

Design Languages and Experience Design

SWE 432, Fall 2016

Design and Implementation of Software for the Web



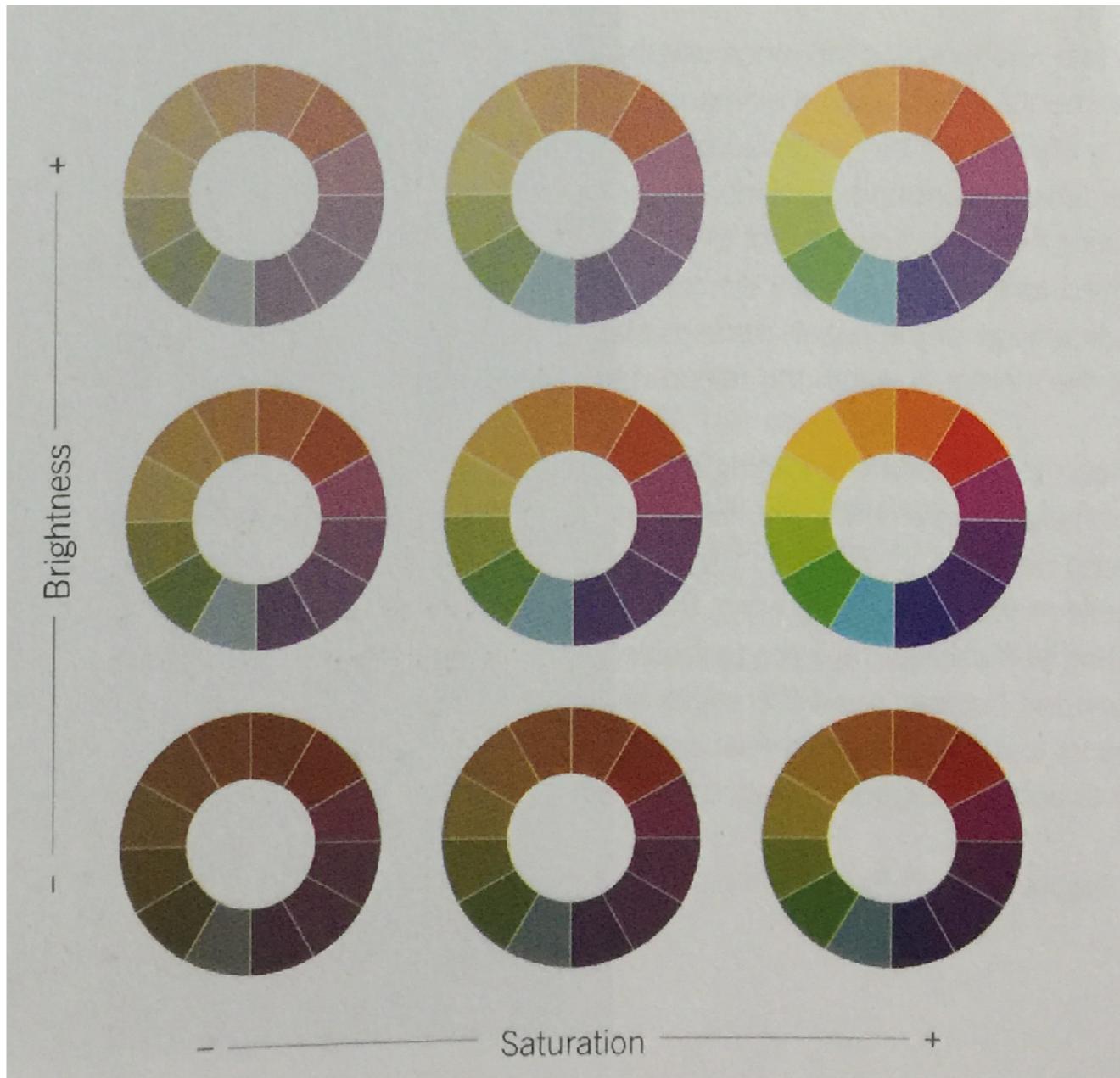
Today

- What (exactly) is, and how can one make effective color design choices?
- What is a design language?
- What are design values, and how do they influence the design process?
- Course evaluations.
- Next time: Final review

Color

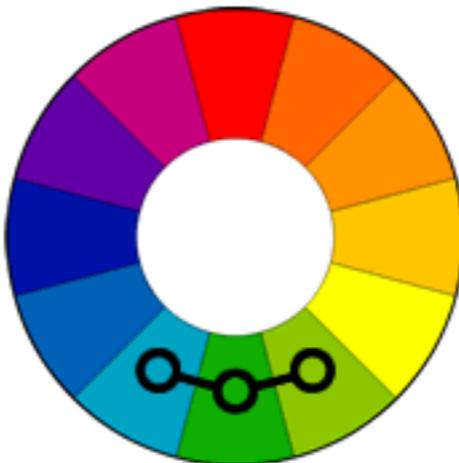
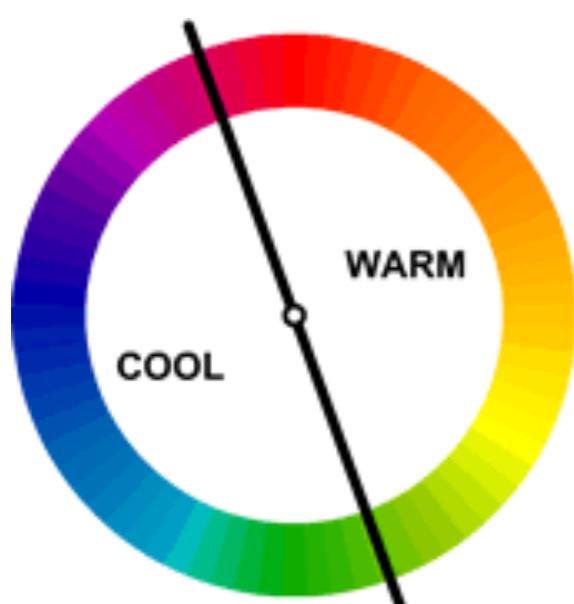
What is color?

- Hue: What we usually see as color
- Luminance: Amount of light entering eye
- Brightness: Perceived amount of light
 - (blue appears brighter than white)
- Saturation: Purity of color

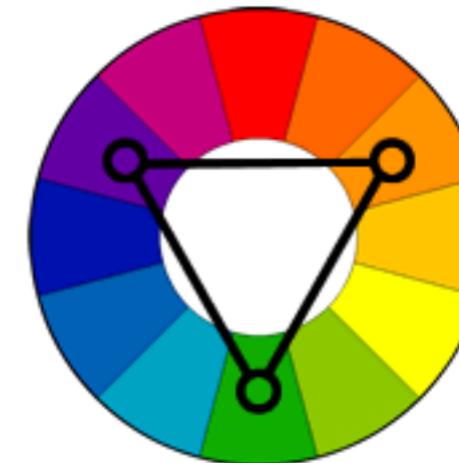


Color combinations

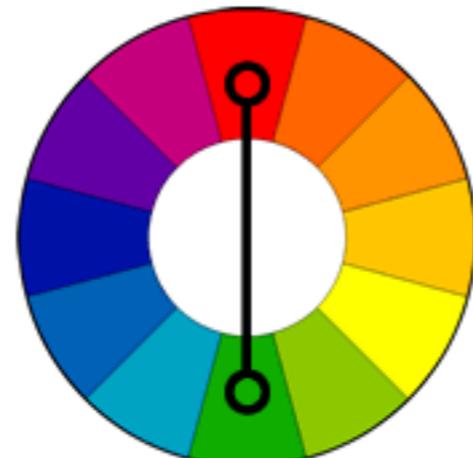
- Analogous color combinations - adjacent in color wheel
- Triadic color combinations - at corner of



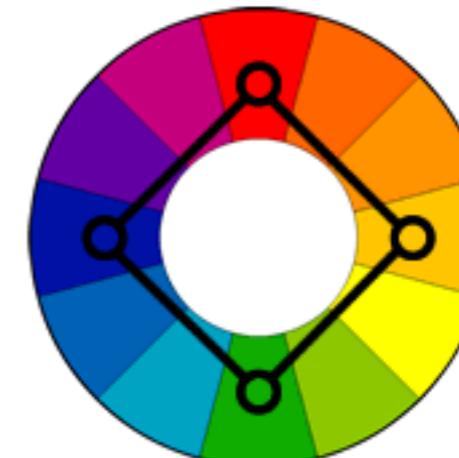
Analogous



Triadic



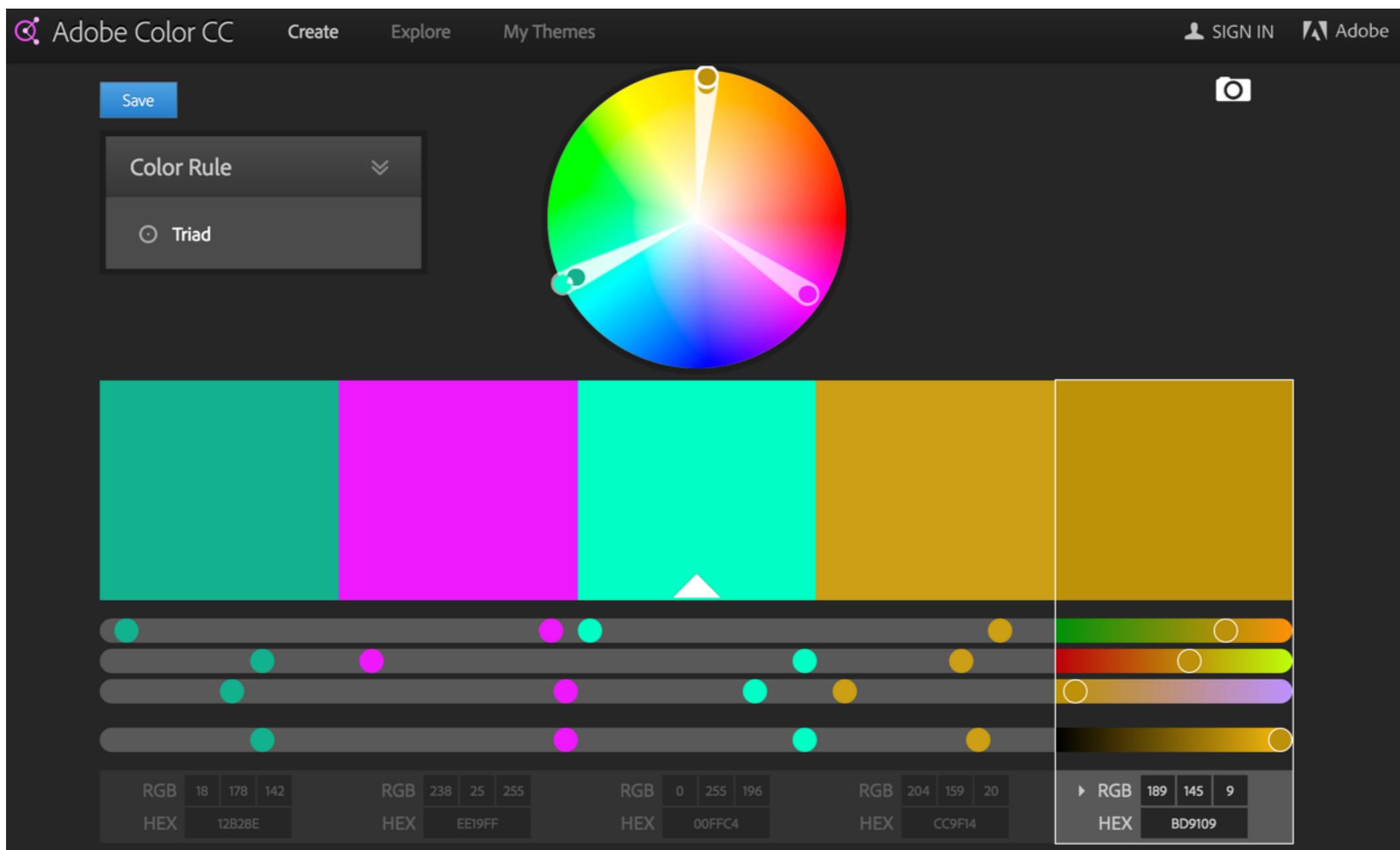
Complementary
High contrast, vibrant



Quadratic

Tools for finding color combinations

- Interactive tools can help you find color combinations
 - <https://color.adobe.com/>



