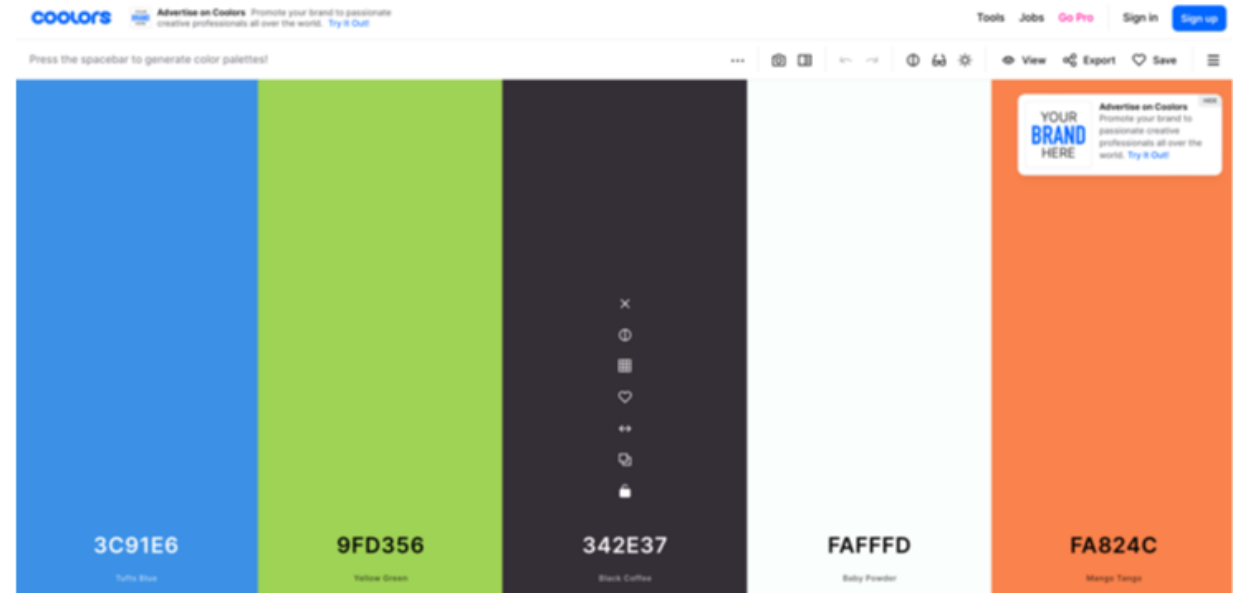
The Color Wheel

- 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/>



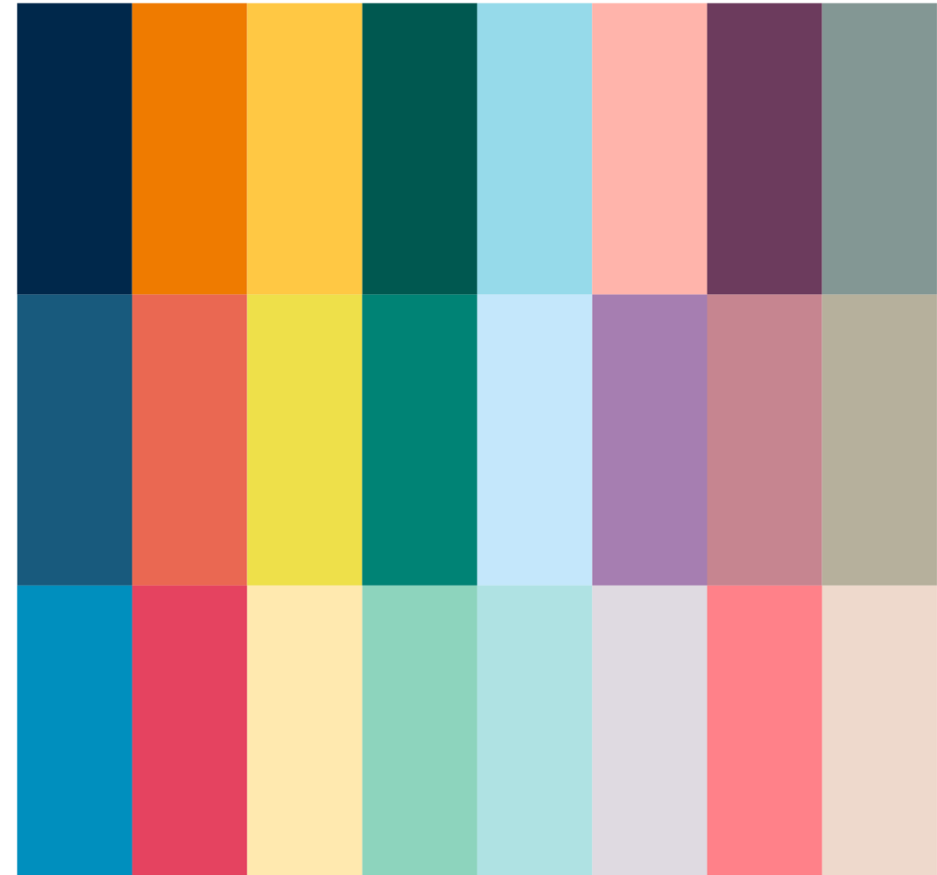
Color Palettes

- Start from a primary brand colour, then derive neutrals and an accent
- Use tools: Coolors (<https://coolors.co>), Material Design color system, ...
- Tints (lighter) and shades (darker) of a single hue create harmony
- **Limit** yourself: 1 primary + 1 accent + neutrals (black, white, greys) is usually enough
- Never rely on colour alone to convey information: always add a text or icon cue



