

# Visual Design and Fluid Navigation

User Experience Design

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Academic Year 2023/2024

# Hall of Fame or Shame?

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' (selected), 'Teaching', 'Research', 'Business', and 'International Campus'. It also includes language links ('ITA | ENG'), a 'Login' button, and a search bar. The main header features the Politecnico di Torino logo and the text 'POLITECNICO DI TORINO'. Below the header, a large blue banner reads 'Teaching portal'. The page is divided into several colored sections containing various services:

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

At the bottom, there are links for 'Posta Studenti', 'email' (with a phone number: 010-33.30 011-097965), 'Ente Regionale per il Diritto all'Università', 'Contact us', 'Lezioni online demo' (with a play icon), 'Osservatorio regionale', 'POLITECNICO DI TORINO', and 'PoliTO App'. There are also social media icons for YouTube, Facebook, and Twitter, along with a question mark icon. A copyright notice at the very bottom reads: © Politecnico di Torino Corso Duca degli Abruzzi, 24 - 10129 Torino, ITALY.

# Hall of Fame or Search?



**Architecture**  
Bachelor's degree programme in ARCHITECTURE  
Location: Torino - Class: ARCHITECTURE

**Architecture**  
Bachelor's degree programme in ARCHITECTURE  
Location: Torino - Class: ARCHITECTURE

**Architecture**  
Bachelor's degree programme in DESIGN AND COMMUNICATION  
Location: Torino - Class: INDUSTRIAL DESIGN

**Architecture**  
Bachelor's degree programme in DESIGN AND VISUAL COMMUNICATION  
Location: Torino - Class: INDUSTRIAL DESIGN

**Architecture**  
Bachelor's degree programme in TERRITORIAL, URBAN, ENVIRONMENTAL AND LANDSCAPE PLANNING  
Location: Torino - Class: TOWN, REGIONAL AND ENVIRONMENTAL PLANNING

**Architecture**  
Master's degree programme in ARCHITECTURE CONSTRUCTION CITY  
Location: Torino - Class: ARCHITECTURE AND ARCHITECTURAL ENGINEERING

**Architecture**  
Master's degree programme in ARCHITECTURE FOR THE SUSTAINABILITY DESIGN  
Location: Torino - Class: ARCHITECTURE AND ARCHITECTURAL ENGINEERING

**Architecture**  
Master's degree programme in ARCHITECTURE HERITAGE PRESERVATION AND ENHANCEMENT  
Location: Torino - Class: ARCHITECTURE AND ARCHITECTURAL ENGINEERING

**Architecture**  
Master's degree programme in ECODESIGN  
Location: Torino - Class: DESIGN

**Architecture**  
Master's degree programme in SYSTEMIC DESIGN  
Location: Torino - Class: DESIGN

**Architecture**  
Master's degree programme in TERRITORIAL, URBAN, ENVIRONMENTAL AND LANDSCAPE PLANNING  
Location: Torino - Class: REGIONAL, URBAN AND ENVIRONMENTAL PLANNING

**Engineering**  
Bachelor's degree programme in AEROSPACE ENGINEERING  
Location: Torino - Class: INDUSTRIAL ENGINEERING

Exam dates	Course finder	C.L.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

**Course catalogue**  
Course, credits, specific course syllabi, Special projects: Young Talent Project and Alta Scuola Politecnica.

**Student Guide**  
Find the Student Guide of your degree programme.

**Notice board**  
News and events from the Office of the University Registry, the Office of Student Services and the various degree programmes.

**Generale**

**Studenti**

**Area dell'Architettura**  
Corsi di Laurea di 1° livello

**Area dell'Ingegneria**  
Corsi di Laurea Magistrale

**Area dell'Architettura**  
Corsi di Laurea di 1° livello

**Area dell'Ingegneria**  
Corsi di Laurea Magistrale

Welcome to Apply@polito - the online application service of the Politecnico di Torino

**Bachelor Italian students**  
Information about Bachelor of Science for students with Italian high School Diploma.

**M.S. Italian students**  
Information about Master of Science for students with Italian degree.

**Students with a foreign qualification**  
Information about Bachelor of Science and Master of science for students with a foreign qualification.

**Ph.D.**  
Information about Ph.D.

**Specializing master**  
Information about 1st and 2nd level Specializing Master's Programmes and Lifelong Learning courses.

**Exchange programmes**  
Online application for nominated Exchange students.

**State exams**  
Information about the state exams.

**Online application form**

**Privacy - Information**

**Forgot your password?**



**STUDENTS & GRADUATES**  
Check all the opportunities to build your career

**EMPLOYERS**  
Find out how to get in touch with our talents

**HIGHLIGHTS:**

Giovedì 07 Novembre 2019 ore 17:30 - Aula 4P TECH TALK VISHAY L'evoluzione della E-Mobility

07/11/2019 Tech Talk - Vishay e l'evoluzione della E-Mobility

VIDEO GALLERY:

- LA BELLEZZA DI FARE IMPRESA
- Career Day 2018 | I consigli delle aziende per il colloquio di lavoro
- Career Day 2018 | L'importanza delle esperienze curriculare

# Visual Design

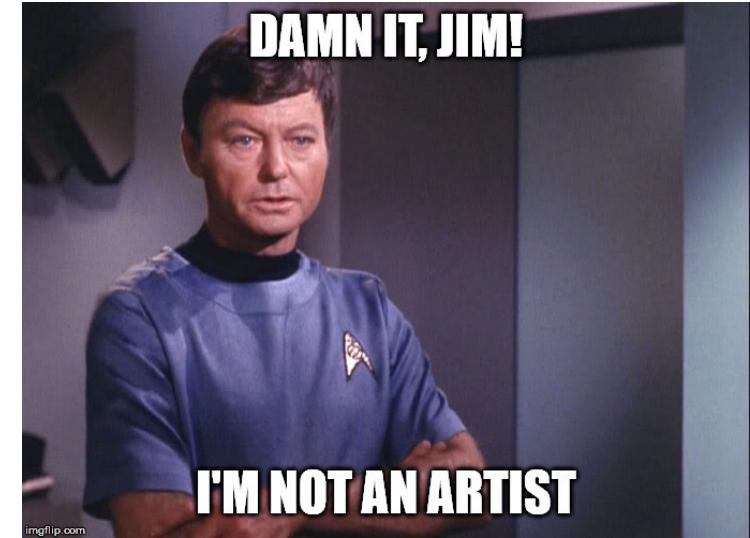
Aesthetics for helping users in understanding and navigating the UI

# 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 ...

## **T**ext

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.