Guidelines on color use

- Number of colors - use color conservatively, limiting to ~5 colors; redundantly encode info to support color-blind
- Use appropriate color combinations
- Use warmer colors for foreground & cooler colors for background
- Use saturated colors to draw attention & for excited
- Use desaturated, dark colors for serious & professional

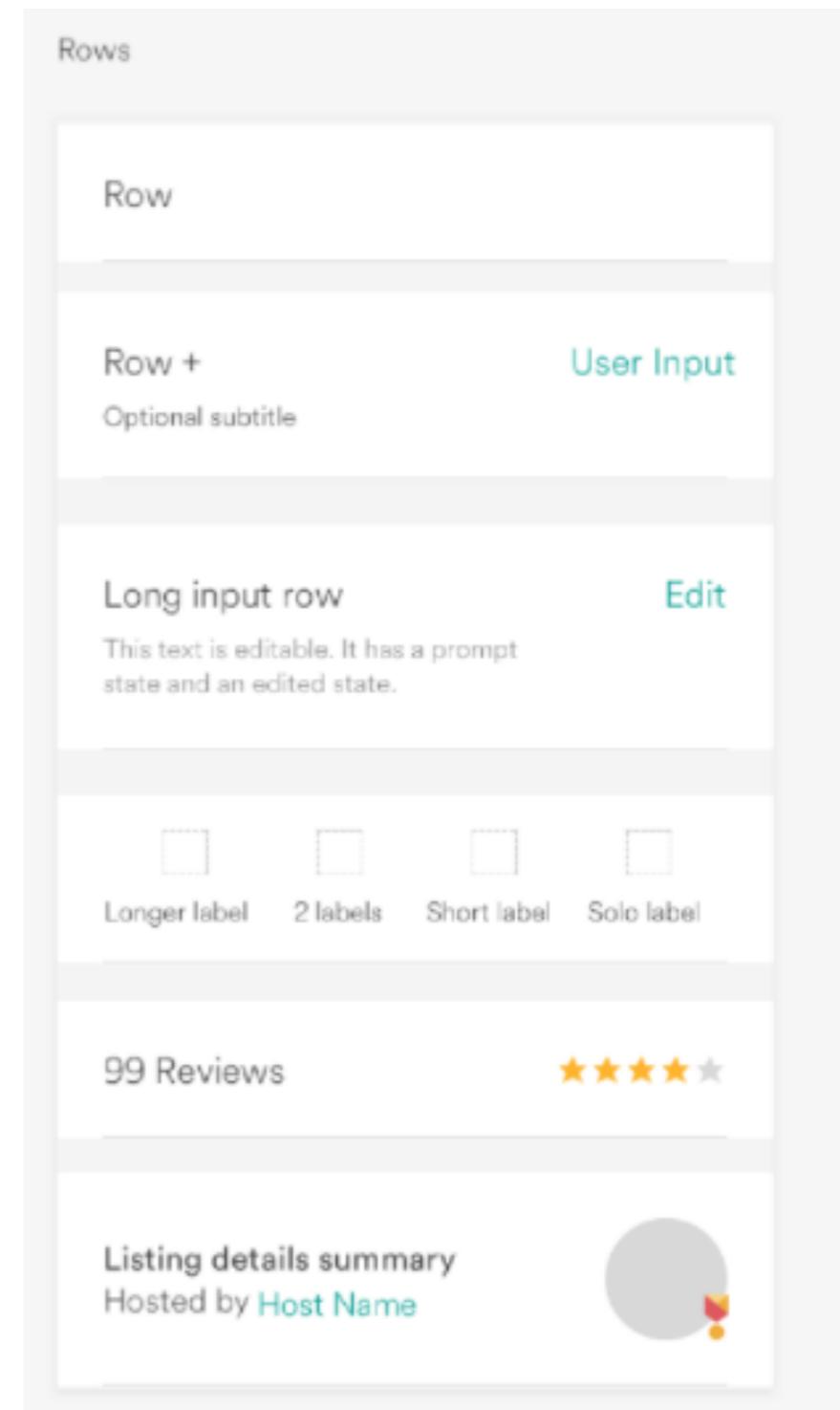
Guidelines on color use

- Avoid highly saturated opponent colors at the same time
- Older users need more brightness
- Do not require color discrimination in small areas
- Use color for relative differences, but not numeric information
- Use greater intensity for hues that indicate larger amounts

Design Language

Design language

- Many, **many** choices about visual variables and syntax of composition
 - How do you ensure choices are made consistently across web app?
- Solution: design language
 - Describes how to express ideas and concepts in the interface
 - May be communicated through Human Interface Guideline documentation
 - (Example of consistency and standards)



Example: Elements, Google 2004

Images Groups News Froogle m
All sizes - Large - Medium - Small view
1 2 3 4 5 6 7 8 9 10
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Move to Inbox Search News I'm Feeling L Go Archive action

Invite 7 frie New Featu New! Never lose ai act now

Example: Syntax, Google 2004

task

Find results
with **all** of the words
with the **exact phrase**
with **at least one** of
without the words



Results Window

C

Loading...

placeholder

list

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- (**unknown sender**) (**no subject**) - Received: from image
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- Thomas LaToza » FW: Bb F04-17651: My apologies
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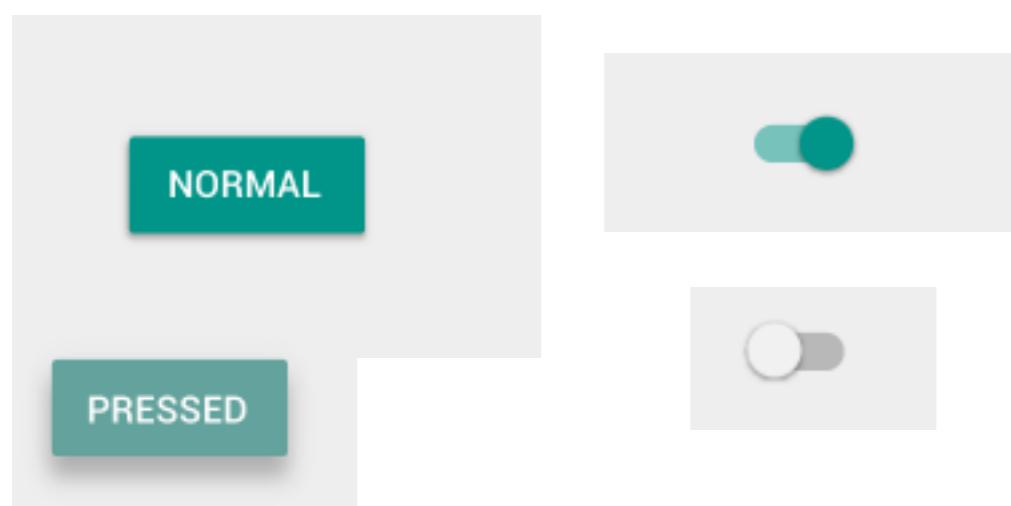
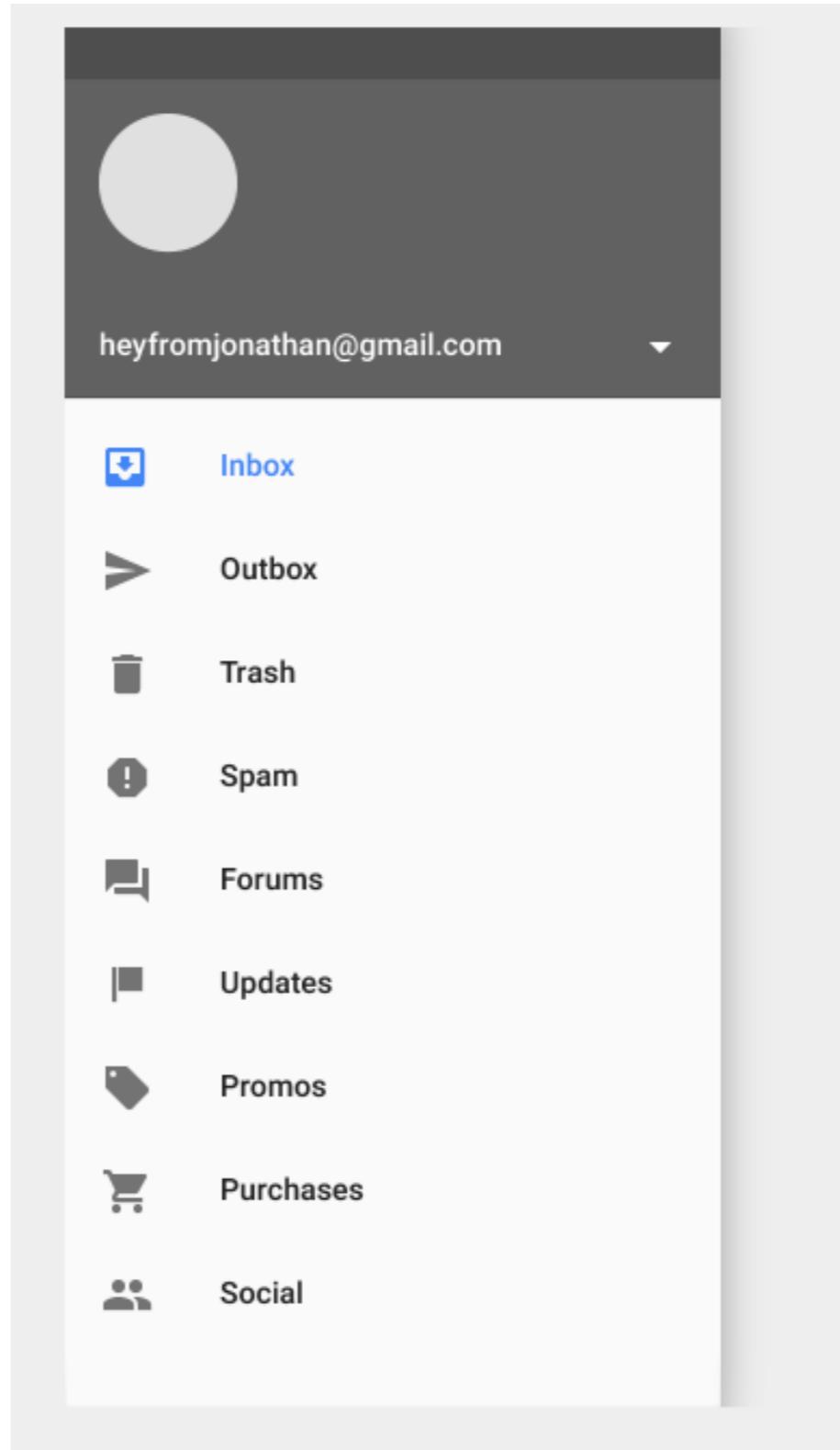
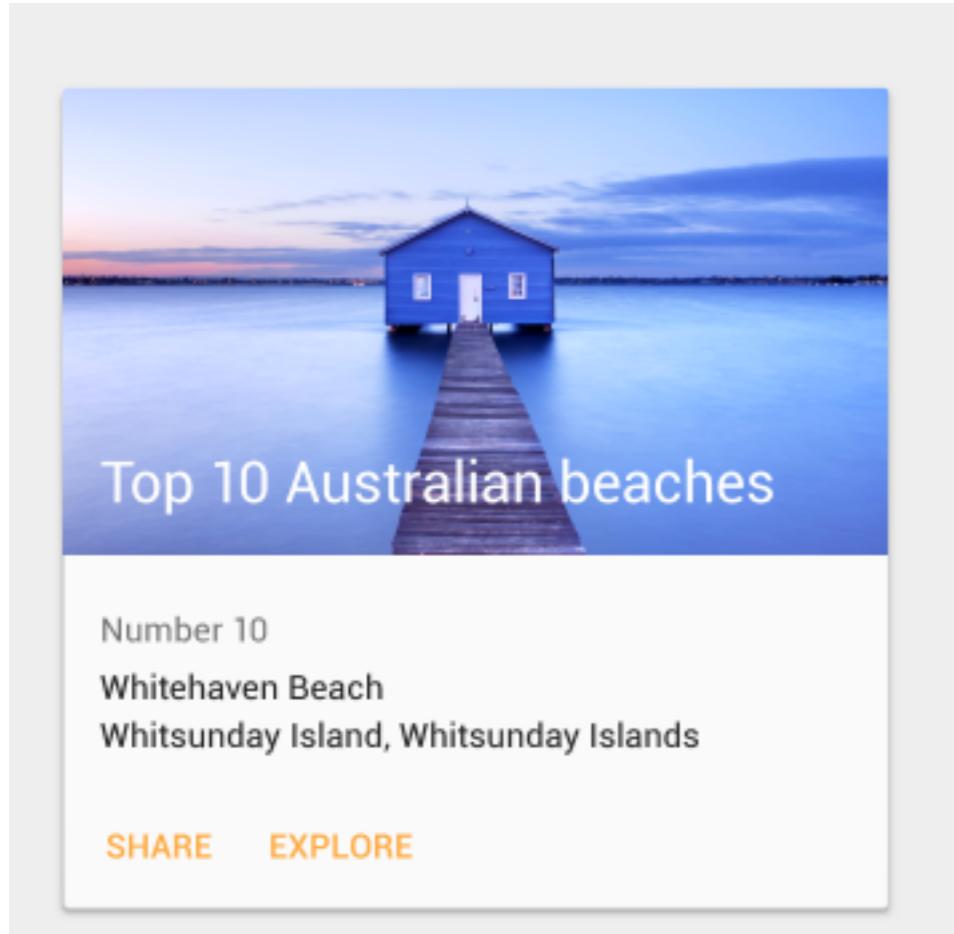
CMU students prepare for Solar Decathlon
The Tartan, PA - Oct 18, 2004
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Rocker to Rally for Kerry at CMU
KDKA, PA - Oct 18, 2004
Pittsburgh (KDKA) For the second time in six months, singer Jon Bon Jovi will perform in Pittsburgh for a political cause. The New ...