Palettes - PoliTo

GERARCHIA COLORI



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

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

-  **SadieSows 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

PALETTES

Create +

PATTERNS

Create +

COLORS

Create +



Nineteen
by Júlia freire



try
by Anomalin



light gray purple
by macover



garden palette 2
by macover



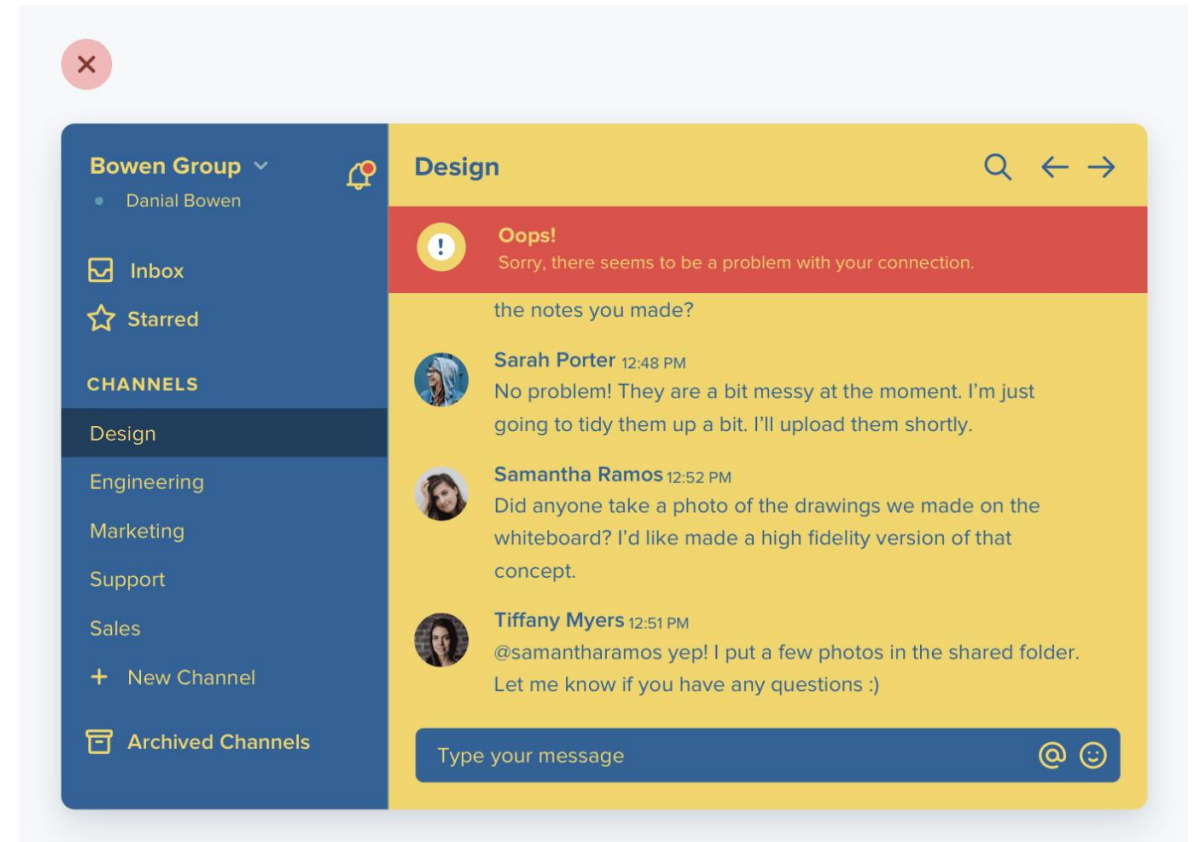
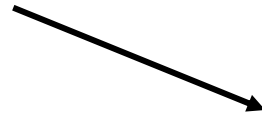
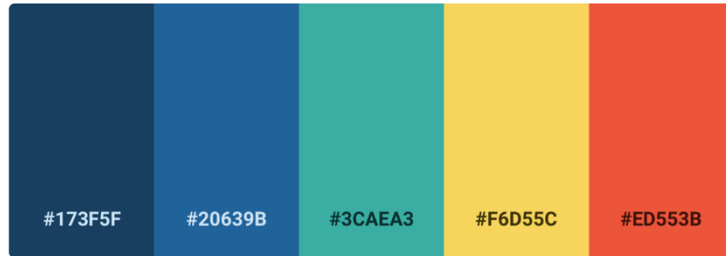
PodCasting
by Seisters