## **L**ayout

## **C**olors

# Alignment

BASIC VISUAL DESIGN

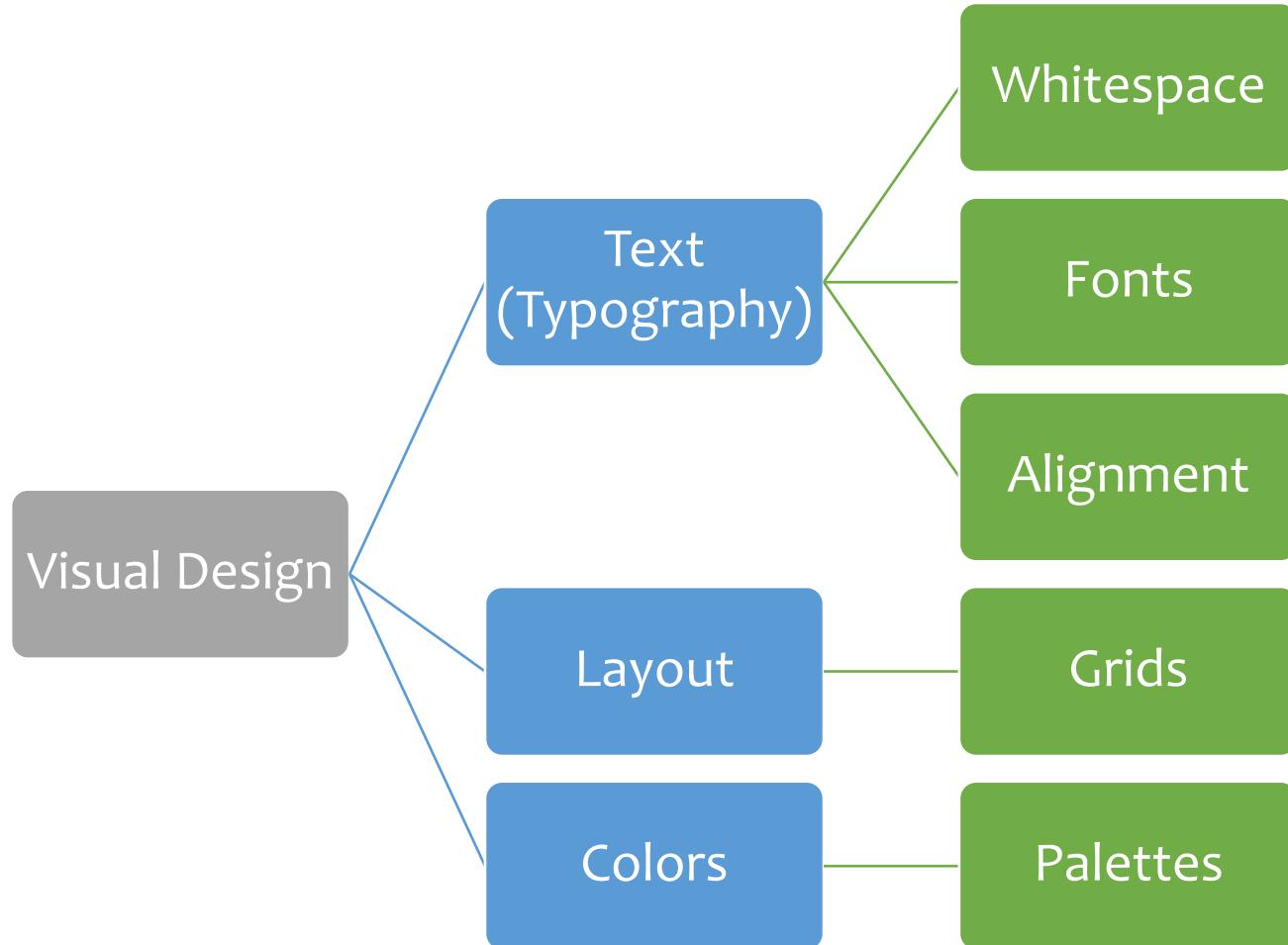
## Text

- **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



# Recognizable Page Structure



# Recognizable Page Structure

The screenshot displays the CNN website's homepage with a clean, structured layout:

- Header:** Features the CNN logo, a navigation bar with links to World, US Politics, Business, Health, Entertainment, Style, Travel, Sports, Videos, Edition dropdown, search, and user profile icons.
- Main Article:** A large, bold headline "Brazil has big green plans. But its track record is dismal" is centered above a large image of a deforested area. Below the image is a sub-headline: "The Brazilian government is bringing ambitious promises to the UN climate summit, but can it be believed?".
- Image and Text:** An image of a 22-story building collapse in Lagos, Nigeria, with a "DEVELOPING STORY" label. Below it is a photo of a man in a suit wearing a mask with the text "LET'S GO BRANDON" and an "ANALYSIS" label.
- Side Column:** Contains a list of news items:
  - Queen Elizabeth II tells world leaders at COP26 there's 'room for hope' on climate
  - Biden apologizes to world leaders for Trump's climate actions
  - How the 'Venice of Africa' is impacted by climate change
- Bottom Left:** A "News and buzz" section featuring a photo of Elon Musk and the headline "Elon Musk offers to sell Tesla stock 'right now' if UN can show how \$6 billion would".
- Bottom Center:** A "Featured" section with a large photo of a woman and the headline "Manchin issues warning to Democrats on Biden's economic package". Below it is a "Analysis: Tim Scott confirms he's on the Trump 2024 train" link.
- Bottom Right:** A "Spotlight" section with three smaller stories:
  - A photo of a man with the headline "Man scheduled to be executed for murder he says he didn't commit seeks clemency".
  - A photo of a medical vial with the headline "Could Covid-19 vaccines impair a child's future fertility? Officials say no."
  - A photo of Kal Penn with the headline "Kal Penn, 'Harold and Kumar' and 'House' star, comes out as gay".

# Recognizable Page Structure



# Recognizable Page Structure

The screenshot shows the homepage of Stack Overflow. At the top, there is a navigation bar with links for "About", "Products", "For Teams", a search bar, and buttons for "Log in" and "Sign up". The main content area is titled "All Questions" and displays 21,855,928 questions. The questions are listed in a grid format, each with a title, a brief description, the number of votes and answers, tags, and the user who asked it. To the right of the main content, there are several sidebar sections: "The Overflow Blog" (with posts like "Podcast 388: Software for your second brain" and "Why SOLID principles are still the foundation for modern software architecture"), "Featured on Meta" (with posts like "Now live: A fully responsive profile" and "Please welcome Valued Associates #999 - Bella Blue & #1001 - Salmon of Wisdom"), "Collectives" (listing groups like "Go Language", "Google Cloud", and "GitLab" with their member counts and "Join" buttons), and "Related Tags" (listing tags like "javascript", "python", and "java" with their respective counts).

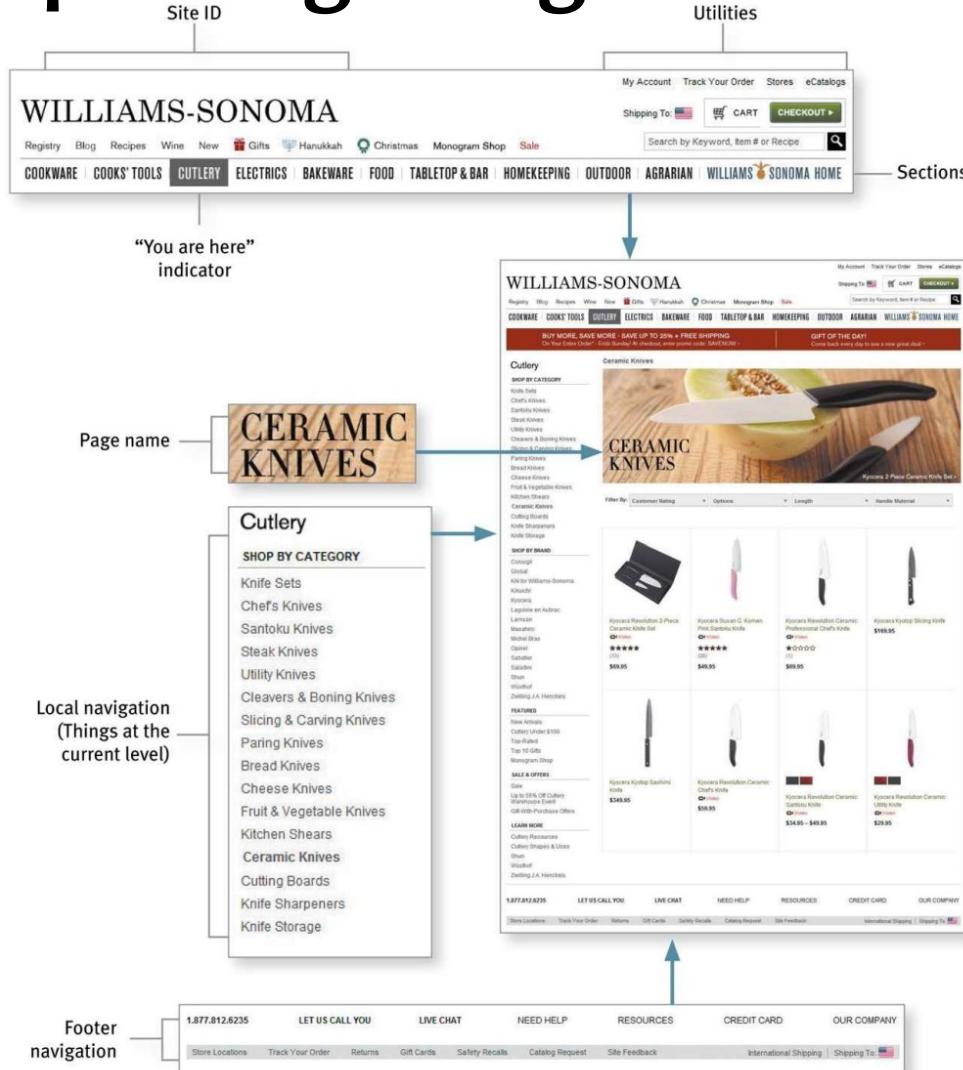
# Recognizable Page Structure



# Recognizable Page Structure

The screenshot shows the Tripadvisor website interface for searching hotels in New York City. At the top, there's a navigation bar with links for "New York City", "Hotel", "Cose da fare", "Ristoranti", "Voli", "Case vacanza", "Pacchetti vacanza", "Crociere", "Autonoleggio", and a "Scrivi una recensione" button. Below the navigation is a map of New York City with a "Guarda la mappa" button. The main title "Hotel New York City e alloggi" is centered above a search form for "Arrivo" (Arrival) and "Partenza" (Departure), and a guest count "Ospiti" (Guests) set to "1 camera, 2 adulti, 0 bambini". A sidebar on the left contains filters for "COVID-19" (checkbox for "Strutture che adottano misure di sicurezza"), "Offerte" (checkboxes for "Cancellazione gratuita", "Prenota ora, paga quando soggiorni", and "Strutture con Offerte Speciali"), "Prezzo" (a range slider from "0 € - + 623 €" and a dropdown for "Prezzo + tasse e spese"), and "Molto richiesti" (checkboxes for "Colazione inclusa" and "5 stelle"). The main content area shows a list of 911 hotel structures in New York City, ordered by "Qualità-prezzo". The first result is the "Fairfield Inn & Suites New York Midtown Manhattan/Penn Station", which is "Sponsorizzato". It features a large image of the hotel building, its name, a price of "161 €", a "Vedi l'offerta" button, and a summary of amenities including "Colazione inclusa", "Cancellazione gratuita", "Prenota ora, paga quando soggiorni", and "Info sull'hotel". The page also includes a note about the impact of compensation payments on prices.

