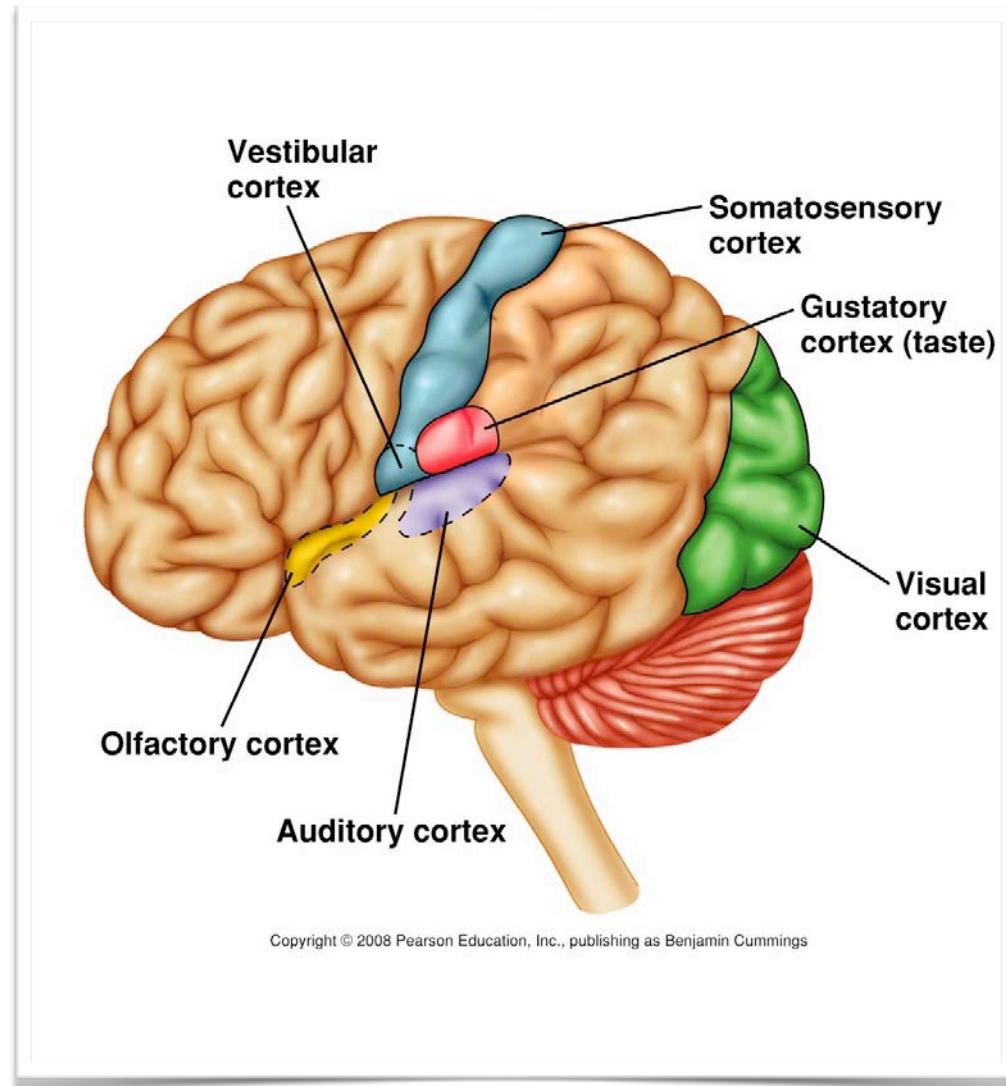


Visual Design Principles

Chapter 14 (Cooper)
Plus extra material

School of Computer and
Communication Sciences
EPFL
Pearl Pu

- Visual cortex is the largest system in the brain
- Light rays enter the eye through the cornea and lens
- A 2D representation is formed



**Half of the brain's resources are dedicated to seeing
and interpreting what we see.**



WHAT IS VISUAL INTERFACE DESIGN?

- Visual interface design is concerned with creating an effective and engaging user interface
 - designers must know how to use visual properties: color, typography, form, and composition
 - they must also know how to use visuals to convey behavior and information

VID must not be an afterthought

WHAT IS VISUAL INTERFACE DESIGN?

How do we create visual elements on a UI to communicate ***behavior*** and ***information***, all the while keeping it ***efficient*** and ***stimulating***