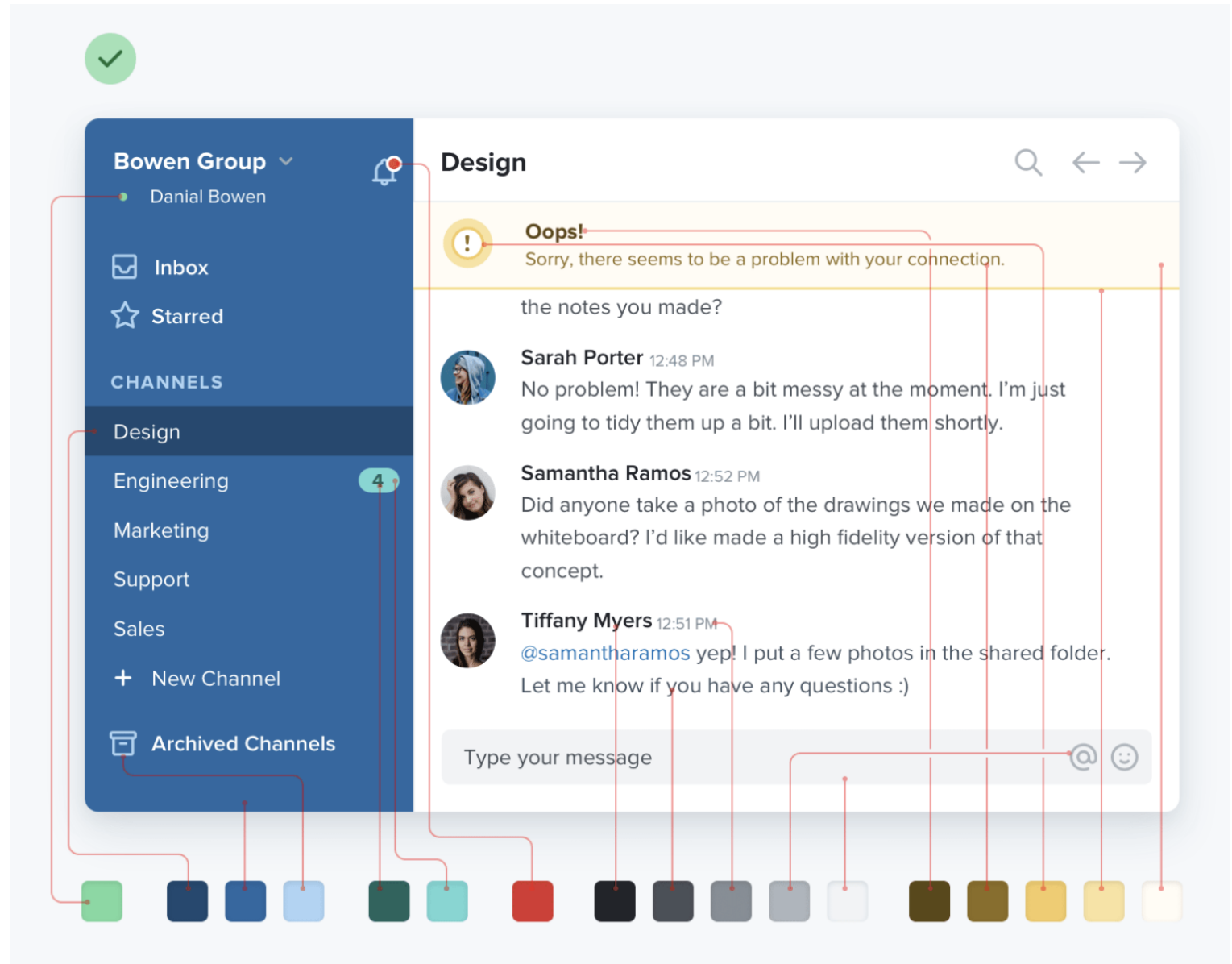
slate purple
by macover

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

Using Palettes



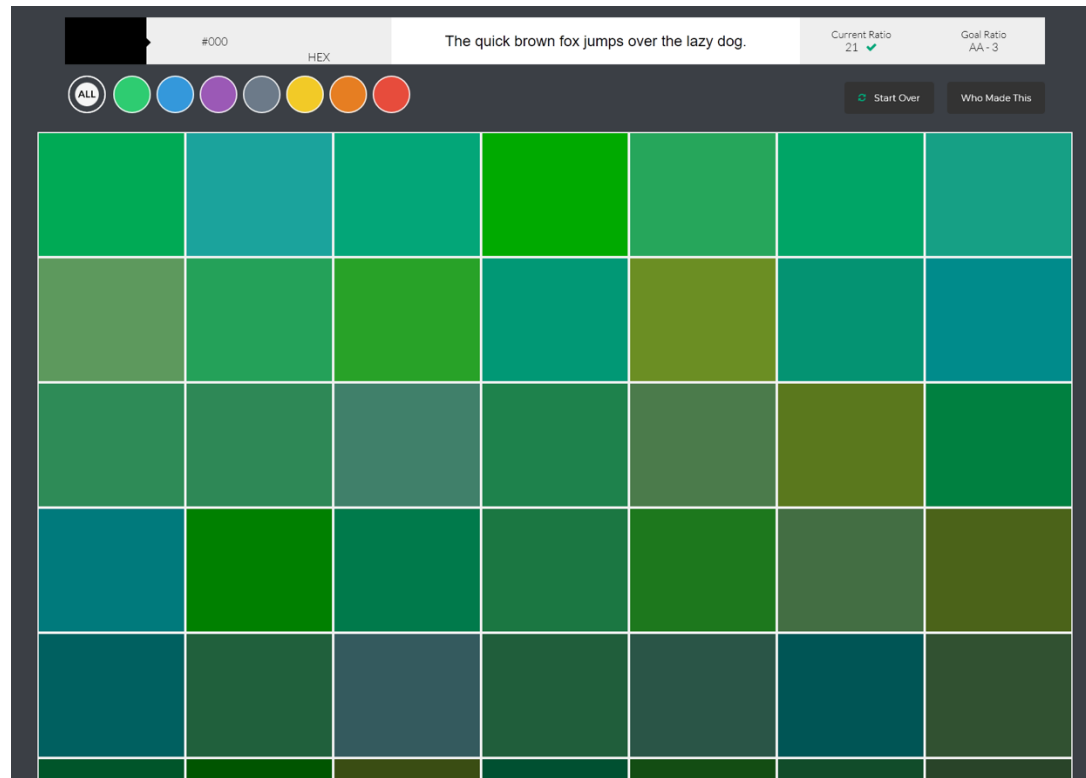
Using Palettes



Color Contrast

- Text must have sufficient **contrast** against its background to be readable
- Never use colour as the *only* way to signal information
 - e.g., “errors shown in red”

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

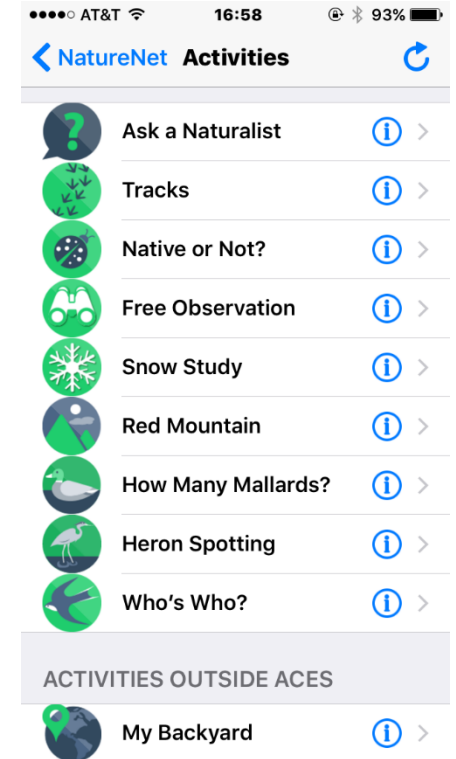
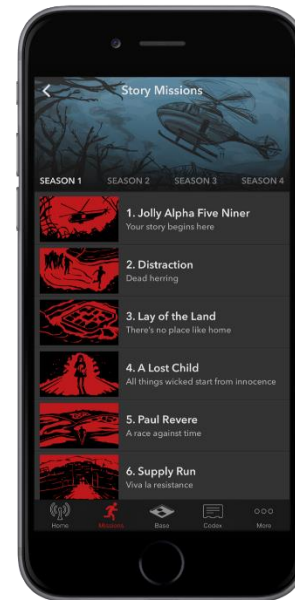
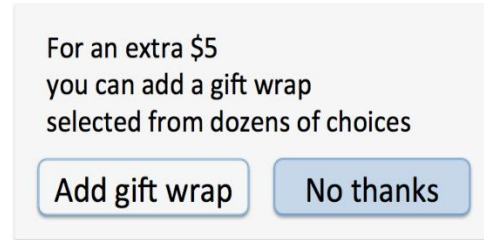
«Informavores» must quickly find the information they need

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

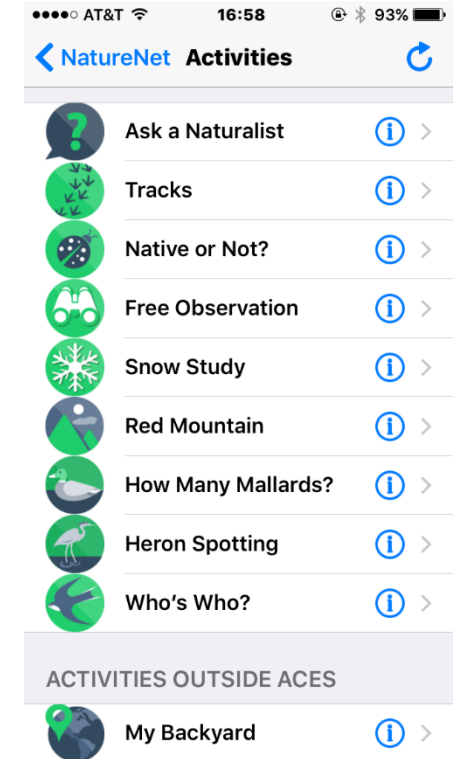
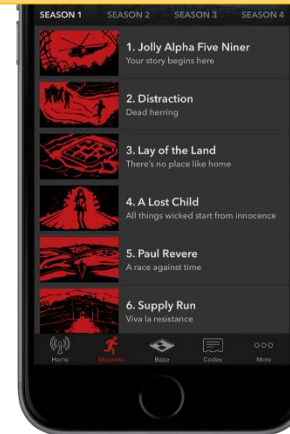
- Menu bars, pop-up menus, toolbars, palettes and ribbons
- Shortcuts and gestures for rapid interaction
- Long lists
- Linear versus simultaneous presentation



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

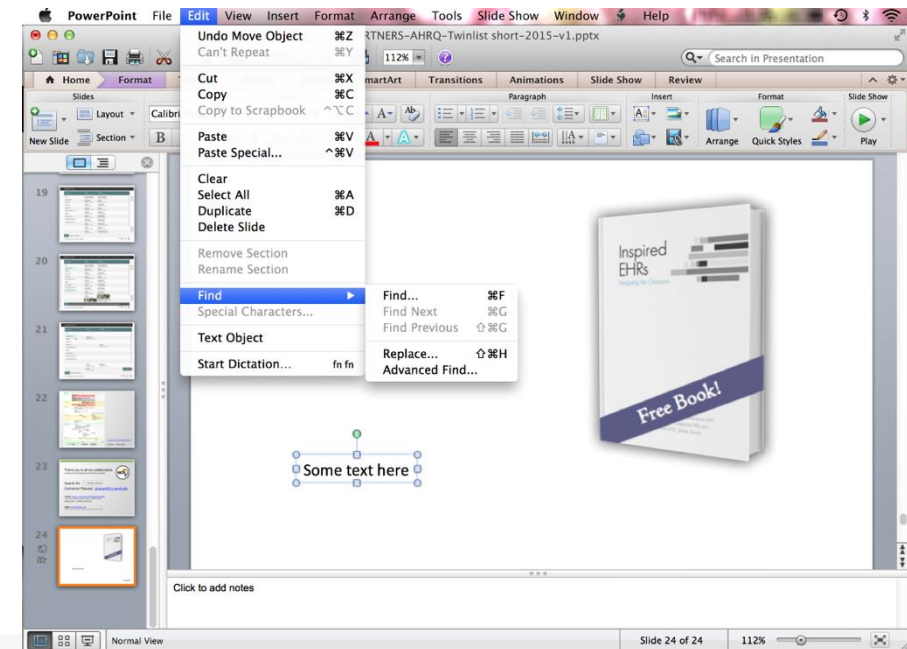
- Radio Buttons and Checkboxes
- Menu bars, pop-up menus, toolbars, palettes and ribbons

Does anyone in your household currently smoke?