# 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

The landing page for Basecamp 3 features a central cartoon illustration of a person's head filled with various thoughts and icons, such as a phone, a laptop, and a clock, all accompanied by text like "DID WE GET THAT DONE YET?", "WAIT, WHO MADE THAT DECISION?", and "WHO SENT THIS TO THE CLIENT?". To the right of the illustration is a sign-up form with a large arrow pointing from the text "Working with other people? Struggling to keep everyone on the same page?" towards the sign-up button.

Basecamp 3

Version 3 is all new for 2016!

Working with other people? Struggling to keep everyone on the same page?

DID WE GET THAT DONE YET?  
WHEN IS THIS DUE?  
NO ONE TOLD ME THAT!  
THIS IS EXHAUSTING!

WAIT, WHO MADE THAT DECISION?  
WHERE DO I PUT THAT?  
WHO SENT THIS TO THE CLIENT?

Sign up now for free below

Just last week, 10,772 companies got started with Basecamp 3!

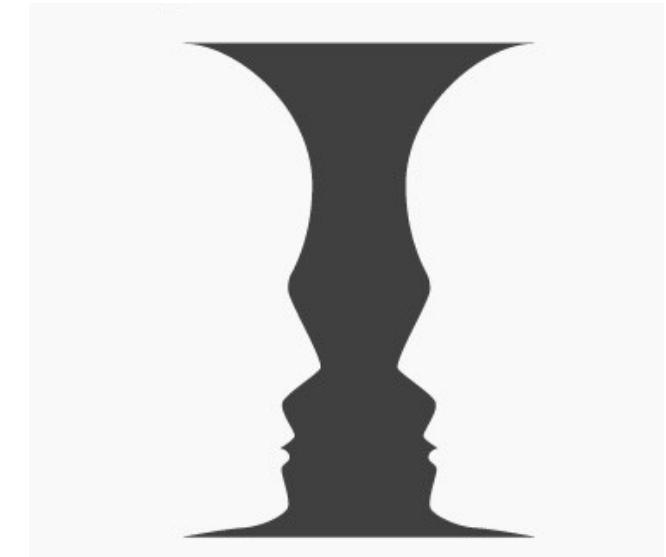
Sign up using Google

Or, sign up with your email

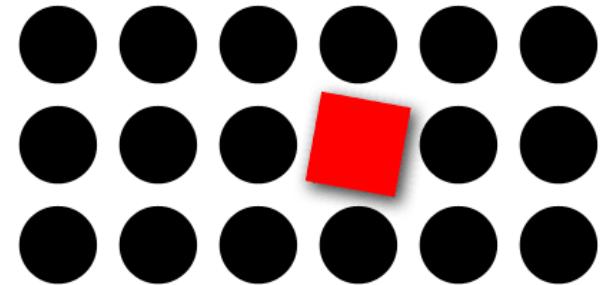
Your Name: Julie Appleseed

Your Email: julie@widgetco.com

Company/Organization: Widget, Co.



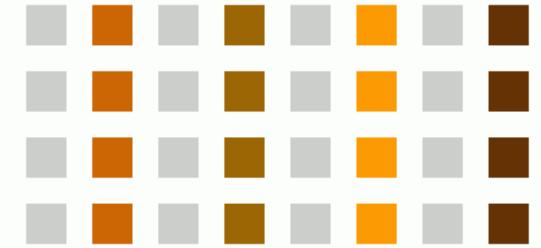
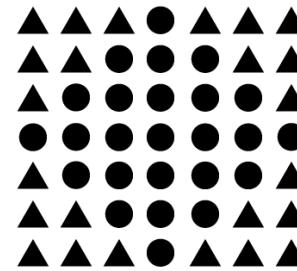
# Examples: Focal Point



The Twilio homepage features a dark background image of a busy street scene. At the top, the Twilio logo is on the left, followed by navigation links: PRODUCTS & PRICING, USE CASES, API & DOCS, NOT A DEVELOPER?, SIGN UP, and LOG IN. Below the navigation, a large white text area reads "BUILD APPS THAT COMMUNICATE WITH EVERYONE IN THE WORLD". Underneath this, smaller text says "A Messaging, Voice, Video and Authentication API for every application". At the bottom, there are two buttons: "See Use Cases" and "Get a free API key".

The Instacart homepage features a dark background image of a person holding a grocery bag filled with vegetables. Overlaid on this is a white rectangular form. At the top right of the form is the Instacart logo. Below it, the text "Groceries delivered in 1 hour" is displayed, followed by "Enter your zip code to see your local stores". There is a text input field labeled "Enter Zip Code" and a green button labeled "Find Stores >". At the bottom of the form, there is small text "Already have an account? Log In" and a note "FREE delivery on your first order\*".

# Examples: Similarity



The GitHub sign-up page features a dark background with various software-related icons. At the top, there's a search bar and navigation links for 'Explore', 'Features', 'Enterprise', and 'Pricing'. Below that is a large call-to-action button with the text 'Sign up' and 'Sign in'. To the right of the button is a form for entering a username, email, and password. A note below the form states: 'Use at least one lowercase letter, one number, and seven characters.' A green 'Sign up for GitHub' button is positioned below the form. A small note at the bottom of the form area says: 'By clicking "Sign up for GitHub", you agree to our terms of service and privacy policy. We will send you account related emails occasionally.' At the bottom of the page, a blue banner asks: 'Want to use GitHub on your servers?'

The LA STAMPA news website has a light-colored header with the site name 'LA STAMPA' in large letters. It includes links for 'GNN', 'NEWSLETTER', and social media icons for Twitter and Facebook. On the right side of the header are buttons for 'ABBONATI' and 'ACCEDI'. Below the header, there's a navigation bar with links for 'MENU', 'LEGGI IL QUOTIDIANO', 'TOP NEWS', 'TUTTOLIBRI', and a search icon. The main content area displays several news articles with small images and titles. One article is about ArcelorMittal leaving Taranto, another is about Abu Simbel in Egypt, and a third is about climate change in the Alps.



# Examples: Continuity

Customers Who Bought This Item Also Bought

The screenshot shows a horizontal scrollable list of five books. Each book entry includes the title, author, a small thumbnail image, a brief description, and purchase links.

- CROSSING THE CHASM, 3rd Edition: Marketing and Selling Disruptive Products by Geoffrey A. Moore. ★★★★★ 72 Paperback \$12.35 ✓Prime
- THE LEAN STARTUP by ERIC RIES. ★★★★★ 1,062 Hardcover \$16.66 ✓Prime
- THE INNOVATOR'S DILEMMA: The Revolutionary Book That Will Change the Way You Think About Business by Clayton M. Christensen. ★★★★★ 209 Paperback \$10.06 ✓Prime
- THE INNOVATOR'S SOLUTION: Creating and Sustaining Successful Growth by Clayton M. Christensen. #1 Best Seller in Industrial Management... Paperback \$18.33 ✓Prime
- HOW WILL YOU MEASURE YOUR LIFE? by CLAYTON M. CHRISTENSEN. ★★★★★ 583 Hardcover \$15.88 ✓Prime