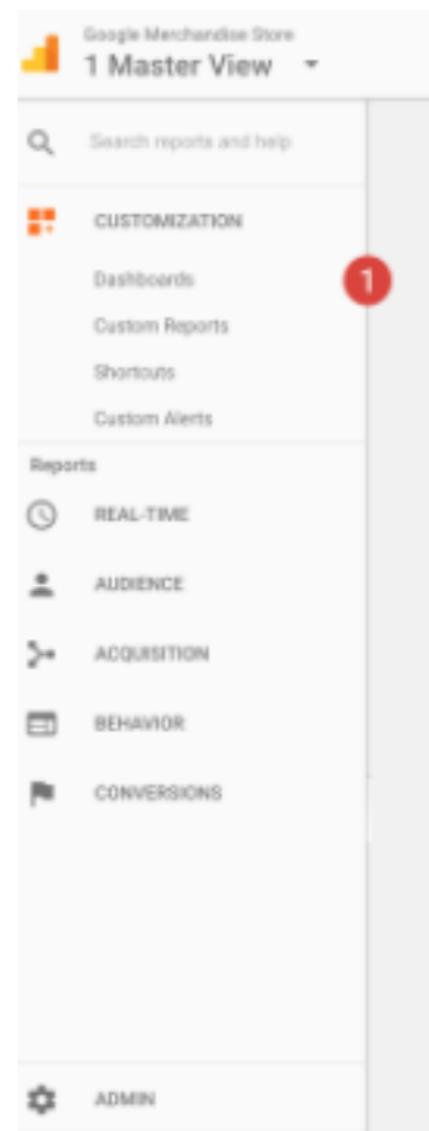
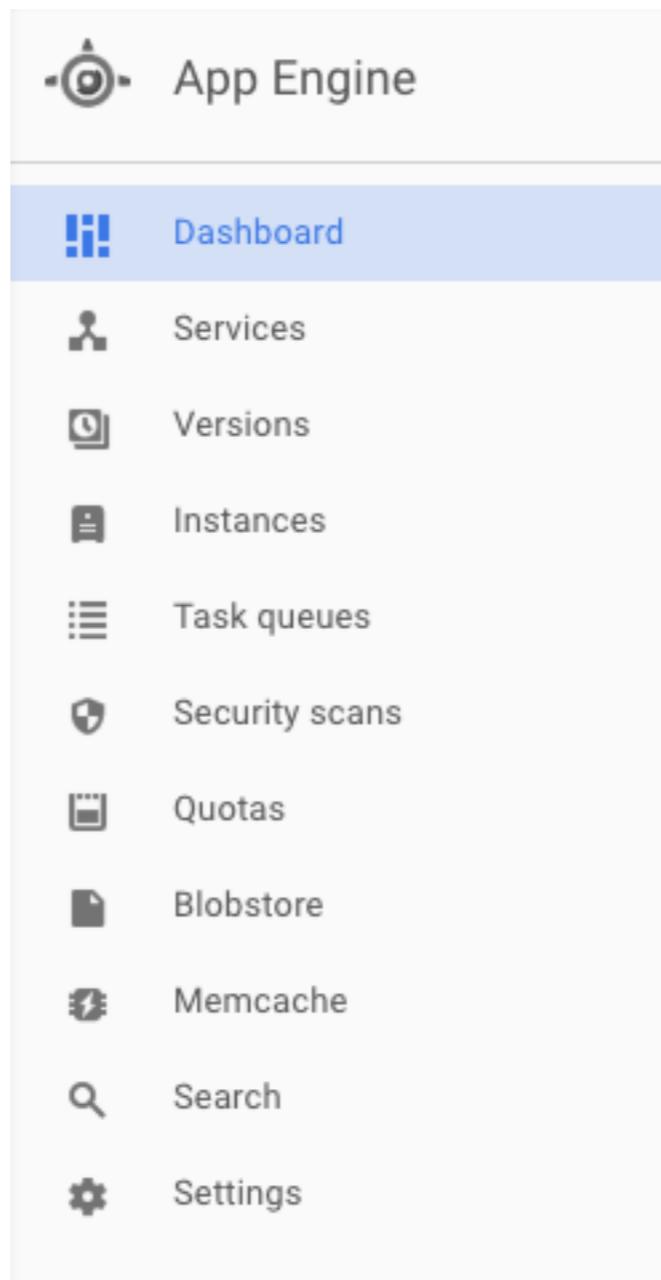
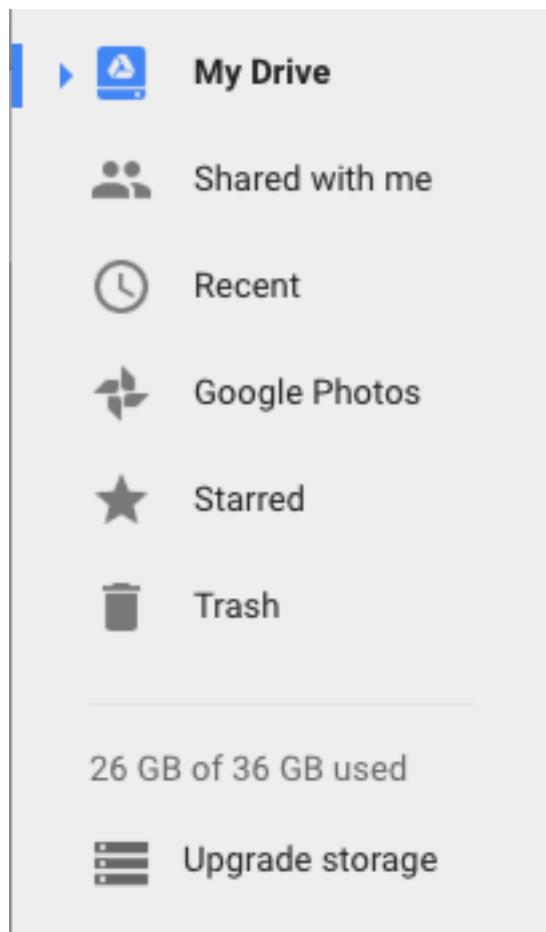
Video From The CMU Robotics Institute Showcase
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mpost4 writes "This last week the CMU Robotics Institute showed off some of the stuff they were doing. They were showing the new stuff they were working on. ...

Northern Illinois Rolls by CMU, 42-10
Goliath.com - Oct 18, 2004
... The win dropped CMU's record to 2-4 for the season and 1-2 in MAC action. NIU is now 4-0 in the league and

Examples: Google 2016



Examples: Google 2016



Examples: IBM



Examples: IBM

	Domain	Instances	Jobs	Hosts	PEs	Operators	Streams
	Streams1	> 4 >	96 >	7945 >	5671 >	5671 >	10 000+



Alerts

- PE 157 failed
- Service SWS failed
- Host streams8.svl.ibm.com failed
- Stream connection broken
- Stream "Wattage filtered" congested
- Host streams8.svl.ibm.com overloaded
- Stream "Wattage filtered" congested
- Host streams8.svl.ibm.com overloaded
- Stream "Wattage filtered" low on memory
- Host streams8.svl.ibm.com overloaded

Streams

- Wattage
- SG Filter
- Zero usage
- Cust high val
- Kkz
- Time sequence
- NE region usage
- SE region usage
- SW region usage
- Scram

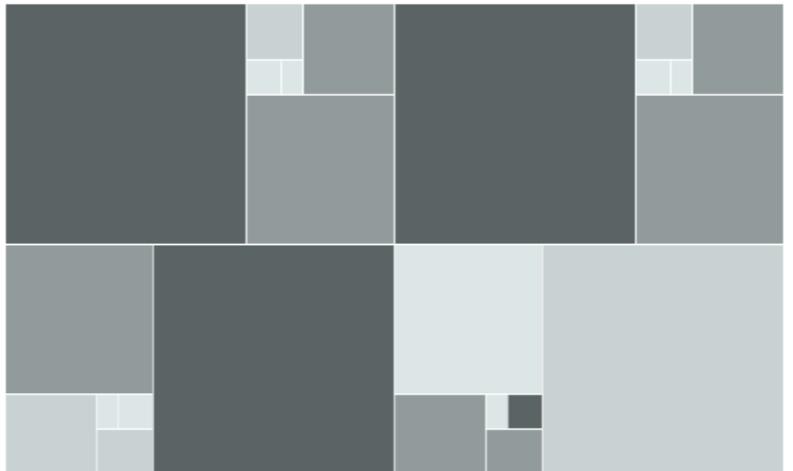
Operators



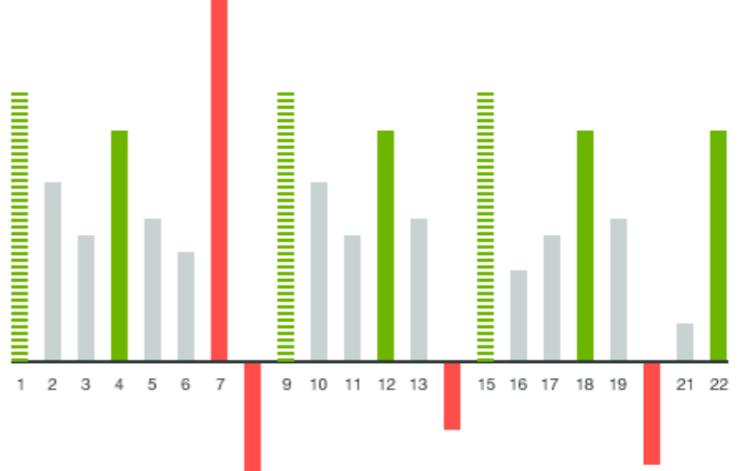


Jobs

Height CPU Width CPU Color Health



Hosts

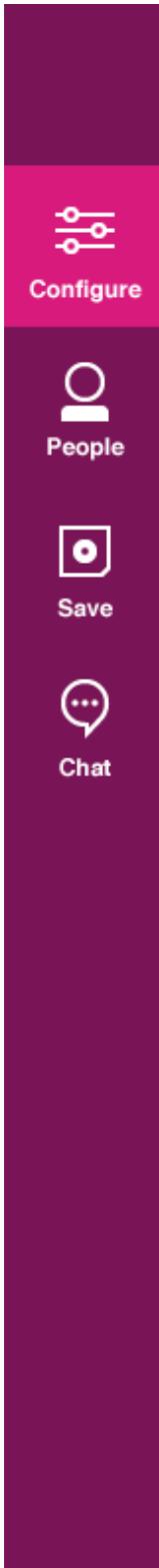


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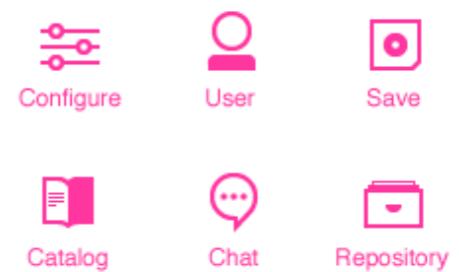
Legend: Failed (Red), Broken (Green), Congested (Blue)