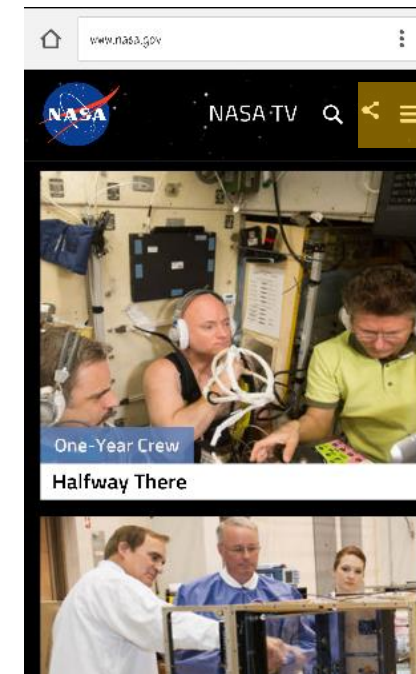
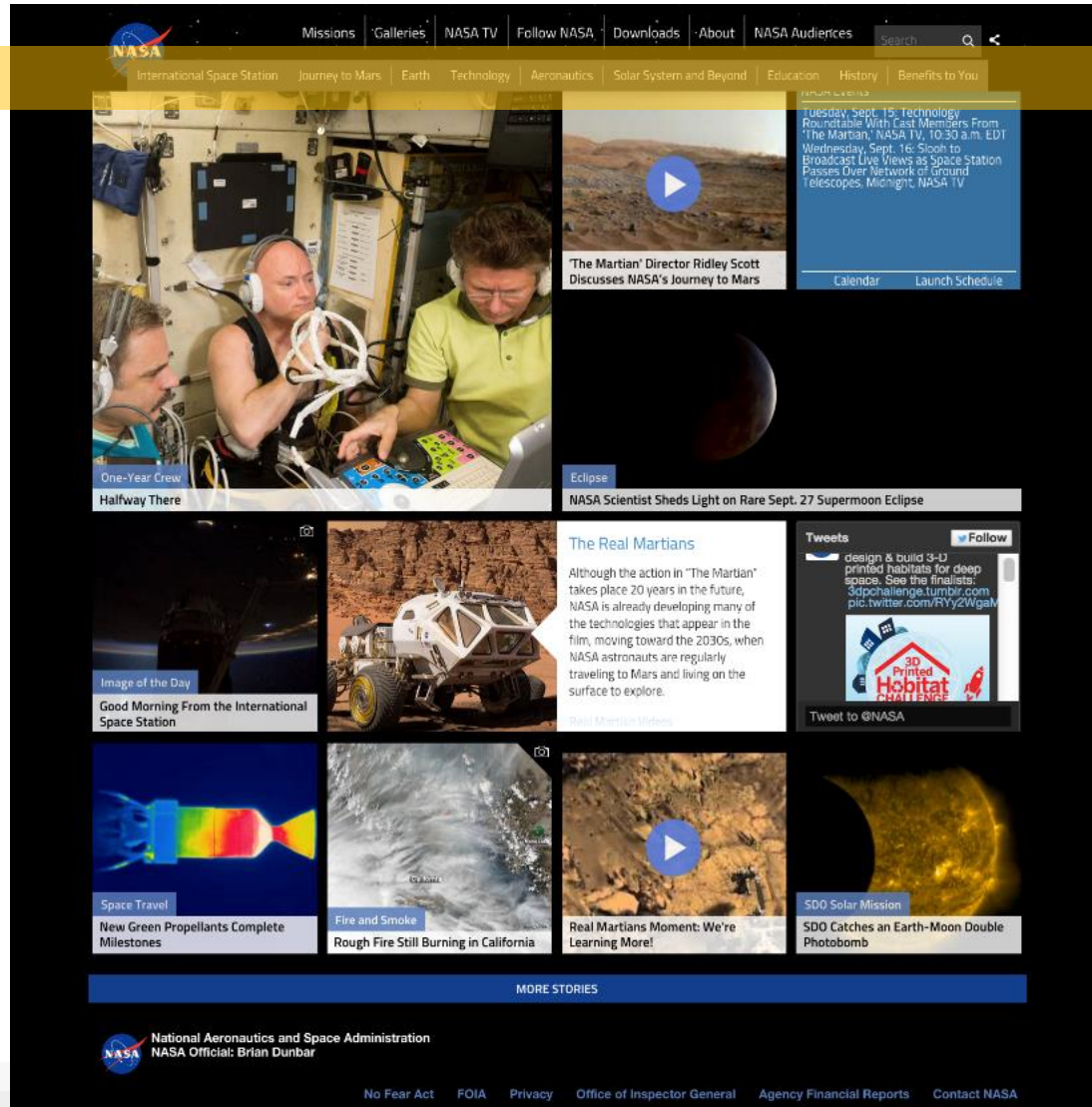
- ☐ Yes, someone does
- ☒ No, no one does
- ☐ Not sure

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

Find great gear and clothing

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](#)

(1)
ONLY AT REI

(1)
ONLY AT REI

(1)
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

**Tool Prenotazioni**
Selezionare l'ambito per il quale ci si intende prenotare

Ambiti per i quali è possibile effettuare una prenotazione

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➤Segreteria generale studenti

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➤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