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

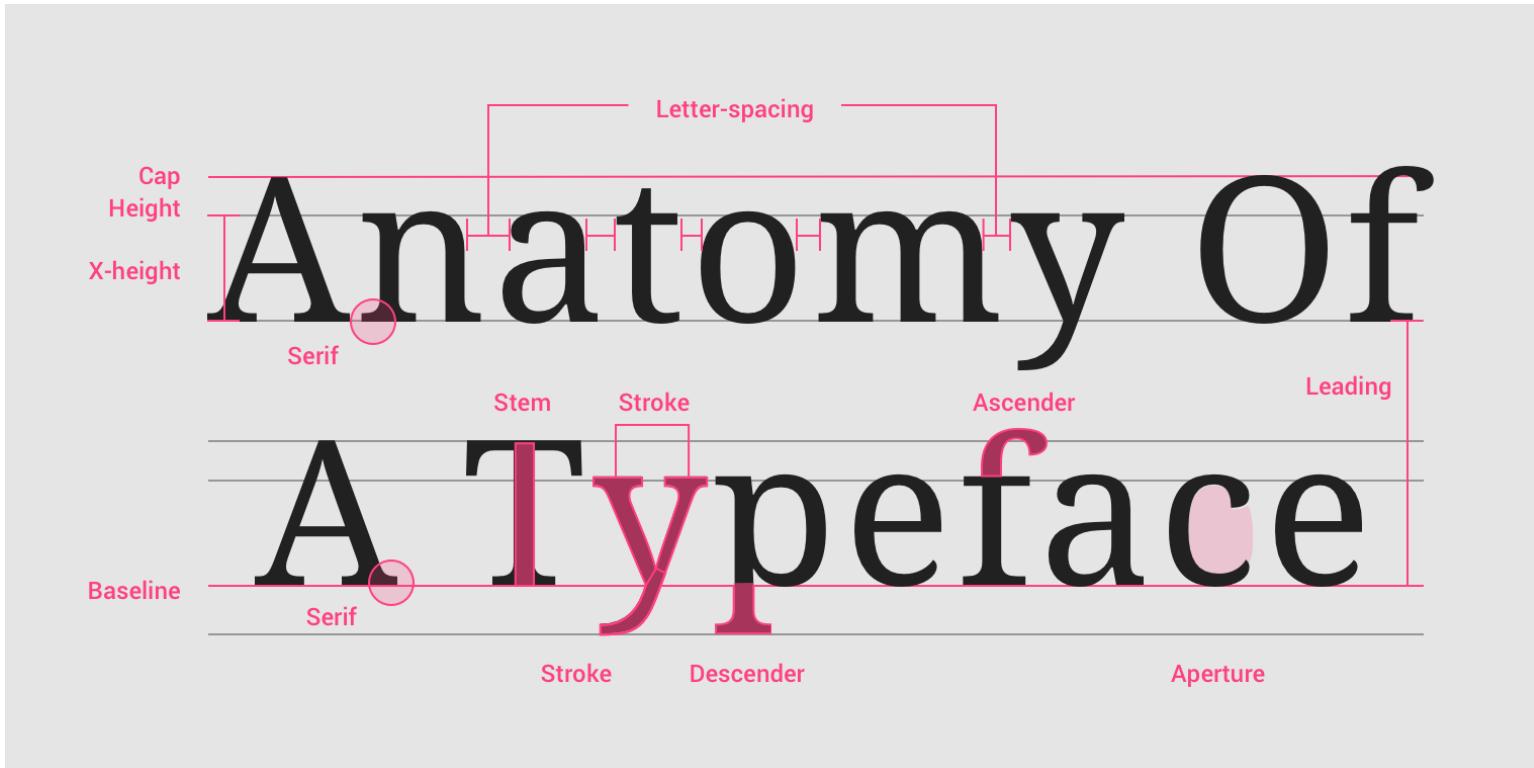
Your meal arrives in around 20 minutes - like a home-cooked meal without the effort!

# Typography

Property of text

# Characteristics of Text

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



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

# Example: Material Design Type Scale

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

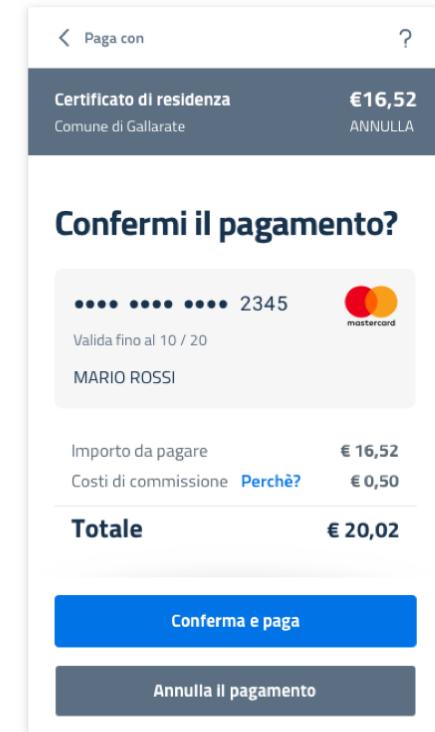
Reusable categories of text, each with an intended application and meaning