Examples: IBM

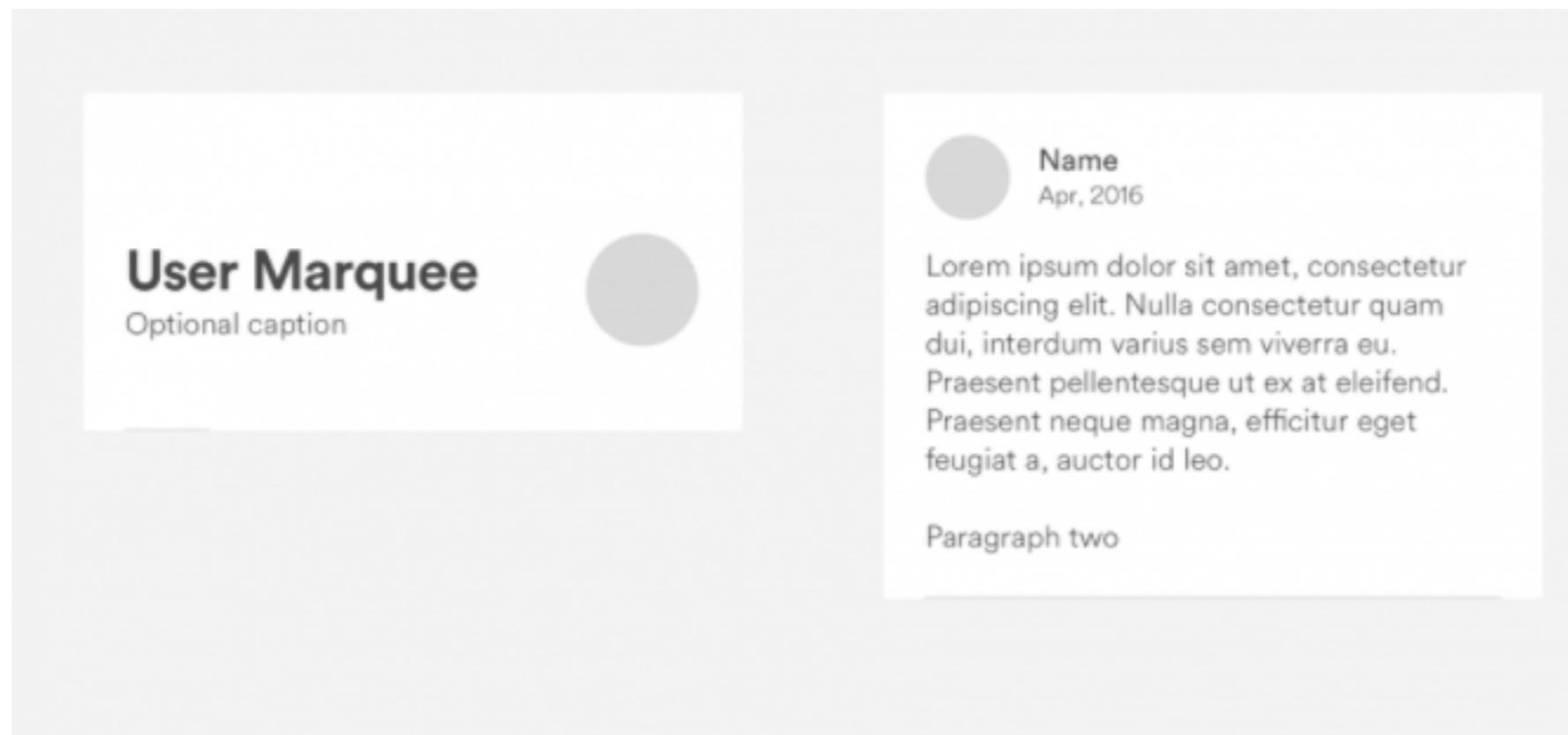
Application data



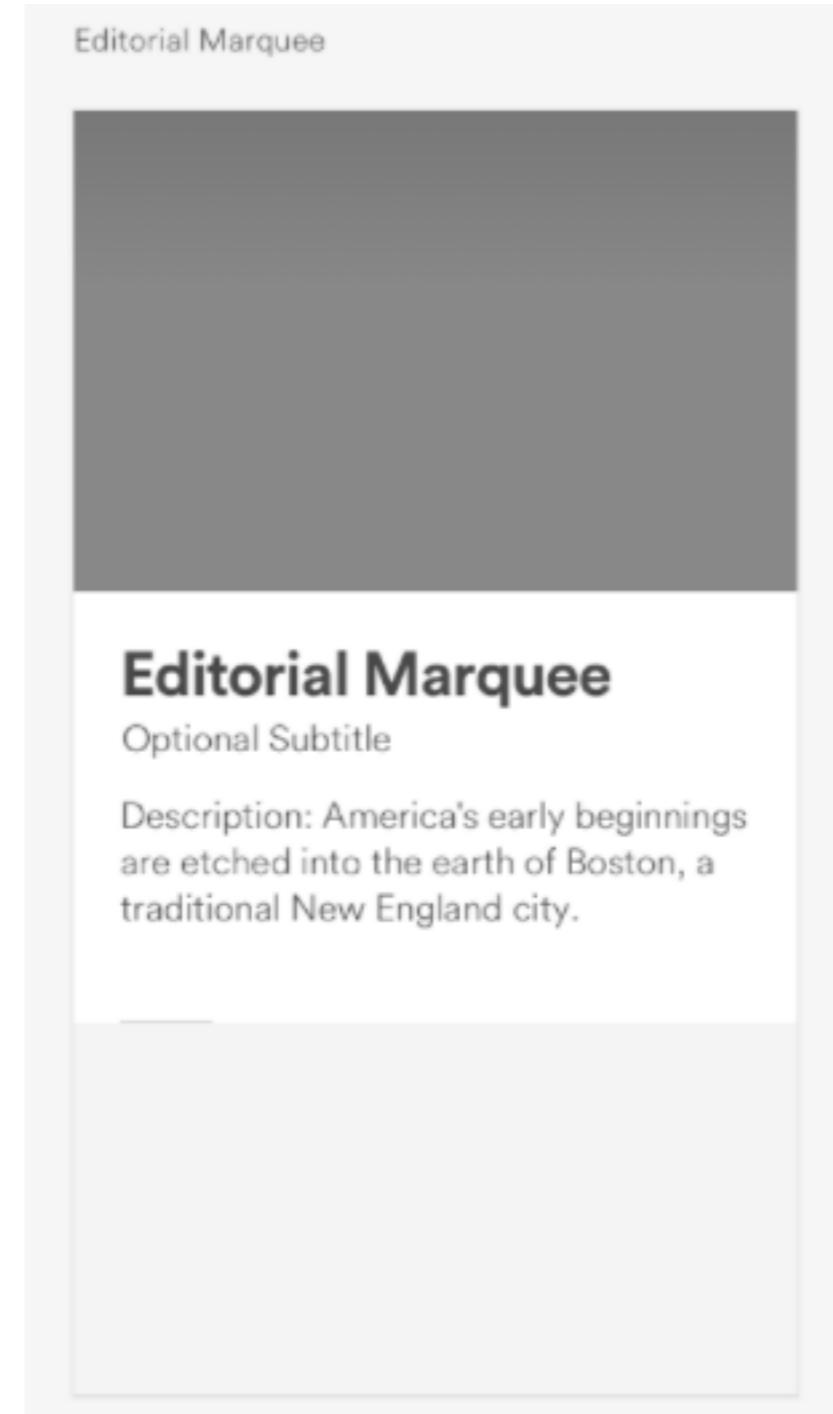
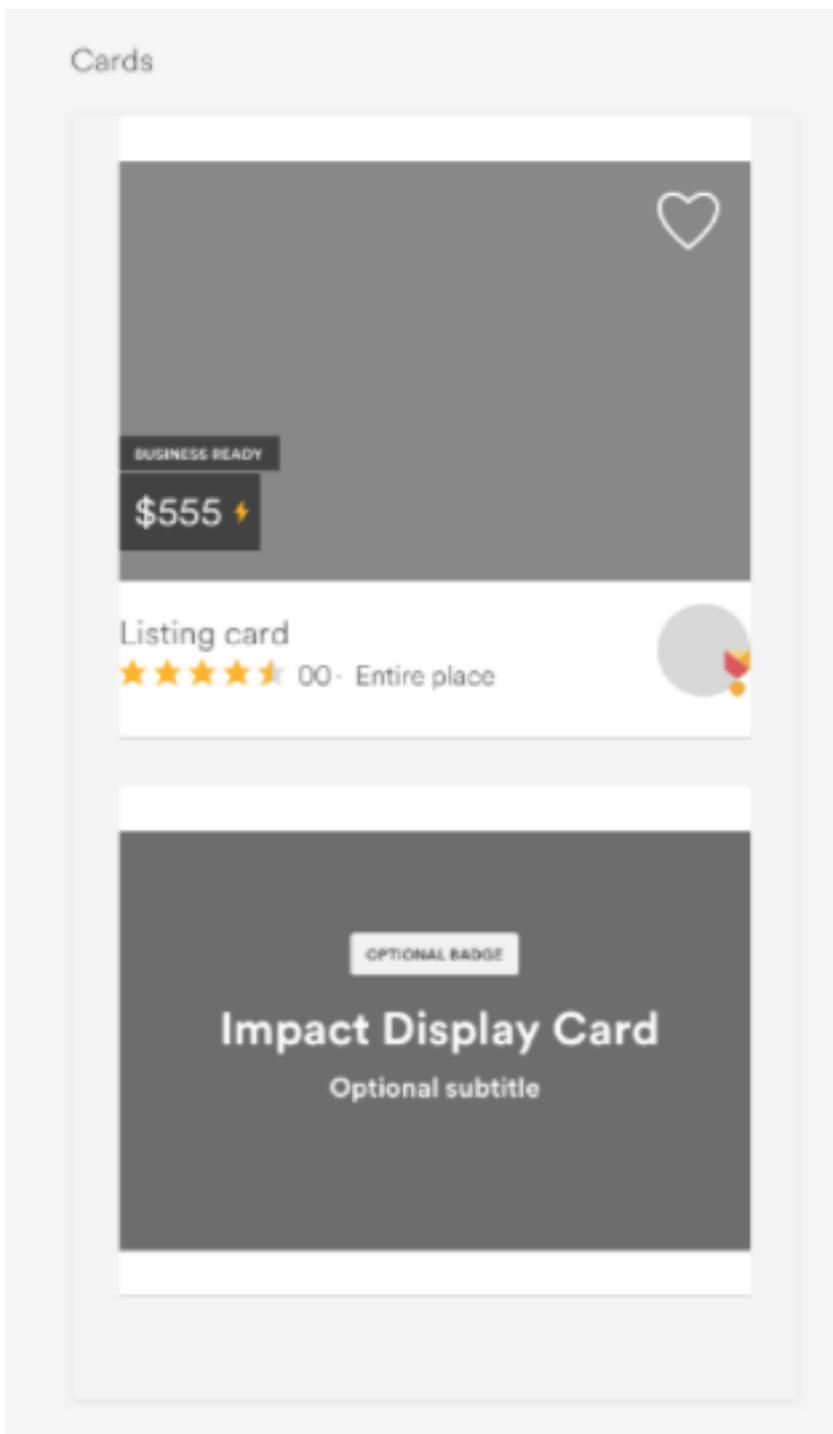
Title	Title	Value	Date	Value
Imperial	true	9 456 234	21. Feb 2014	9 456 234
Hard	false	987 345	21. Feb 2014	987 345
Cider	false	43 567	21. Feb 2014	43 567
Anaerobic	true	324 543	21. Feb 2014	324 543
Cold filter	false	432 456	20. Feb 2014	432 456
Barrel hand	true	32 432	20. Feb 2014	32 432
Pump wort	true	4 567	20. Feb 2014	4 567
Dry hopping	false	34 567	20. Feb 2014	34 567
Carbonation	true	434 567	20. Feb 2014	434 567
Mash tun	false	9 456 234	20. Feb 2014	9 456 234
Bittering hops	true	987 345	20. Feb 2014	987 345
Heat exchanger	false	43 567	19. Feb 2014	43 567
Lauter aerobic	false	324 543	19. Feb 2014	324 543
Abbey seidel	true	432 456	19. Feb 2014	432 456
Brewhouse	false	32 432	19. Feb 2014	32 432
Brewpub adjunct	true	4 567	19. Feb 2014	4 567
Dextrin seidel	true	34 567	19. Feb 2014	34 567
Aau beer	false	434 567	19. Feb 2014	434 567
Krug abv	true	434	19. Feb 2014	434