<<

Oggi

>>

14 Set 2020 - 18 Set 2020

1 giorno

3 giorni

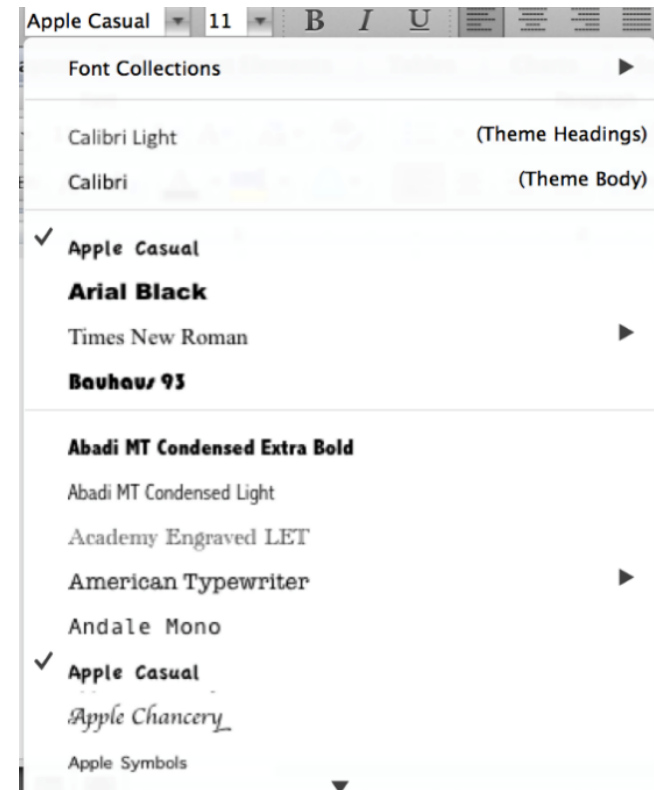
Settimana lavorativa

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					

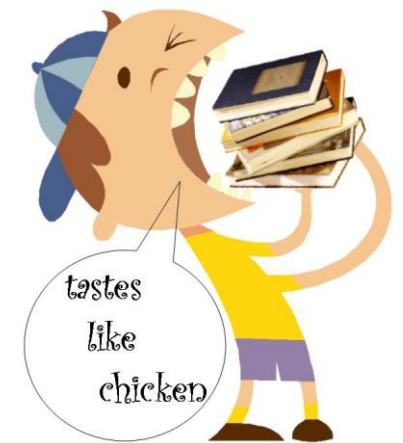
Menu Grouping: example

- 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, ...

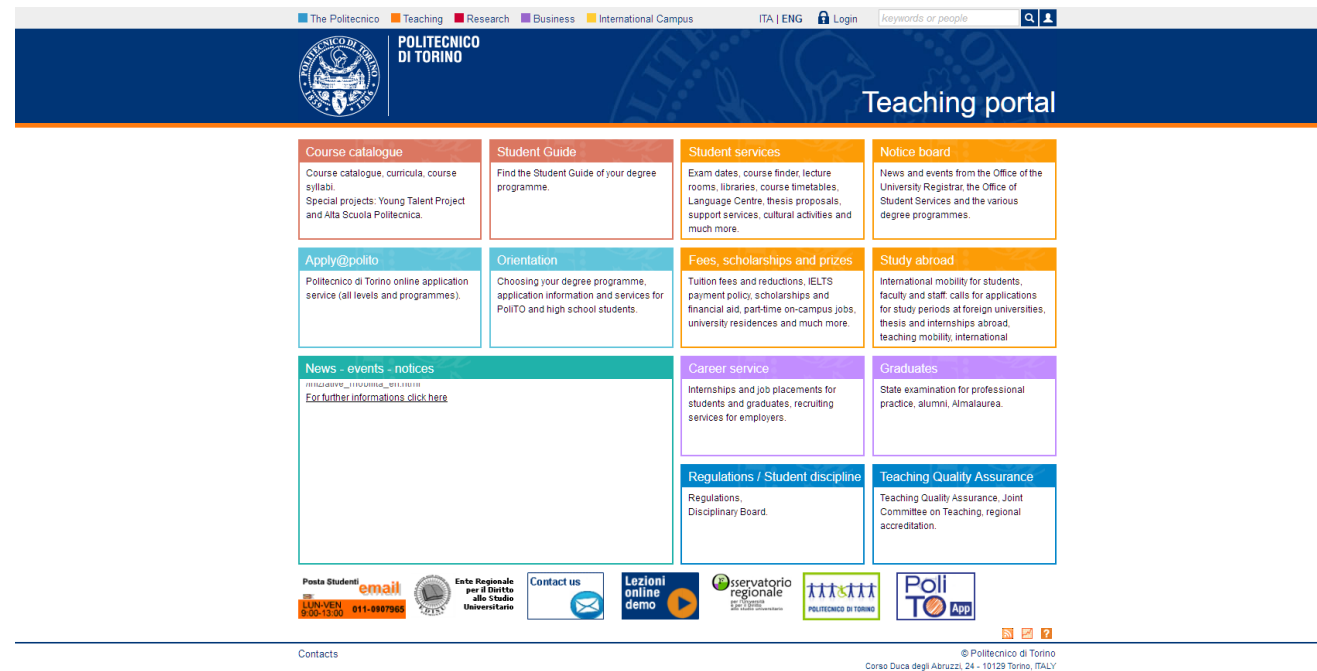


Informavore, an organism that consumes information

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



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.S. Master's degree programmes Information about Master's degree programmes for students with Italian degree	Students with a foreign qualification Information about Bachelor's and Master's degree programmes for students with a foreign qualification	
Ph.D. Information about Ph.D.	Specializing master Information about 5th and 6th 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)	
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 ECODISIGN 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	

Teaching portal

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		

Almaeaura 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.
--	---	---	---

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 Tech Talk - Vishay e l'evoluzione della E-Mobility 7 Novembre 2019 - 17:30 - Aula 4P		
VIDEO GALLERY:		

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

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
 -  Download the [spreadsheet for computing scores](#)
 -  [Scor-o-matic](#) download

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:** Text input field containing "Catherine".
- Middle name:** Text input field (empty).
- * Last/Family/Surname:** Text 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:** Text input field containing "cplaisant@" with a red border indicating an error.
- * Re-enter e-mail address:** Text input field (empty).
- * Password:** Text input field with masked characters "*****".
- * Confirm password:** Text input field (empty).

Validation Feedback:

- 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@nomail.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.