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

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

# Text

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



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

# Text 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

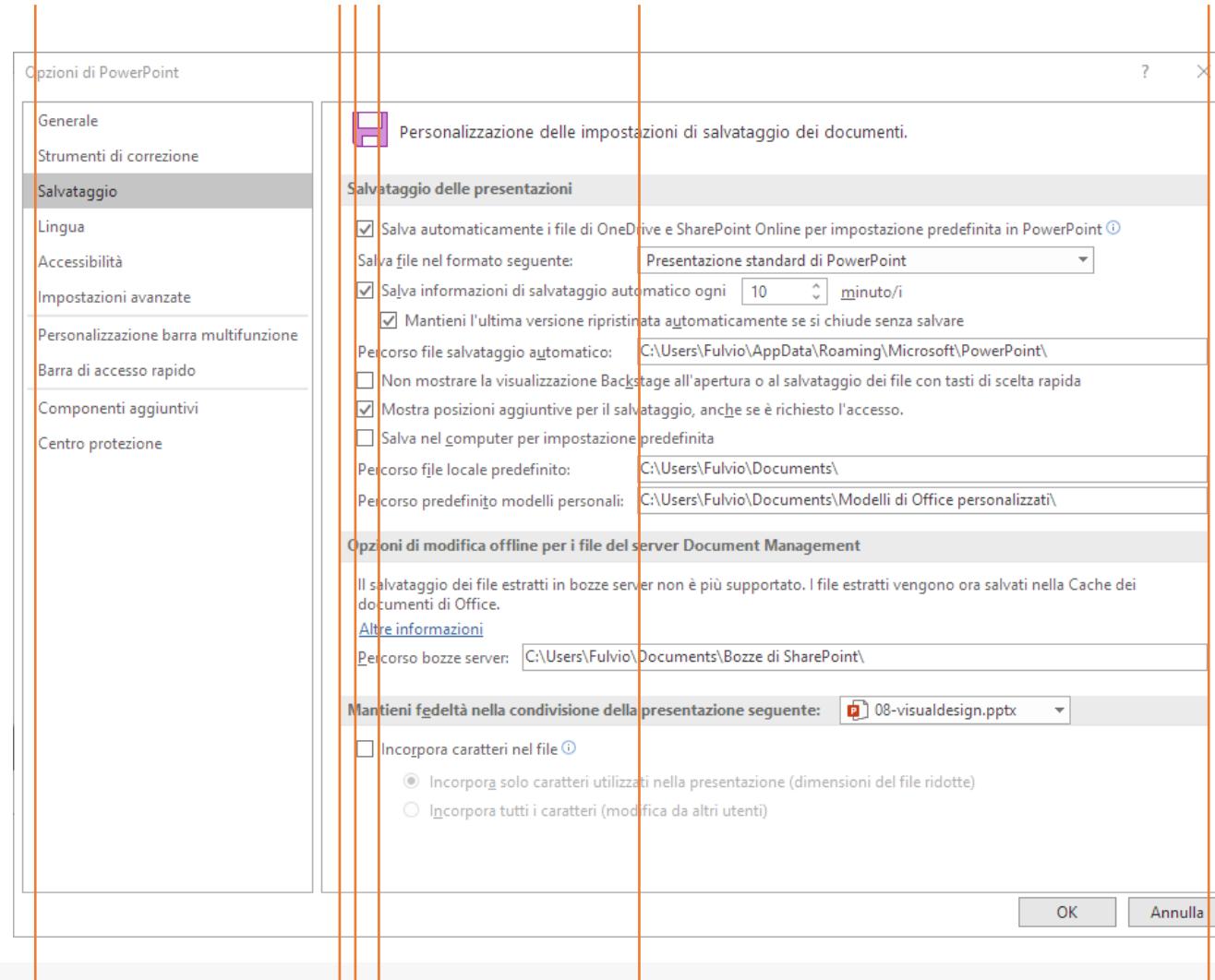
# Grids and Alignment

Exploiting grouping and alignment to convey content, at different levels

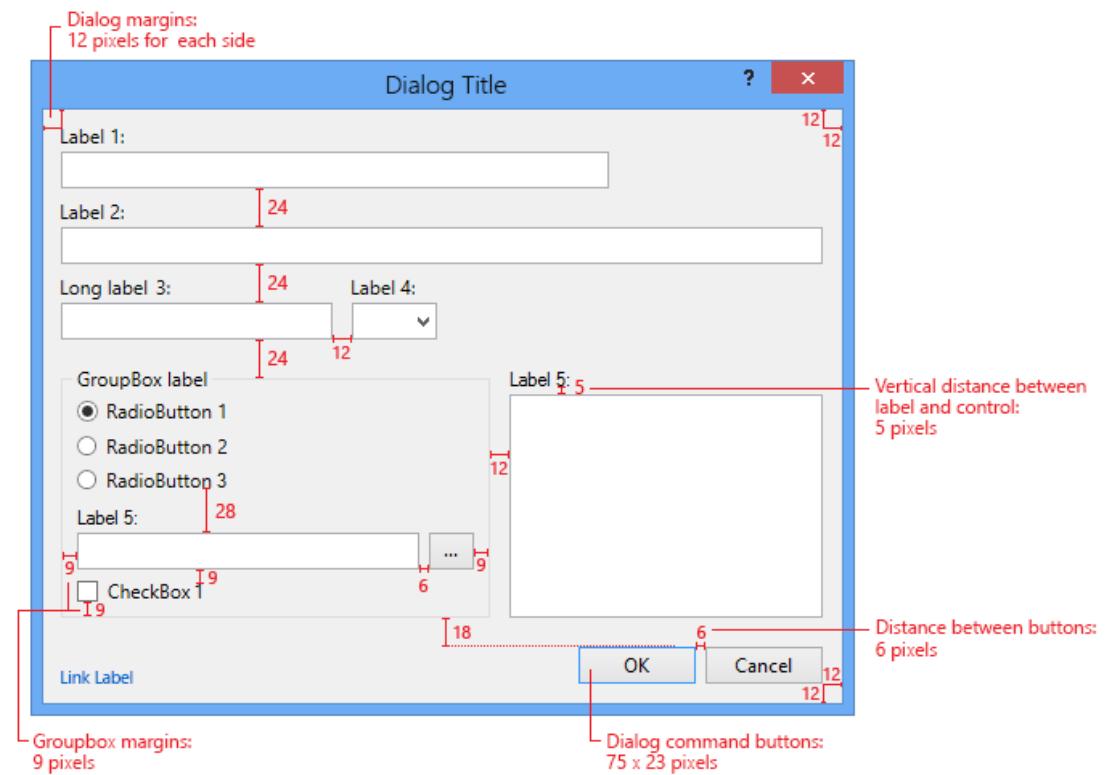
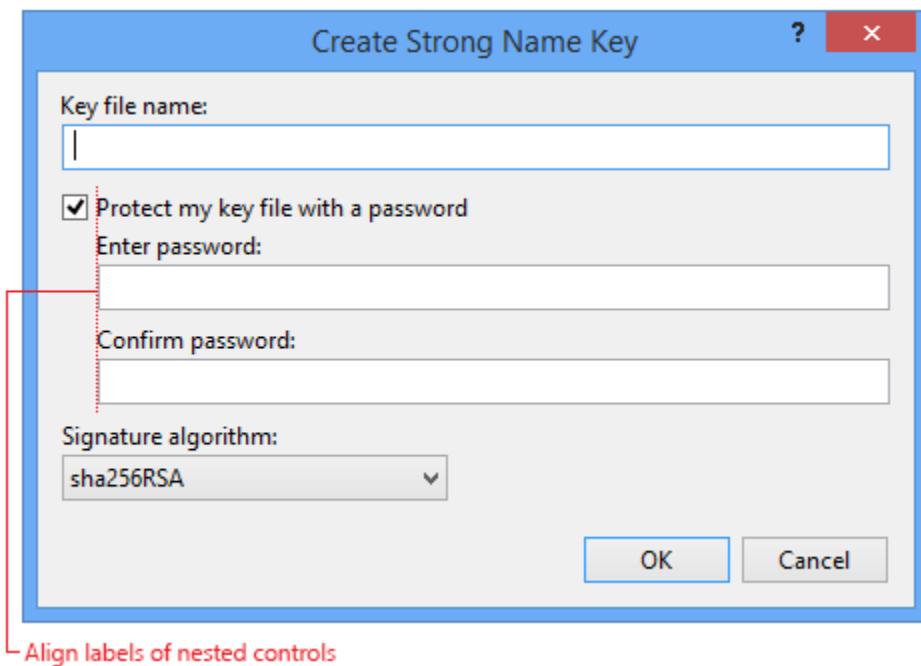
# Alignment

- 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>

# 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.

# 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

The image shows four screenshots of a website's homepage, illustrating a responsive grid layout. The layout consists of a main content area and a sidebar.

**Main Content Area:**

- Section 1:** A large heading "Learn to Create Websites" followed by a brief introduction and a "Get started today" button.
- Section 2:** A grid of six items: HTML, CSS, JavaScript, Bootstrap, PHP, and SQL. Each item has a brief description and a "Learn More" button.
- Section 3:** A grid of six items: HTML, CSS, JavaScript, Bootstrap, PHP, and SQL. Each item has a brief description and a "Learn More" button.
- Section 4:** A grid of six items: HTML, CSS, JavaScript, Bootstrap, PHP, and SQL. Each item has a brief description and a "Learn More" button.

**Sidebar:**

- Section 1:** A "Learn to Create Websites" section with a brief introduction and a "Get started today" button.
- Section 2:** A grid of six items: HTML, CSS, JavaScript, Bootstrap, PHP, and SQL. Each item has a brief description and a "Learn More" button.
- Section 3:** A grid of six items: HTML, CSS, JavaScript, Bootstrap, PHP, and SQL. Each item has a brief description and a "Learn More" button.
- Section 4:** A grid of six items: HTML, CSS, JavaScript, Bootstrap, PHP, and SQL. Each item has a brief description and a "Learn More" button.

A yellow callout box highlights the first section of the main content area, showing the HTML code for creating a responsive grid row and column structure.

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

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

# 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)

The screenshot shows the Stack Overflow homepage with a grid layout. The left column, outlined in orange, contains the navigation menu with links like Home, PUBLIC, Tags, Users, Jobs, TEAMS, and a sidebar for First 25 Users Free. The central column, also outlined in orange, displays the 'Top Questions' section with a list of 15 questions. The right column, outlined in orange, contains related content sections such as 'Blog', 'Featured on Meta', 'Custom Filters', 'Watched Tags', 'Ignored Tags', and 'Hot Network Questions'. Each question in the center grid has a small orange border, and each section in the right grid has a small orange border.