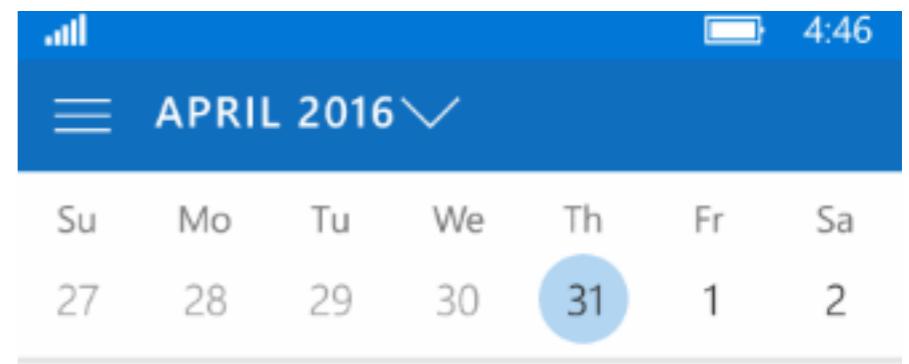
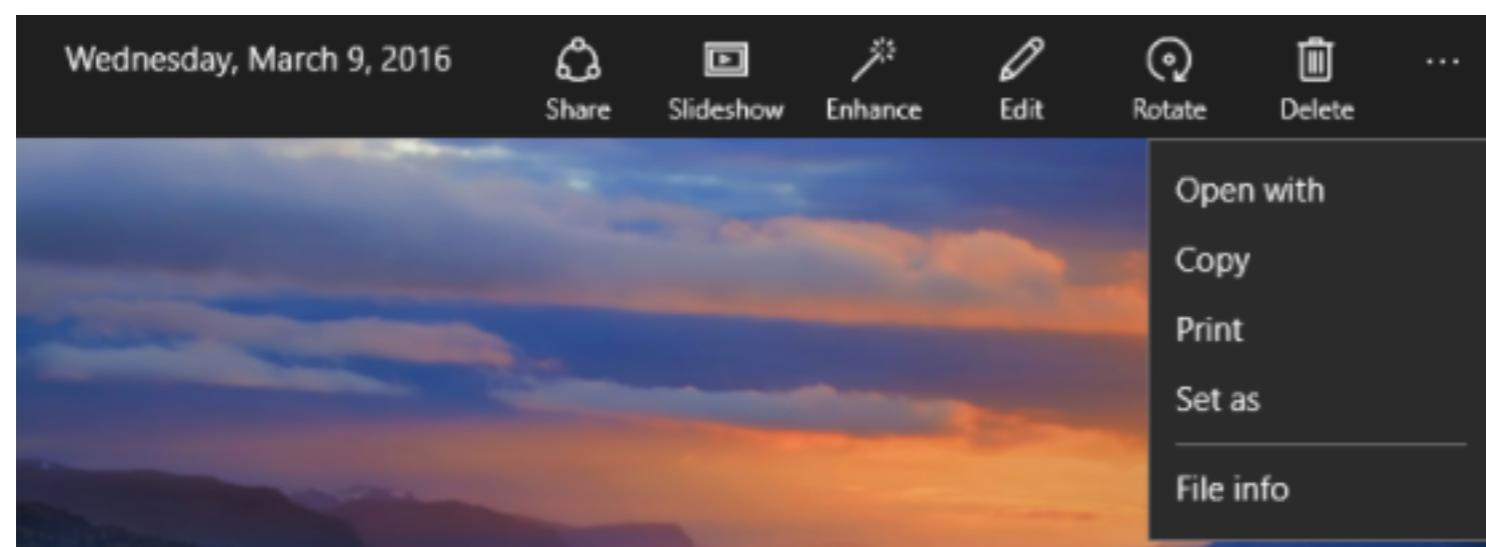
Examples: AirBnb



Examples: AirBnb



Examples: Microsoft



Thursday 31

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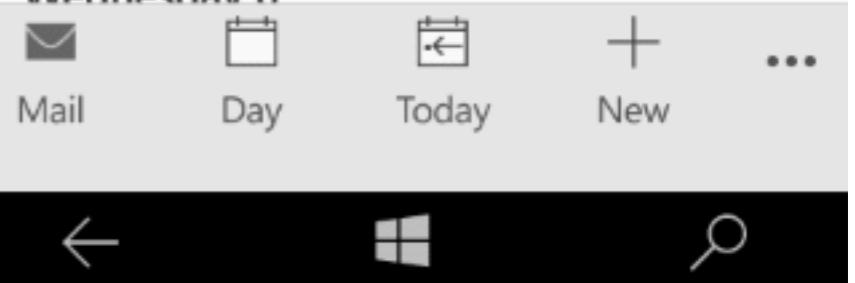
Saturday 2

Sunday 3

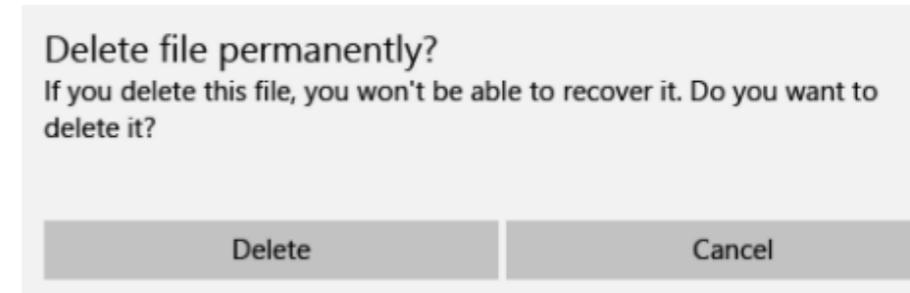
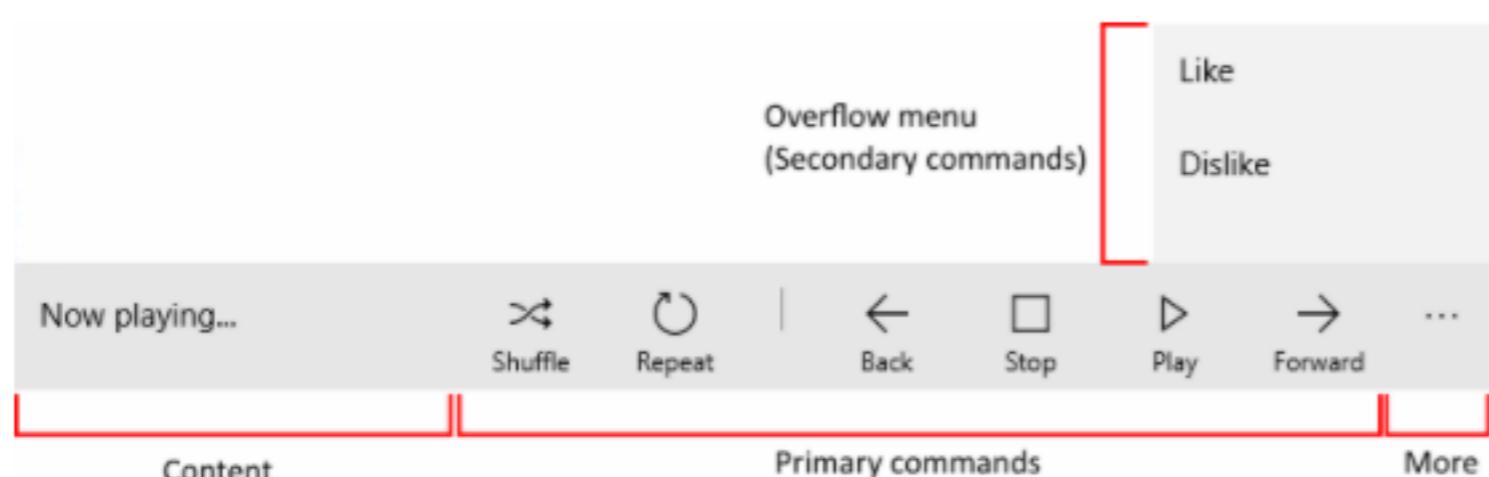
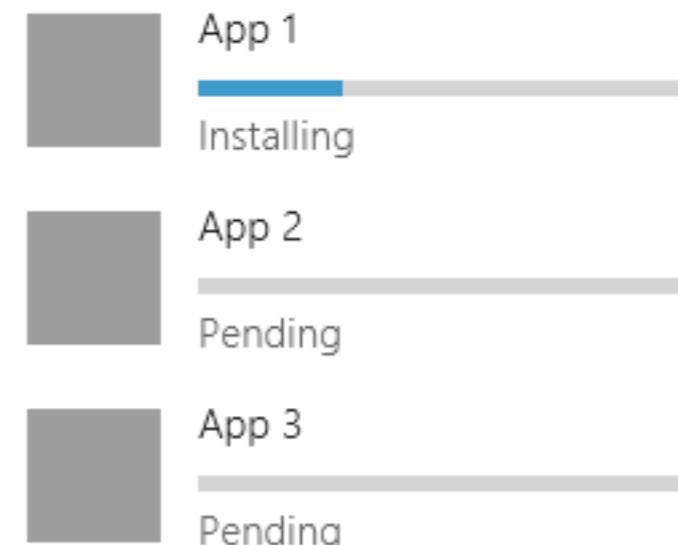
Monday 4