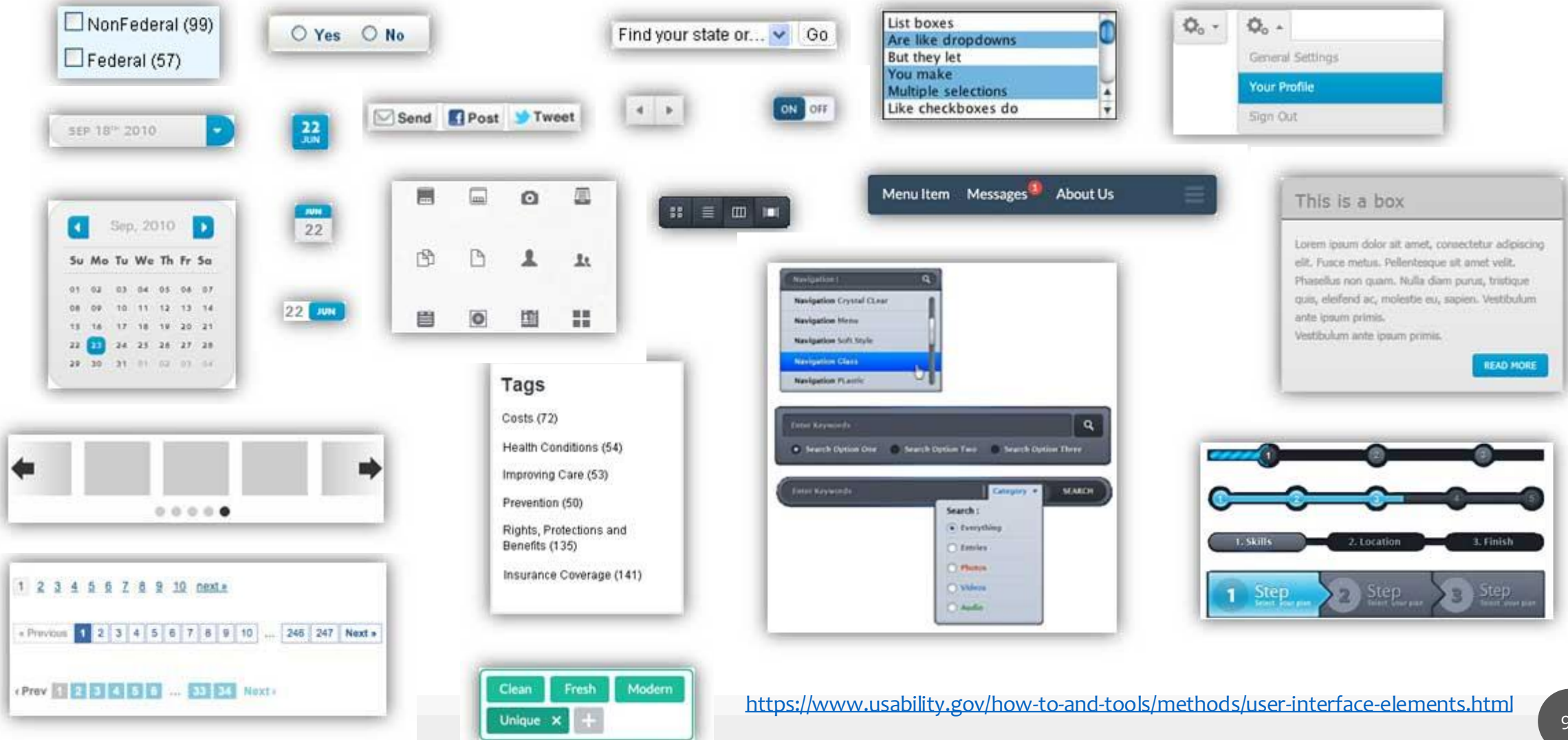
- * Security question 1:** Dropdown menu with "Select" as the current choice.
- * Type your answer:** Text input field (empty).
- * Security question 2:** Dropdown menu with "Select" as the current choice.
- * Type your answer:** Text input field (empty).

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



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

Reading Content

Organizing text and content for maximum visibility

Reading Content

“How people
read on-line?”

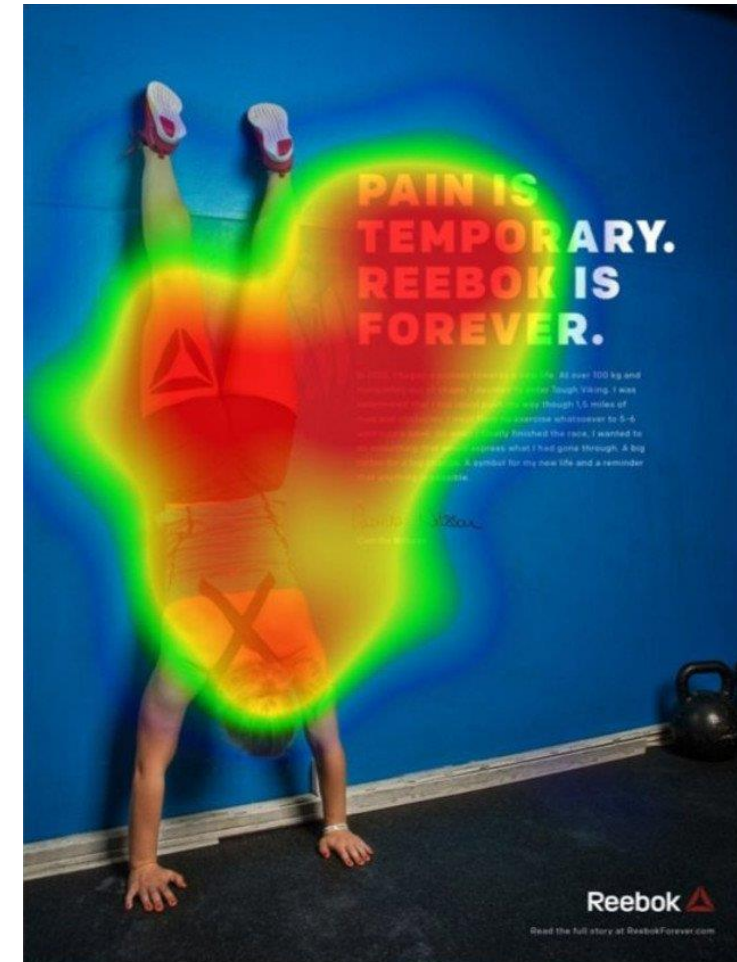
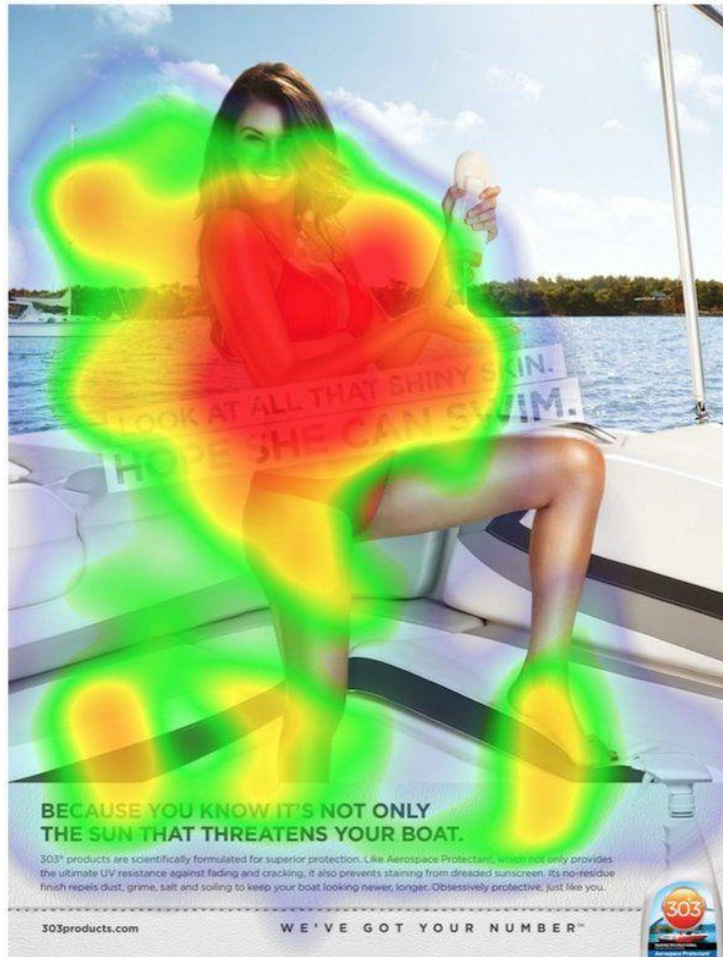
“They don’t”