# Example (2019)

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

# 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 Best Practices

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

# Colors

The most dangerous weapon in your toolset

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

# LINGS CARS.com

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

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

**Stop**

**BETTY**

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

**4 News**

**PUBLIC PICCADILLY**

**Leader of the Pack**

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

**BREXIT RISK FREE!** February 2017 **theguardian**

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

**MY BEST SELLING CAR LEASING DEALS!**

**500 IDEAS!**

**NICOLE...PAPA!**

**MEGA-HATCH!**

**Cars A-Z**

**ABARTH**

**124 Spider Convertible**  
595 Hatchback  
595 Convertible  
695 Convertible

**ALFA ROMEO**

**Giulia Saloon**  
**Giulietta**  
**Stelvio Estate**

**AUDI**

**Car Leasing Online Service Response Times**

**75 CUSTOMERS IN 'PROPOSAL'**

**129 CUSTOMERS IN 'ORDER'**

**0:03 07**

**Renting**

**129 CUSTOMERS IN 'DELIVERY'**

**0:05 03**

**0:03 07**

**0:05 03**

**Stop**

**1 DELIVERY TODAY**

**Ford Ka+ to Arthur ATTLEBOROUGH, NR17**

**21 DELIVERIES IN LAST WEEK**

**Renault Captur to Cath PONTEFRACT, 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 MILTON KEYNES, MK8**

**Seat Leon to Ben BARNSLEY, 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 WYHONDHAM, NR18**

# Colors

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

# Colors: Suggestions

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

# Example

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

**Left Screenshot (Original Design):**

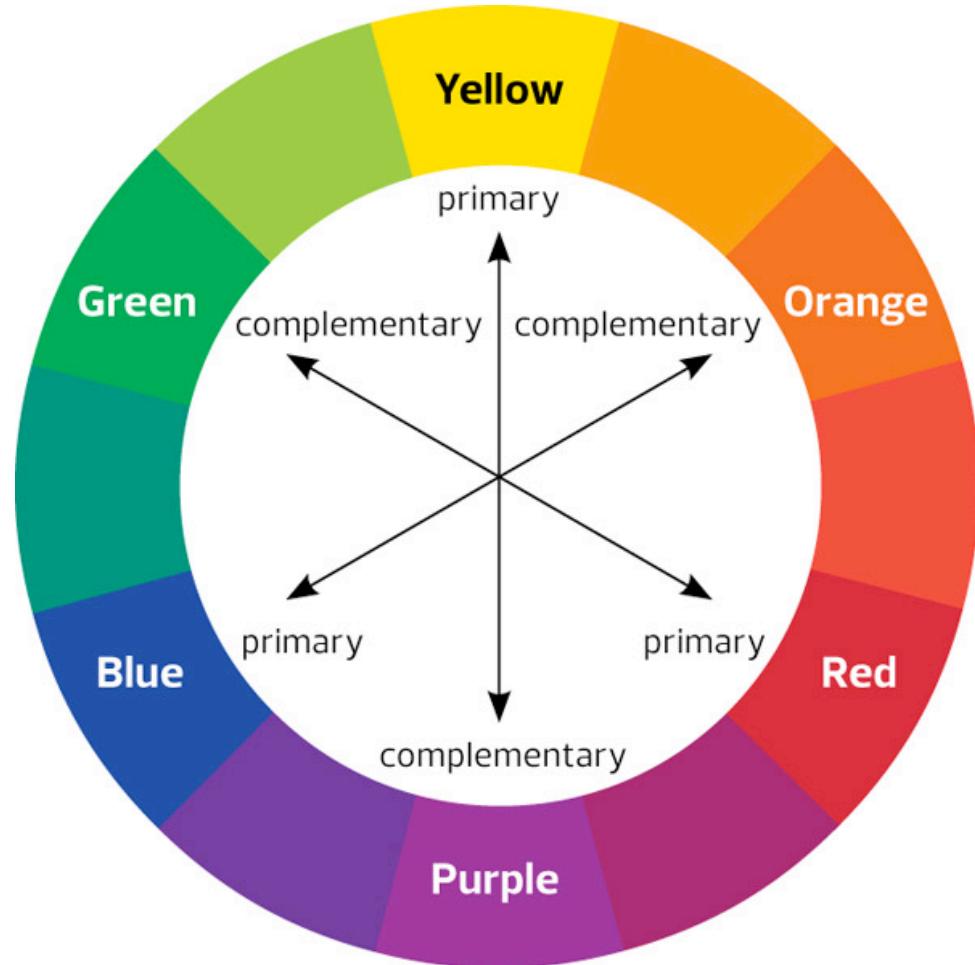
- Top Questions:**
  - Loop backward in array of objects (2 answers, 14 views)
  - Chain of responsibility - handling more than one request (1 answer, 19 views)
  - How to change internal function in MendelianRandomization function in order to change decimal places in output? (0 answers, 7 views)
  - How can 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)
- Hot Network Questions:**
  - Effects of longer and higher stem on rider position/comfort and handling (0 answers, 10 views)
  - Does Enthral make targets require perception checks to perceive anything other than the caster? (0 answers, 5 views)
  - How to draw a double napped cone with TikZ (0 answers, 5 views)
  - Fantasy story about a knife that can cut holes to other dimensions (0 answers, 8 views)
  - Read the Memories of a Dead Man's Head (0 answers, 5 views)
  - Is it acceptable to mark off or comment on someone's presentation based on their non-standard English accent? (0 answers, 10 views)
  - How to reduce thousand of faces of an already low poly object (0 answers, 5 views)
  - Is it against a Terms of Service/End-User License (0 answers, 10 views)

**Right Screenshot (Modified Design):**

- Top Questions:** The layout and content are identical to the left screenshot.
- Hot Network Questions:**
  - Effects of longer and higher stem on rider position/comfort and handling (0 answers, 10 views)
  - Does Enthral make targets require perception checks to perceive anything other than the caster? (0 answers, 5 views)
  - How to draw a double napped cone with TikZ (0 answers, 5 views)
  - Fantasy story about a knife that can cut holes to other dimensions (0 answers, 8 views)
  - Read the Memories of a Dead Man's Head (0 answers, 5 views)
  - Is it acceptable to mark off or comment on someone's presentation based on their non-standard English accent? (0 answers, 10 views)
  - How to reduce thousand of faces of an already low poly object (0 answers, 5 views)
  - Is it against a Terms of Service/End-User License (0 answers, 10 views)