Tuesday 5

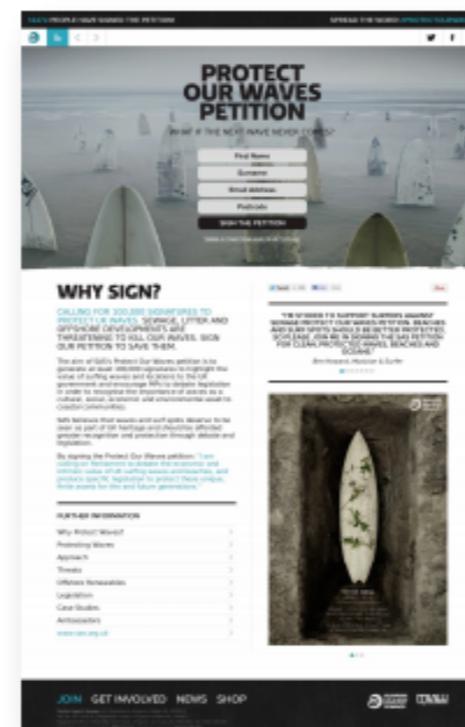
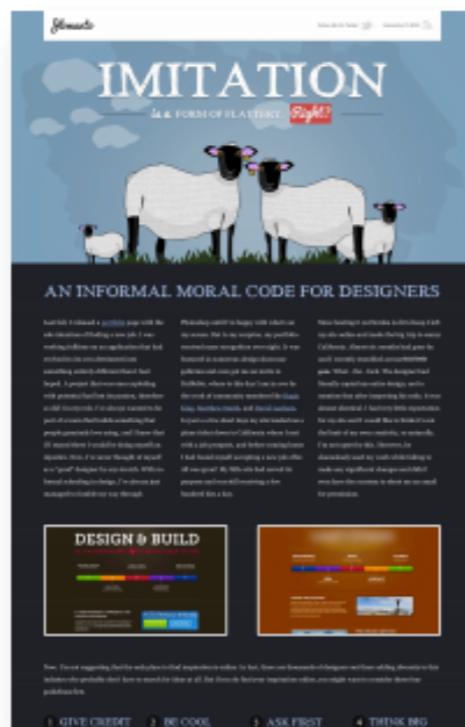
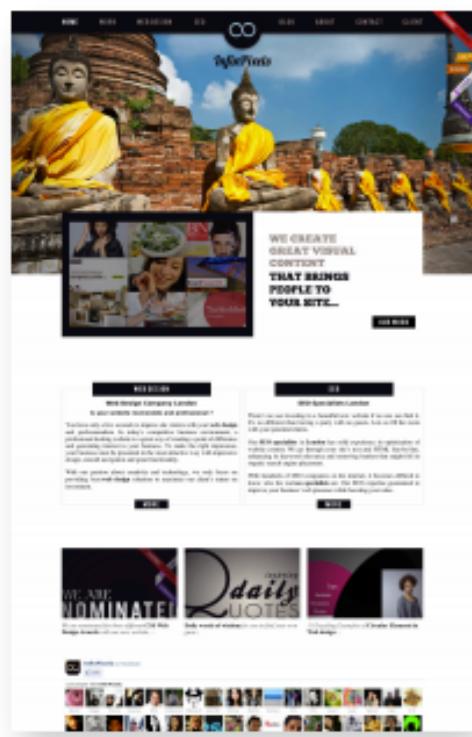
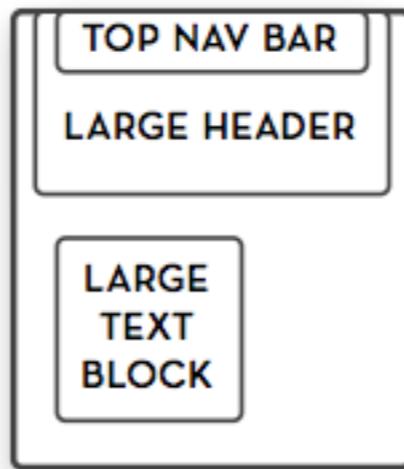
Wednesday 6



Examples: Microsoft



Example: Header with text blocks layout



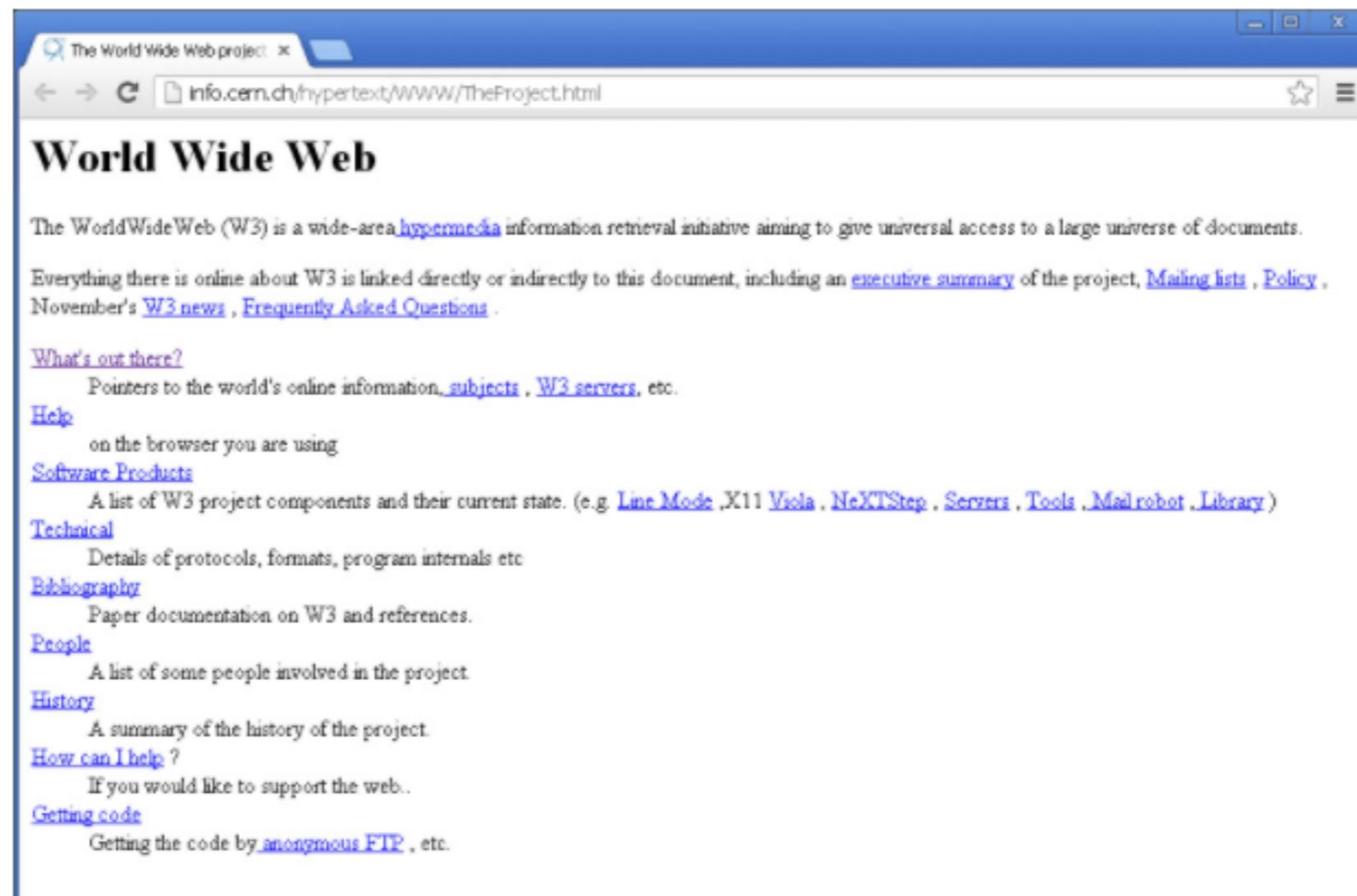
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Elements strongly associated with position



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Web design languages over time



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Web design languages over time

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Web design languages over time