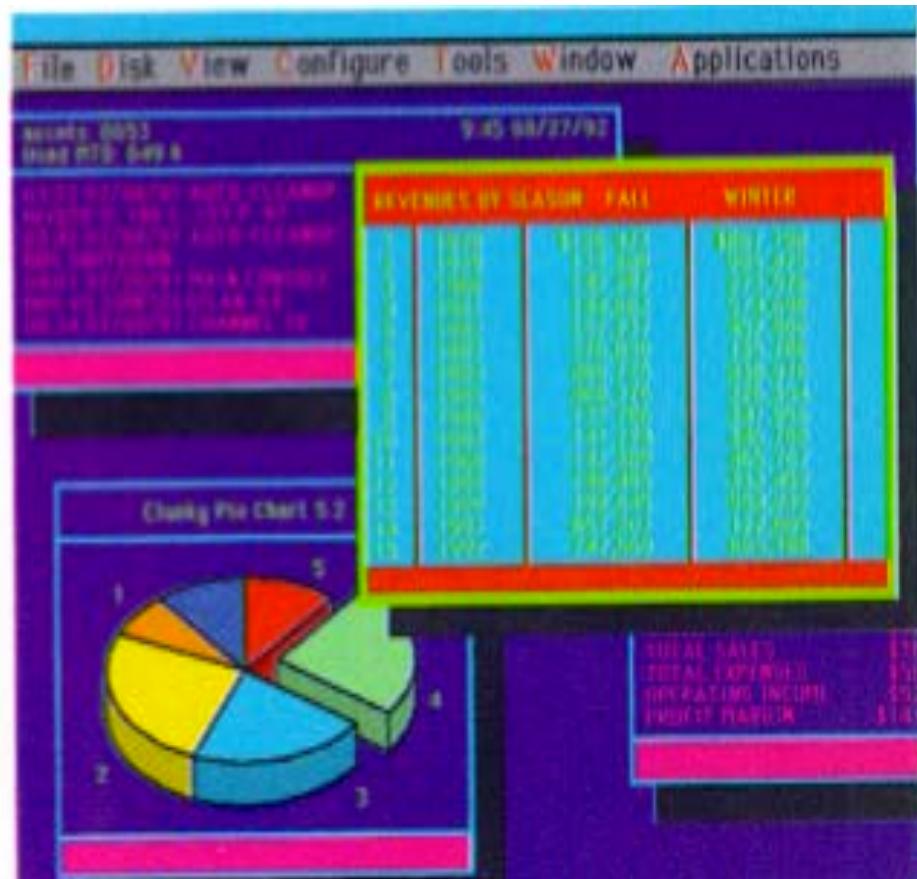
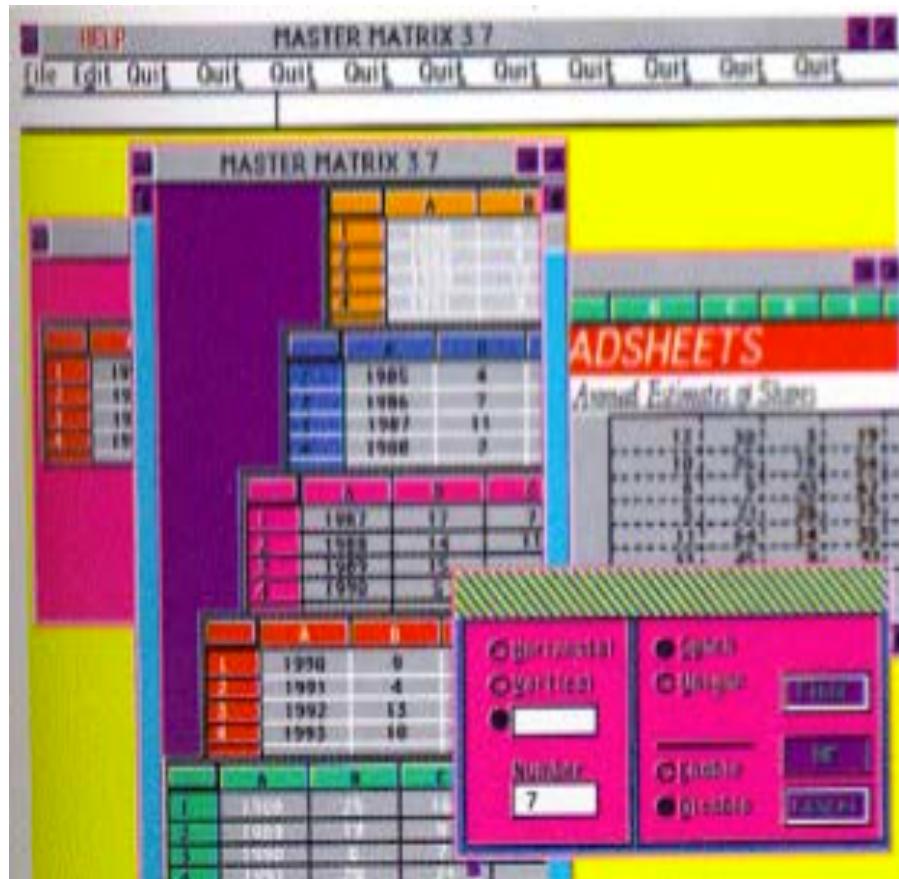