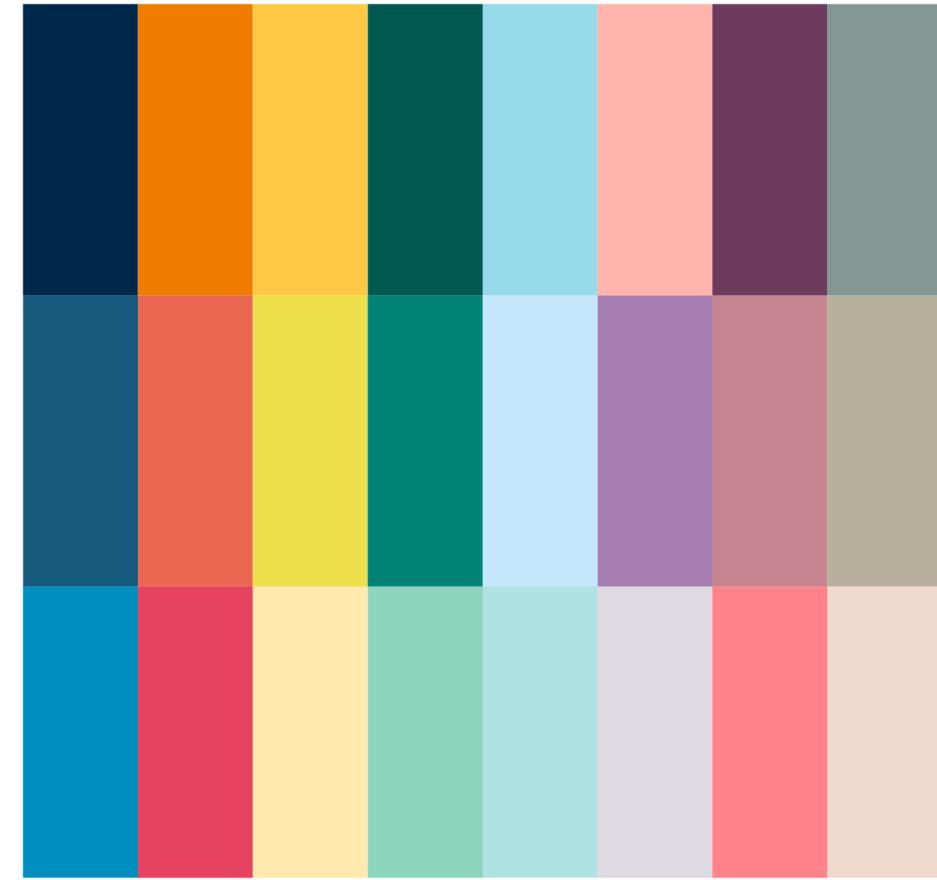
# The Color Wheel

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



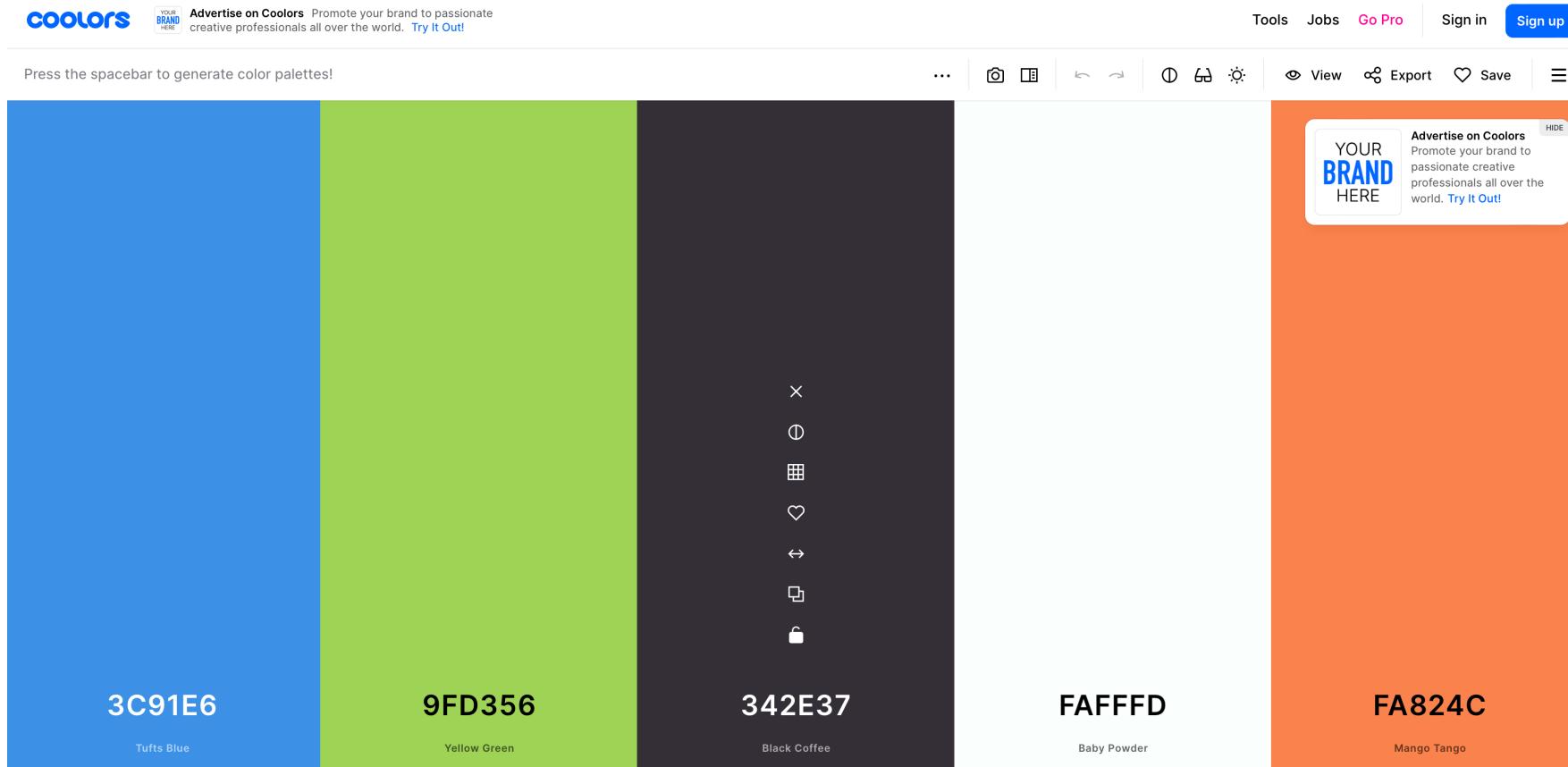
# Palettes - PoliTo

GERARCHIA COLORI



[https://www.politocomunica.polito.it/en/corporate\\_image/brand\\_and\\_visual\\_identity](https://www.politocomunica.polito.it/en/corporate_image/brand_and_visual_identity)

# Palettes Generator



<https://coolors.co>

# ColourLovers

COLOURLovers Browse ▾ Community ▾ Channels ▾ Trends ▾ Tools ▾

Search palettes... Palettes Create Sign Up Log In

Adobe PALETTON envato Digital Marketplace

## 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 PEAK

SadieSews on Vengeful 225  
Really nice look, with this! (:

MisteryMoments on CoffeeBerries  
I love your Template Design Style.. thanks

renniecat on Cold Night  
Beautiful!

ColdenHuesinBlue 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

View More

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

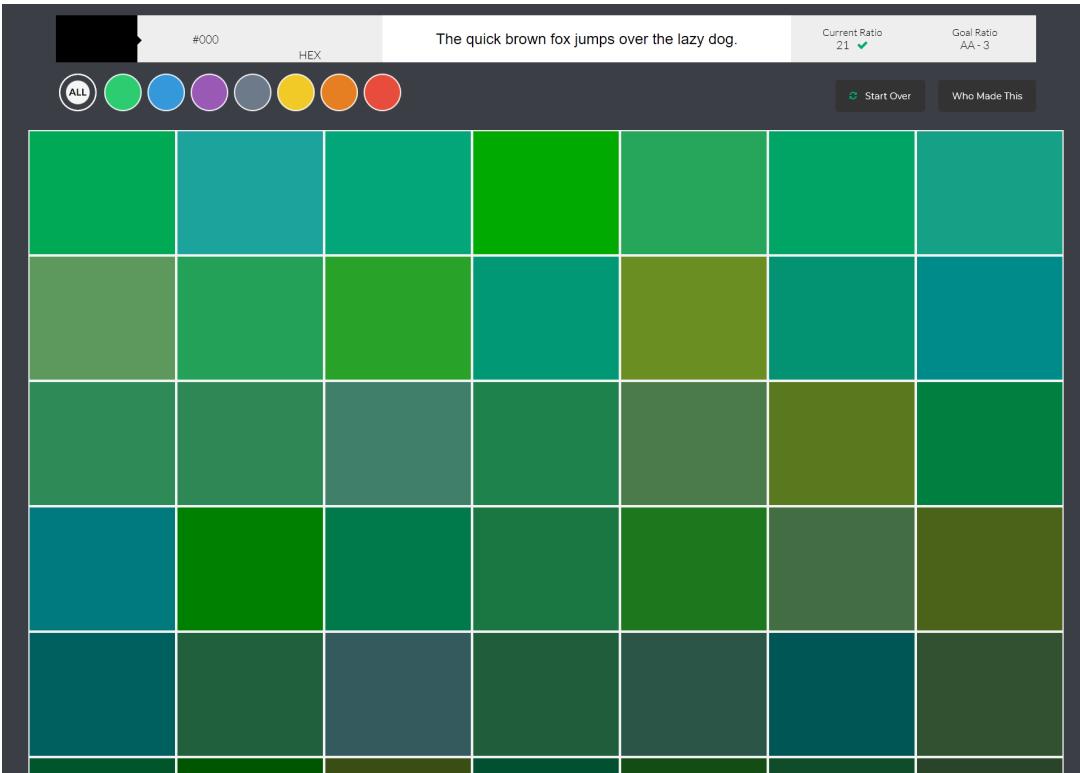
Colors, Human Growth Hormones, and Creativity 0 Comments

PALETTES Create + PATTERNS Create + COLORS Create +

Nineteen by Júlia Freire 0 garden palette 2 by macarver 0 PodCasting by 3sisters 0 light gray purple by macarver 0 slate purple by macarver 0

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

# Color Contrast



<http://colorsafe.co/>

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

Google Chrome Palette

# Example

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

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

Legenda turni prenotazione

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

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

A partire da giorno 15 luglio 2020, è consentito l'uso della seguente Sala Studio della Sede Centrale:  
- Sala studio al Secondo Piano di C.so Castelfidardo 39, codice locale TO\_CIT11\_XP02\_001

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

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

# **Reading and Navigating**

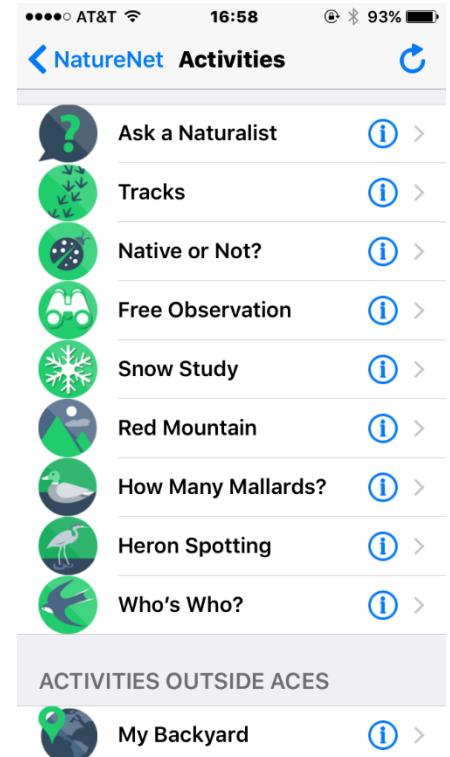
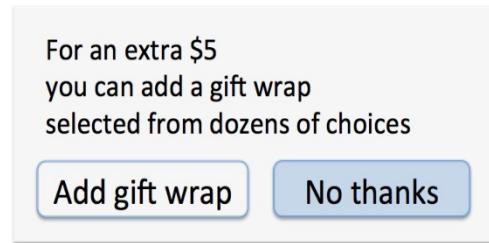
«Informavores» must quickly find the information they need