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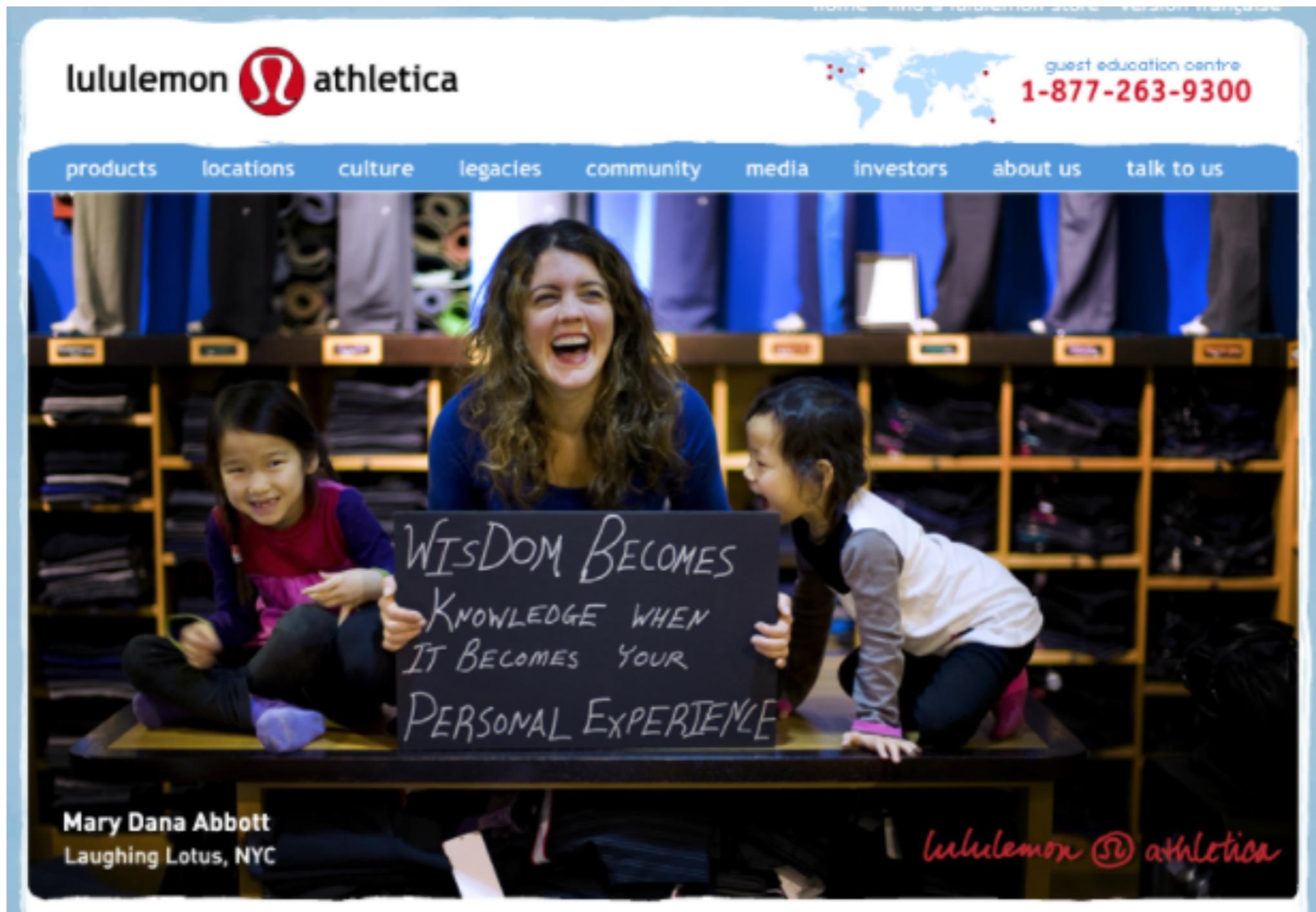
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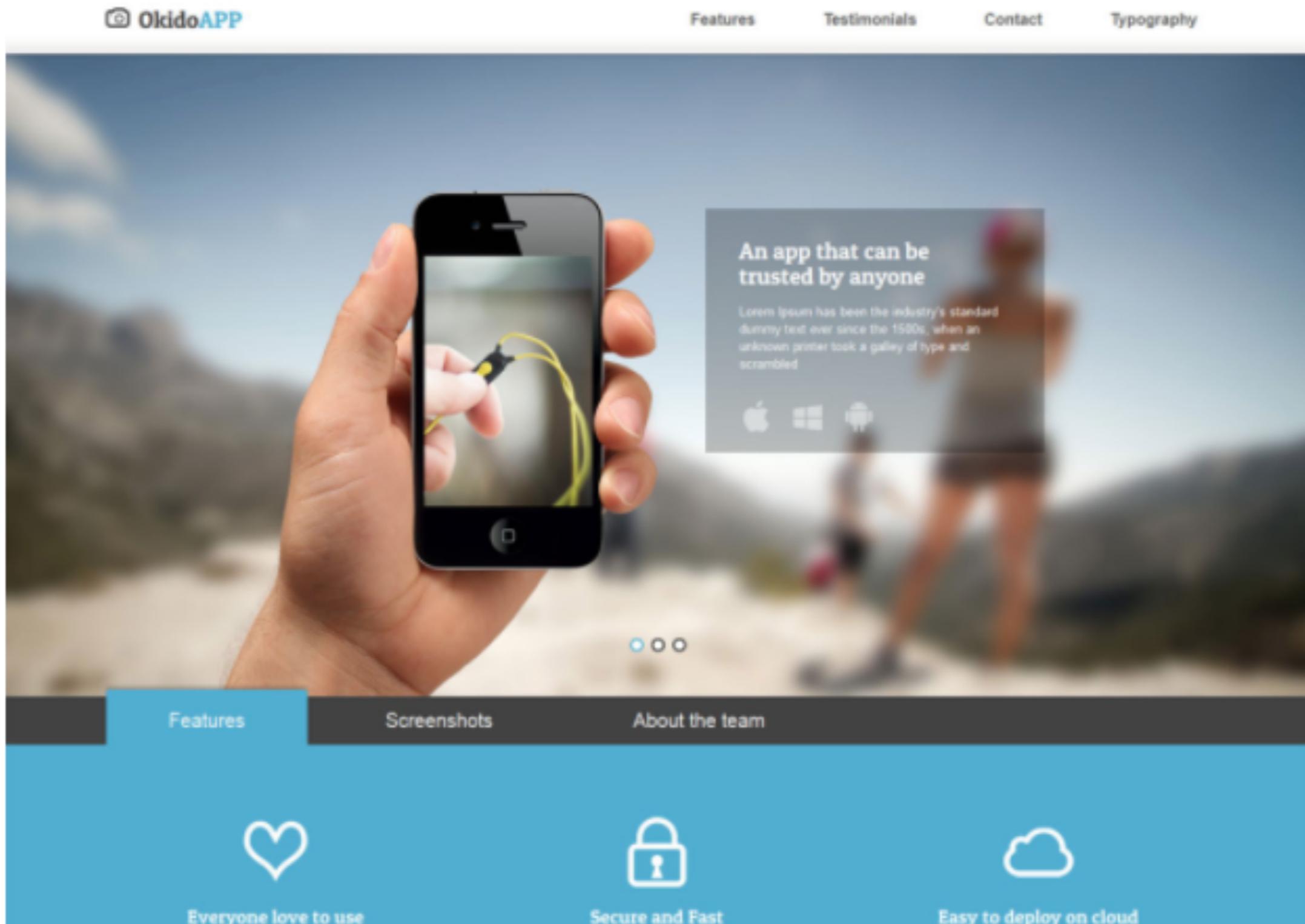
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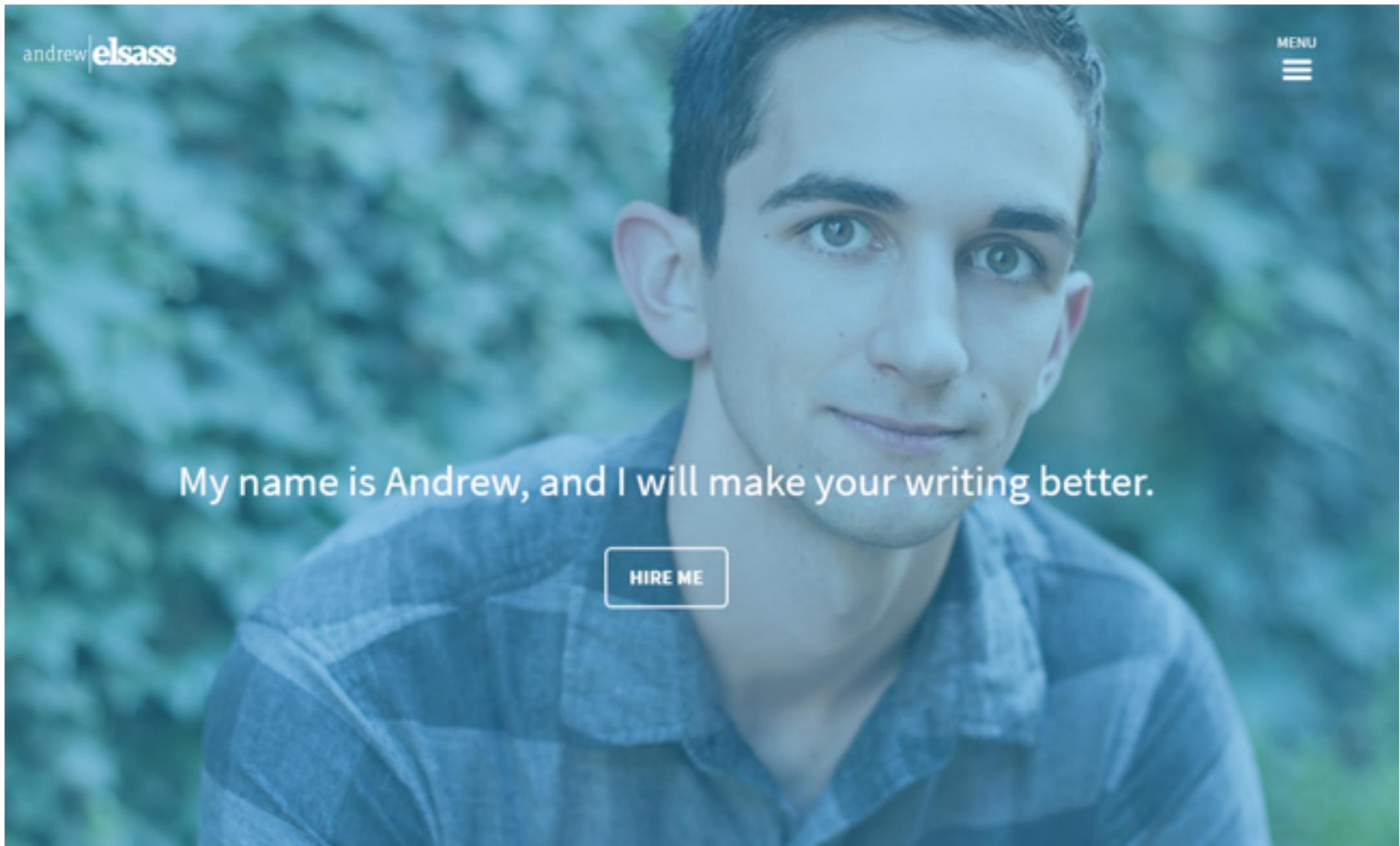
Web design languages over time