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>

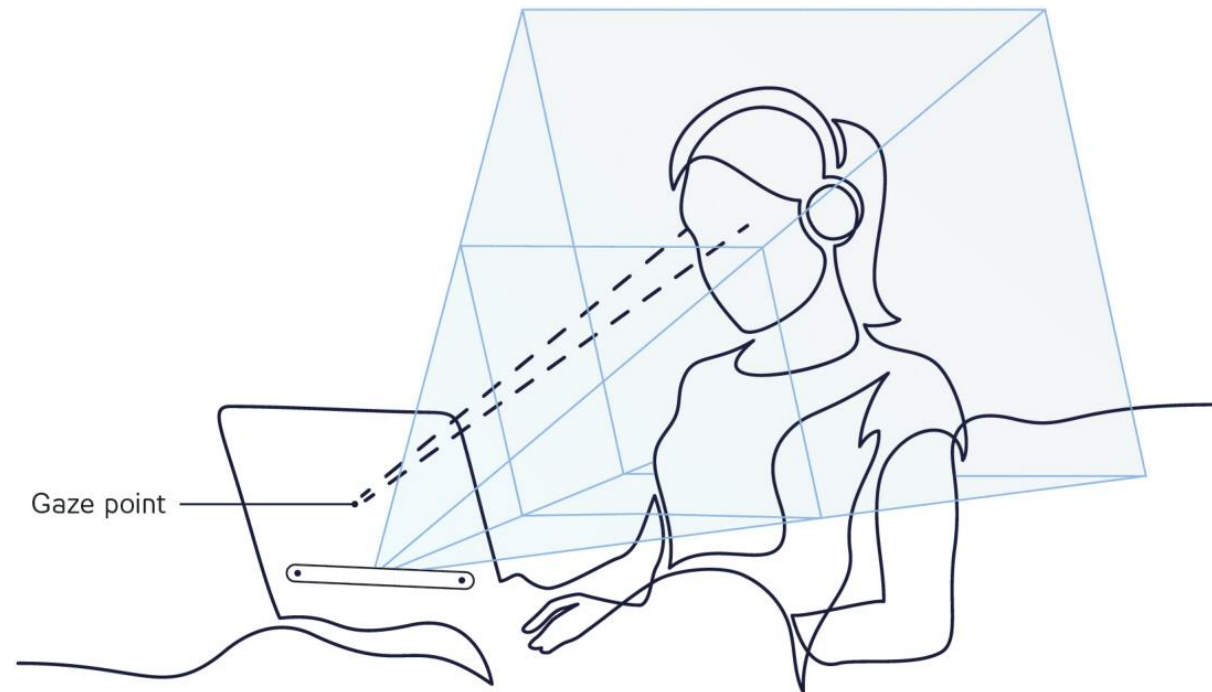
Eye Tracking



- 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.

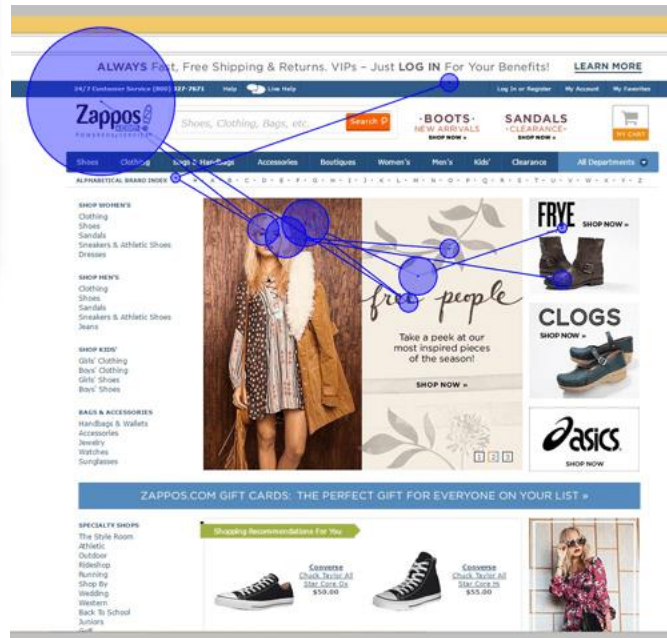


source: <https://www.tobii.com/group/about/this-is-eye-tracking/>

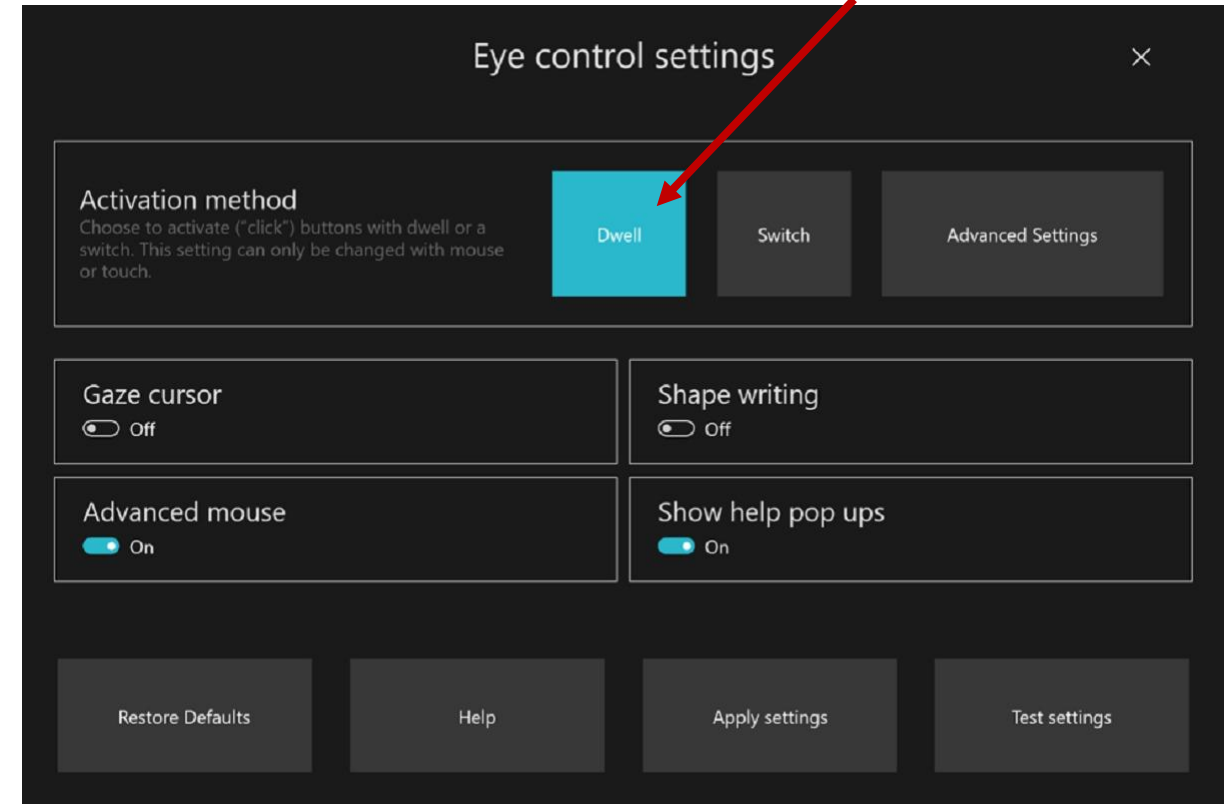
Eye Tracker: Examples



Heatmap and scan path analysis



Beware the Midas' Touch!