# Navigation

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

# Navigation By Selection

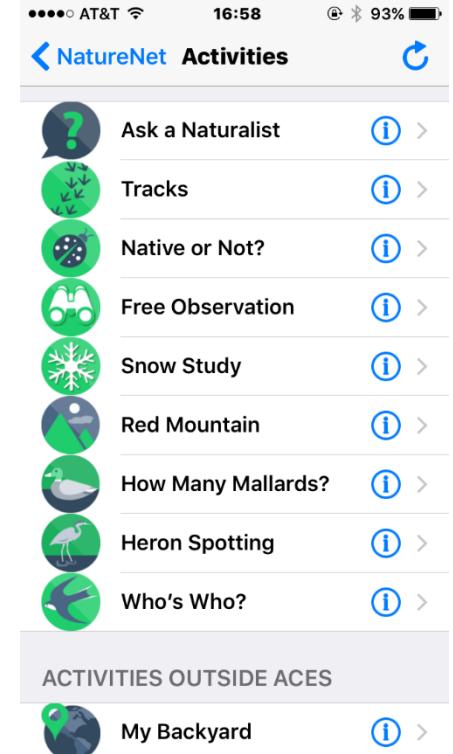
- Menu bars, pop-up menus, toolbars, palettes and ribbons
- Shortcuts and gestures for rapid interaction
- Long lists
- Linear versus simultaneous presentation



# Navigation By Selection

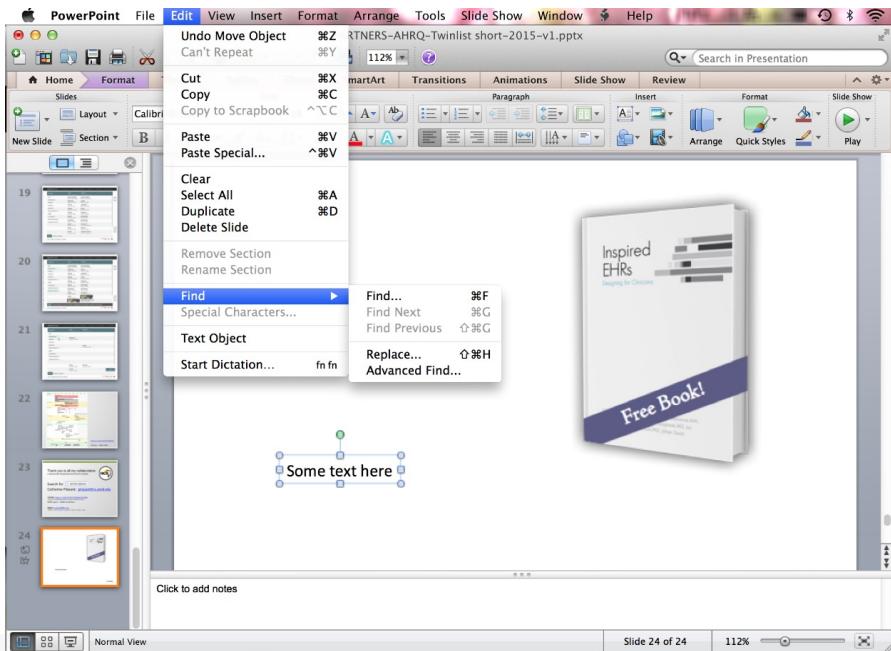
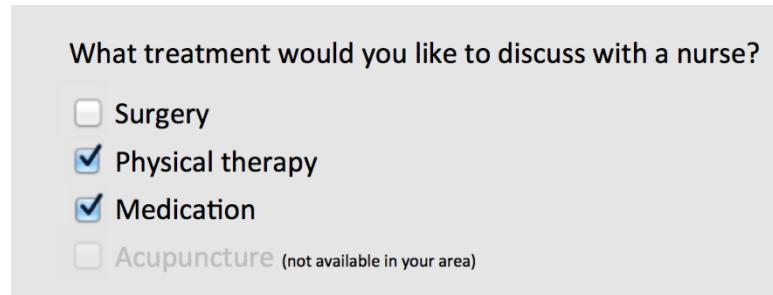
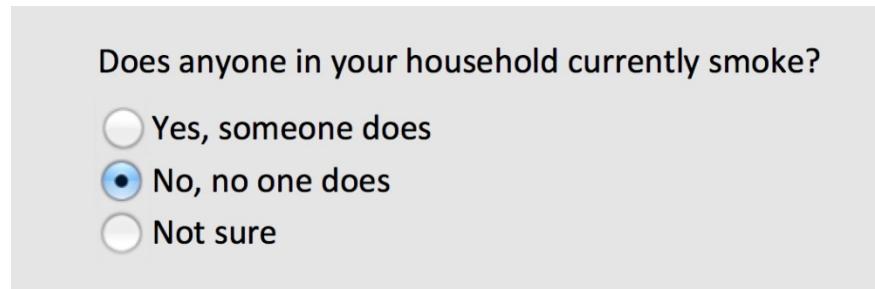
- Menu bars, pop-up menus, toolbars, palettes and ribbons
- **Shortcuts and gestures for rapid interaction**
- Long lists
- Linear versus simultaneous presentation

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



# Navigation By Selection

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



# Menus

The screenshot shows the official NASA website homepage. At the top, there is a dark header with the NASA logo and several navigation links: Missions, Galleries, NASA TV, Follow NASA, Downloads, About, and NASA Audiences. Below the header is a search bar. The main content area features a large video player showing two astronauts in a space station module. To the right of the video, there is a news article about a Mars-related event. Below the video, there are several smaller news cards, each with a thumbnail image and a title. Some of the titles include "One-Year Crew Halfway There", "Image of the Day Good Morning From the International Space Station", "Space Travel New Green Propellants Complete Milestones", and "The Real Martians". A sidebar on the right contains a "Tweets" section with a tweet from NASA about a 3D printed habitat challenge. At the bottom of the page, there is a "MORE STORIES" button and a footer with links to National Aeronautics and Space Administration and Brian Dunbar.

The screenshot shows the NASA TV website homepage. It has a similar dark header with the NASA logo and navigation links. The main content area is dominated by a large video player showing the same two astronauts in the space station module. Below the video, there are two more news cards with thumbnails and titles: "One-Year Crew Halfway There" and another image of astronauts. The overall layout is cleaner than the main NASA site, emphasizing video content.

# Content Organization

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

# Tree-like Content Organization

▼ Help      Wish List      Gift Registry      Classes & Events       Store Locator       0      Checkout

Welcome to REI! | [Log In](#) or [Register](#)

**FREE SHIPPING** With \$50 minimum purchase.

**REI** Find great gear and clothing 

**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  
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Trainers

**Bike Components**  
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Tires, Tubes and Wheels  
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 Waterproof (15)  
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**▼ Brand**

[Clear](#)  
 686 (6)

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

 (9)  
REI Sahara Convertible Pants - Girls'  
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ONLY AT REI ONLY AT REI ONLY AT REI

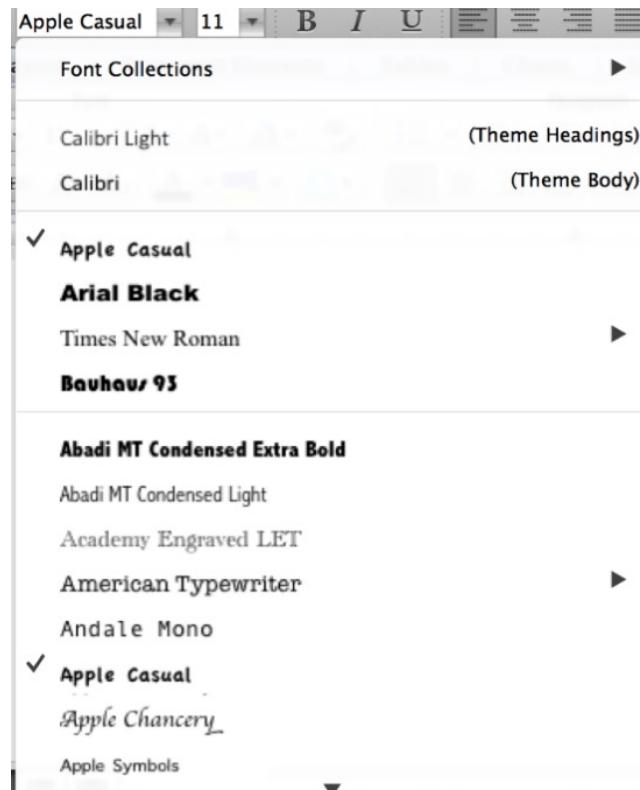
User Experience Design

# 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 [ $\geq 30$ ]
- 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)

# 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



# Icons

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



# Links

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

# Forms

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

**Create an IEEE Account** ? X

\* 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

\* 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

# 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=PLLssT5z\\_DsK\\_nusHL\\_Mjt87THSTIgrsyJ](https://www.youtube.com/playlist?list=PLLssT5z_DsK_nusHL_Mjt87THSTIgrsyJ)
- Most of the slides are adapted from those used in the "Human Computer Interaction" course of Politecnico di Torino
  - <http://bit.ly/polito-hci>



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