Web design languages over time

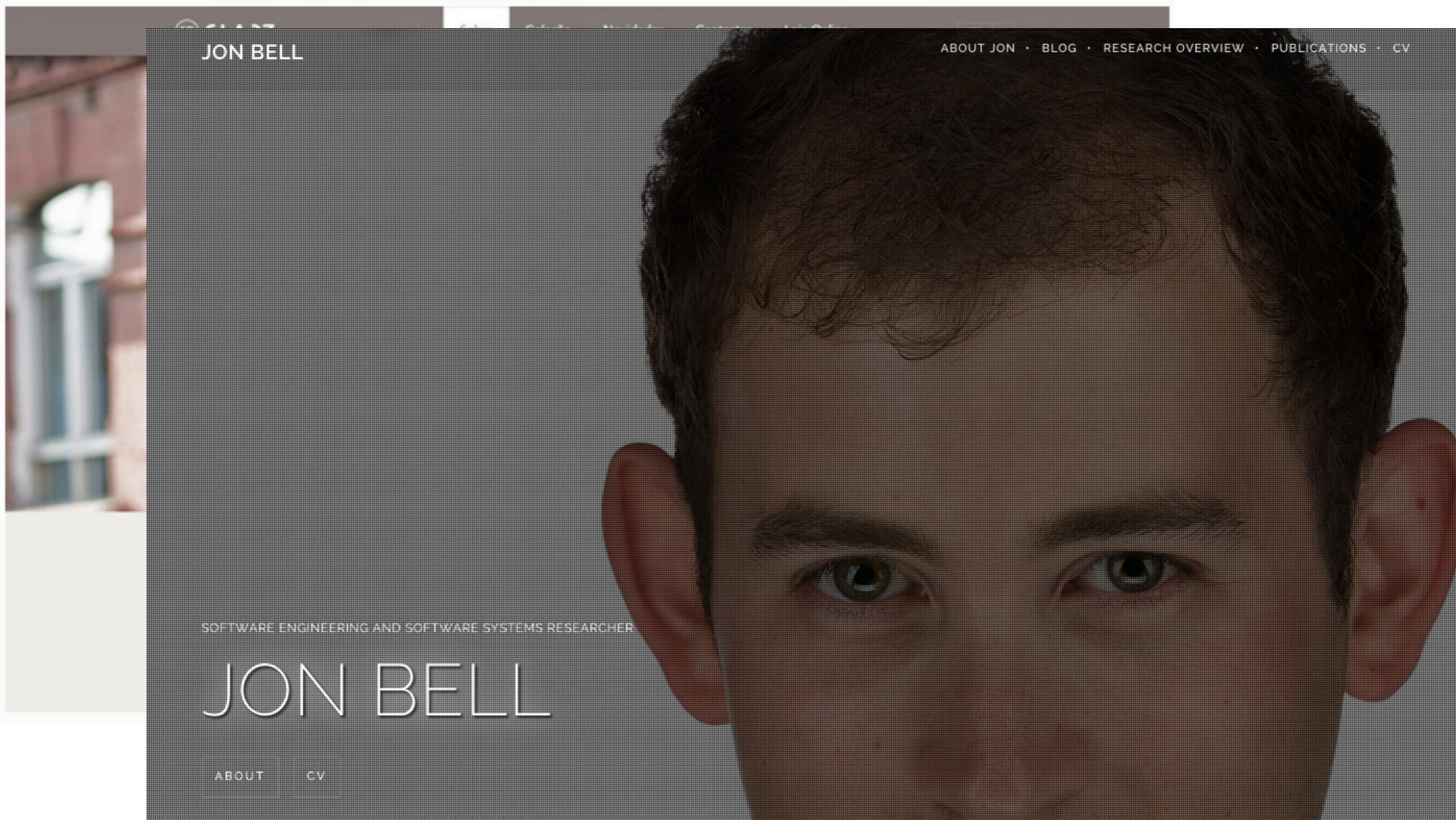


Common visual idioms, circa 2016



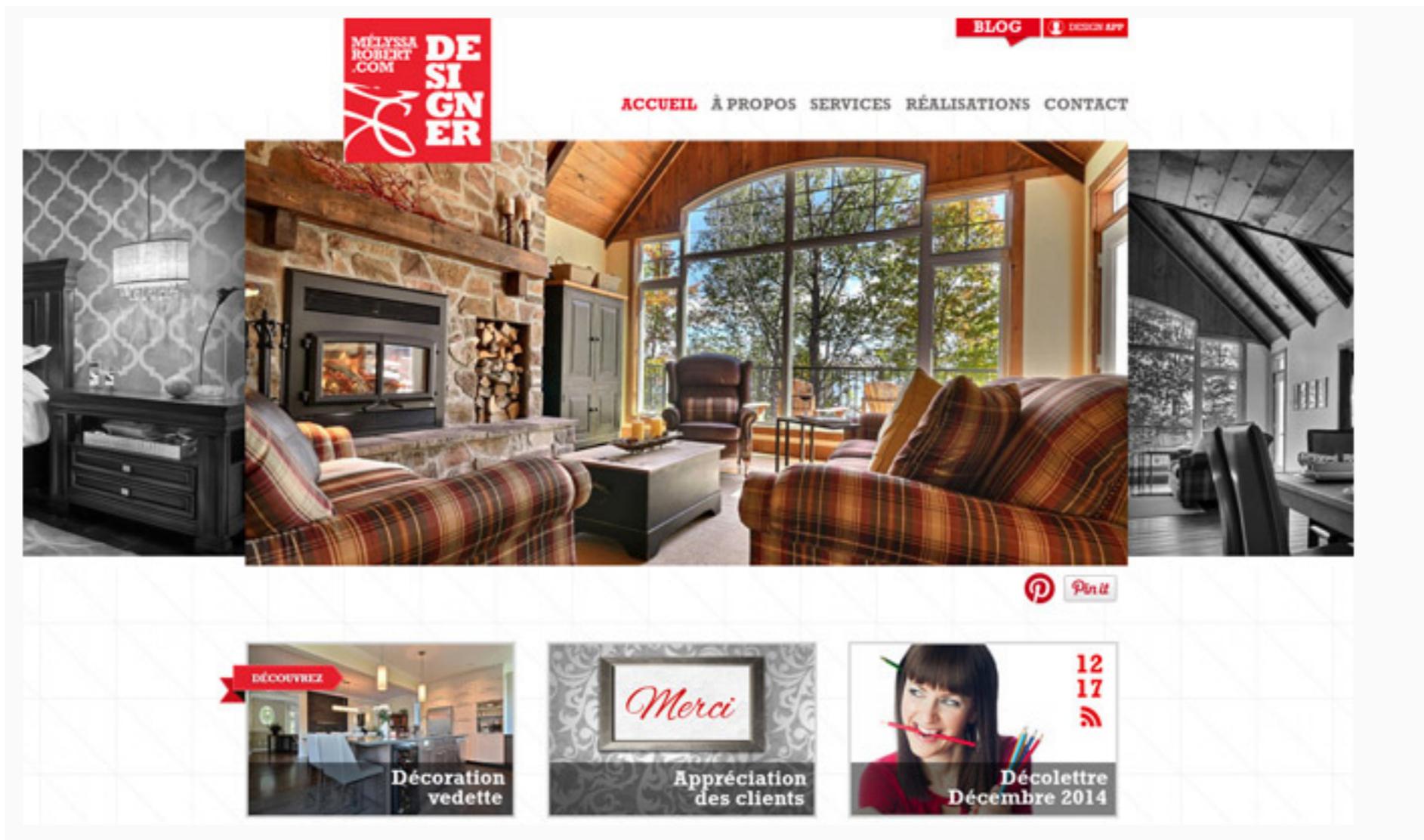
- Hero images: large attractive header image
- <https://envato.com/blog/exploring-hero-image-trend-web-design/>

Common visual idioms, circa 2016



- Single page designs: hero image with a navbar
- <https://envato.com/blog/exploring-hero-image-trend-web-design/>

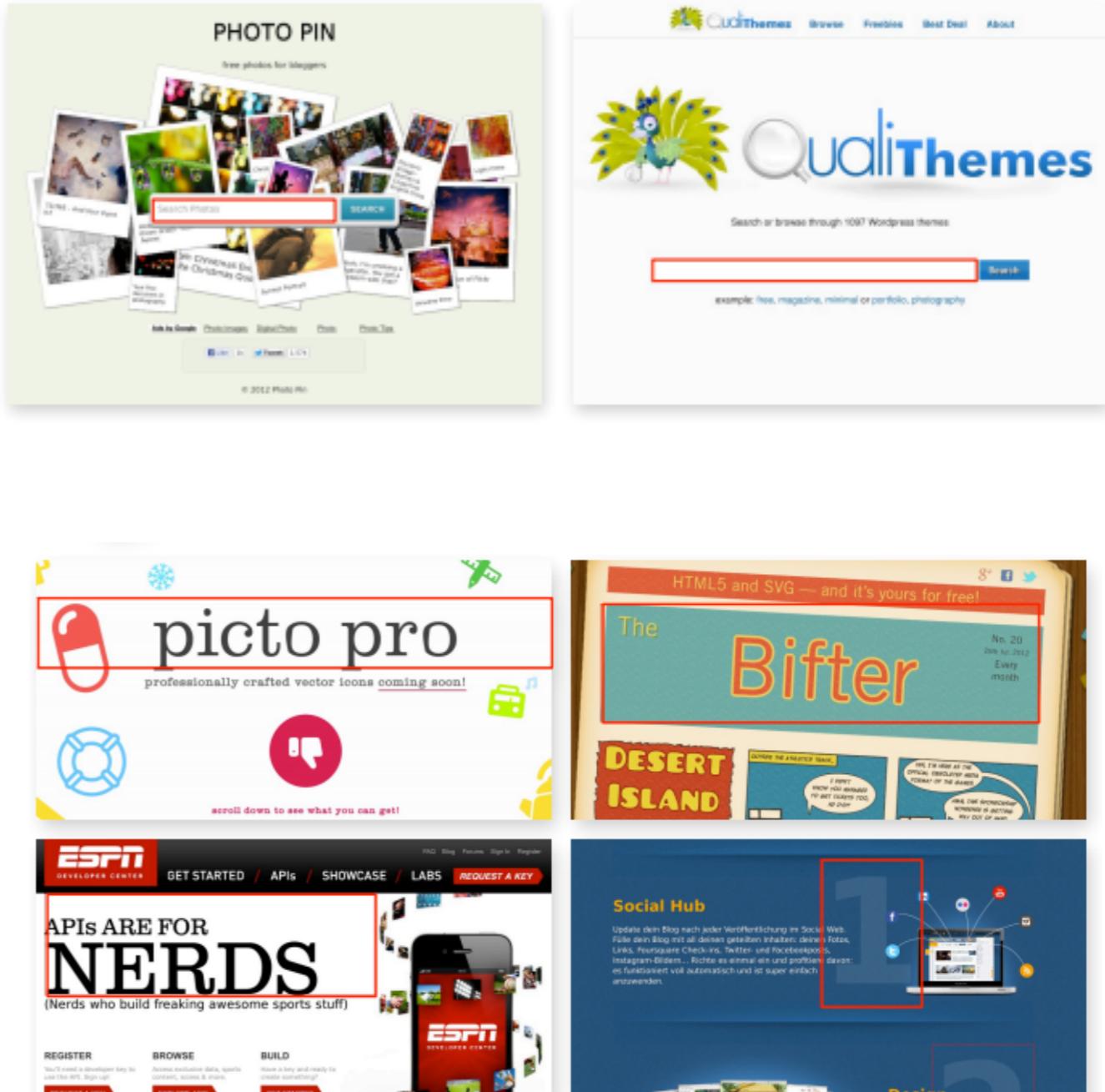
Common visual idioms, circa 2016



- Rotating image galleries (carousels)
- <https://envato.com/blog/exploring-hero-image-trend-web-design/>

Why it matters

- Users will have idioms they expect to see, particularly if suggested by other related elements
- Branding: Users will see your website and have particular associations based on what it exemplifies

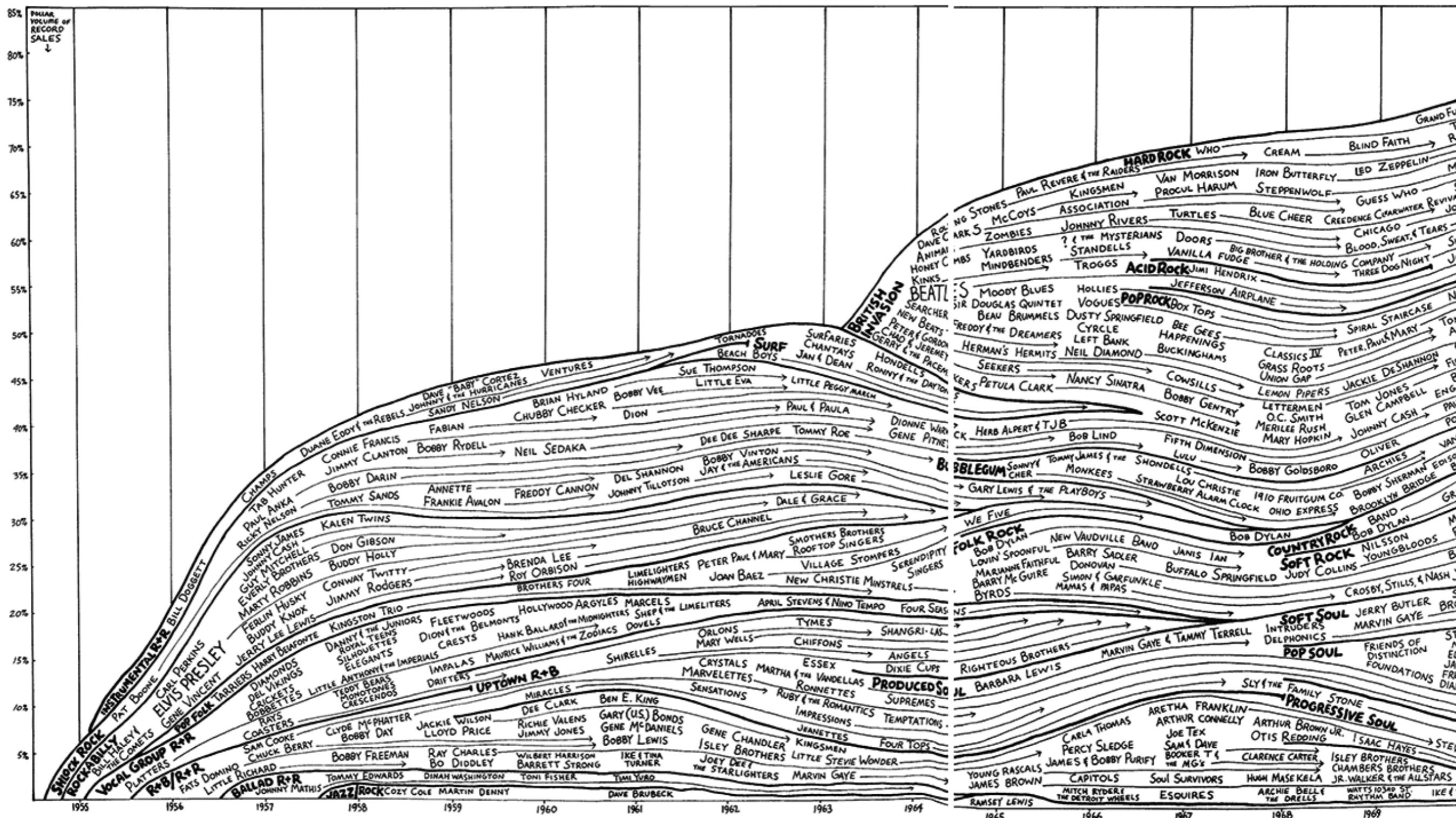


Goals in designing a design language

- Offer guidance and options on
 - Colors: examples of color palettes
 - Typography: justification, sizes, fonts, different heading levels
 - Organization
- Support different resolutions, devices

Design Values

Example: Information Density



Is this too much?

Is this too much?

- If task is to show influence of Elvis Presley on subsequent bands, yes.
 - But what if task might also be to understand influences of pop soul?
- Flexibility / usability tradeoff
 - Can design more powerful flexible interfaces that trade effectiveness of a specific task for supporting a broad range of tasks
- What's the right answer?
 - A value choice, rather than a usability question.
 - Need to know what priorities are.
- Often called **experience design** rather than usability

Activity: Identify Design Values

- In groups of two or three:
 - Pick a website.
 - Identify key tradeoffs in design approach.
 - Given the approach taken, what values does this final design reflect?

Discussion of course structure

- Choosing project topic vs. canned assignment?
- Project split into 11 assignments vs fewer bigger deadlines?
- Teams vs. individual assignments?
- Pacing of assignments and lectures. Topics that were too fast or too slow?
- Quizzes vs. midterm?
- Previous offerings: 10 usability lectures, 3 PHP, 12 Java Servlets lectures
 - What did you think about usability last?
 - Alternative: Backend, asynchronous programming, Usability, then frontend?