Windows 10 Eye Control Settings

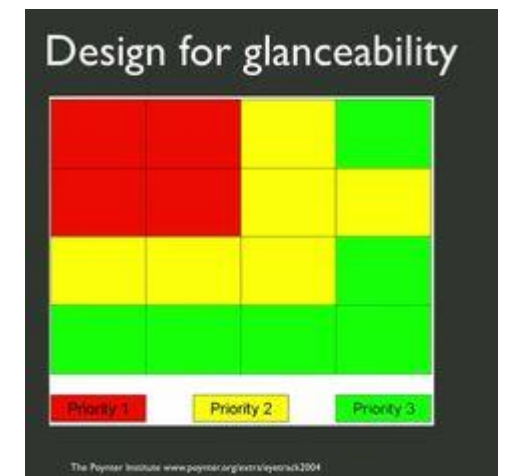
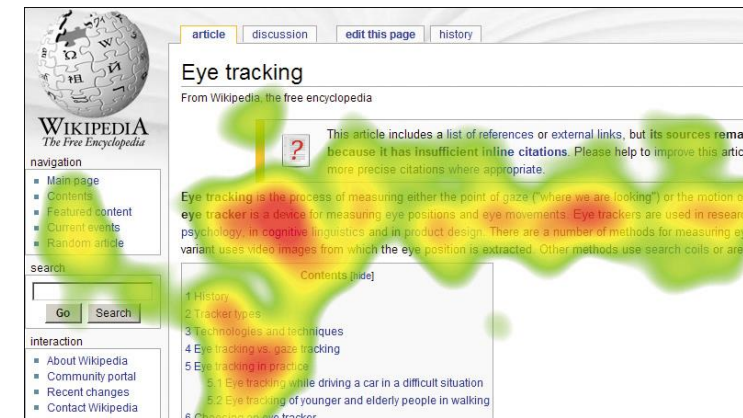
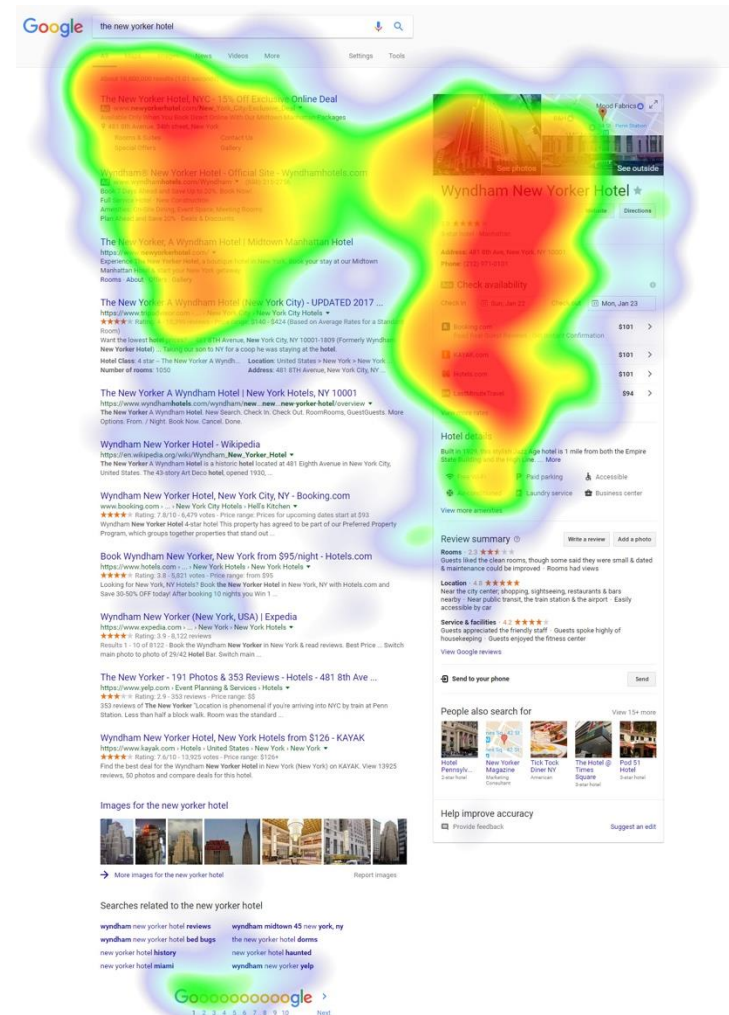
Location on the Page

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...



Join Biztravel.com Now!

- ✈ Book A Trip
- 📊 Track My Miles
- 🏠 Book A Vacation
- 📅 Plan A Meeting
- ✈ Charter A Flight

- Fast, easy booking of flights, hotel rooms, & rental cars
- Automated Upgrades to help you fly First Class
- Flight status updates sent to your pager
- Exclusive travel deals for biztravel.com members
- Tracking of your points and miles

[Learn More](#) [Join Now!](#)

WHAT USERS SEE...



Book A Trip

- Fast, easy booking of flights, hotel rooms, & rental cars

Book A Vacation

- Exclusive travel deals for biztravel.com members



I want to buy a ticket.



Track My Miles

- Tracking of your points and miles



How do I check my frequent flyer miles?

Experiment

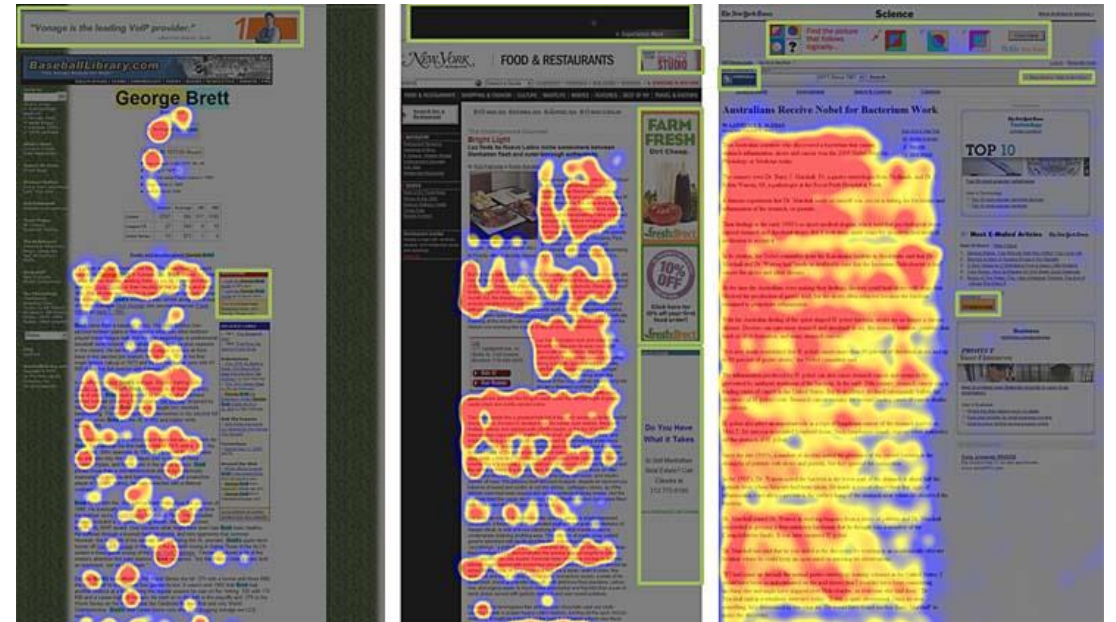
Site Version	Sample Paragraph	Usability Improvement (relative to control condition)
Promotional writing (control condition) using the "marketese" found on many commercial websites	Nebraska is filled with internationally recognized attractions that draw large crowds of people every year, without fail. 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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