Hue (color) & Typography

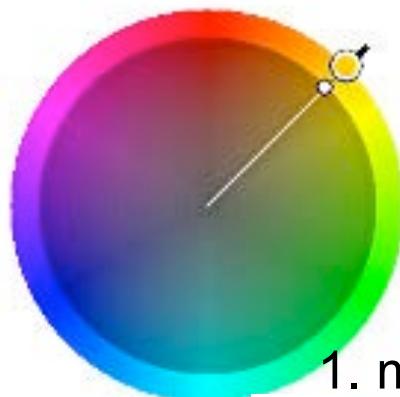
COLOR ATTRACTS ATTENTION

- Misconception: the more color an interface uses, the more attention it gets
- Excessive use of color results in color pollution, particularly when highly saturated colors are used

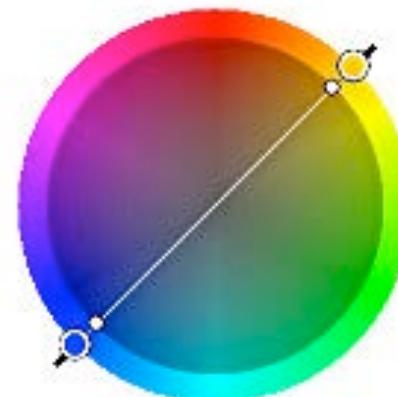
COLOR POLLUTION EXAMPLES



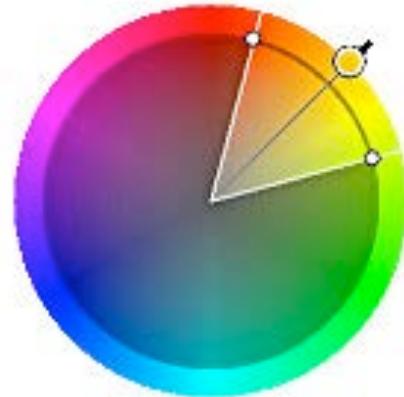
- Color theory
- Harmonious color combinations



1. monochromatic



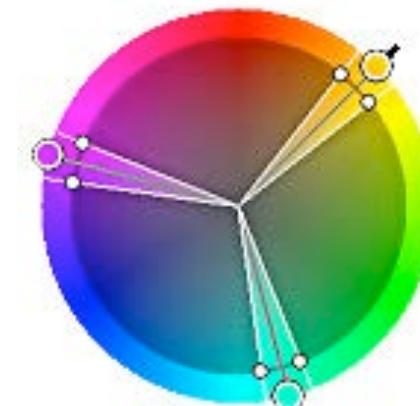
2. complementary colors



3. analogous colors

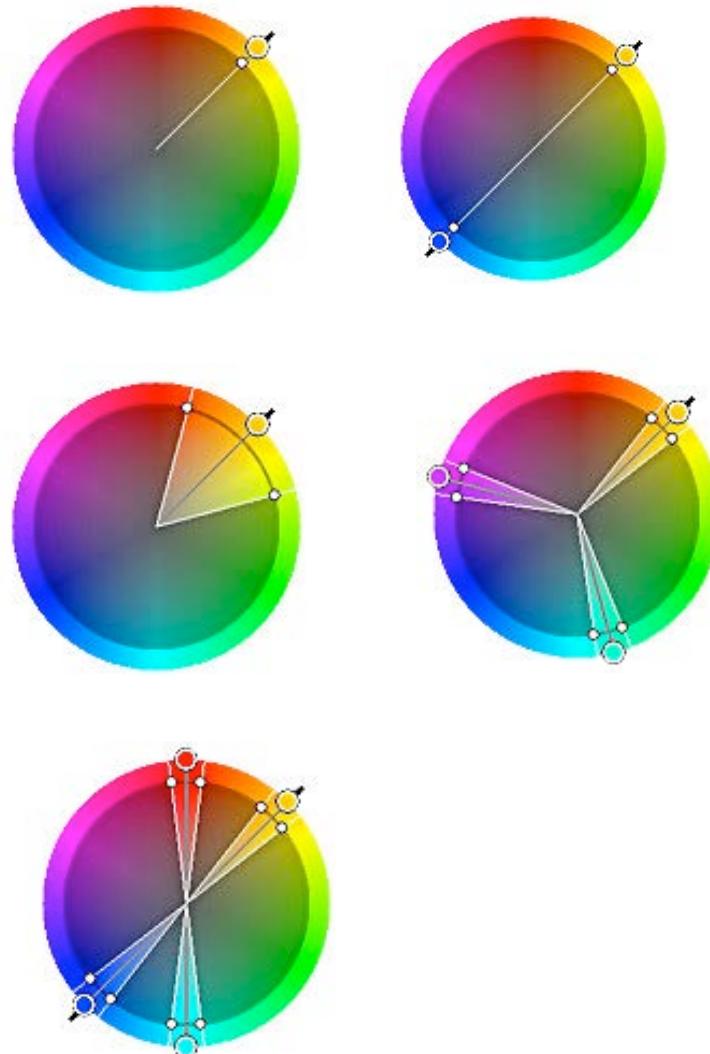


5. tetradic colors



4. triadic colors

- Monochromatic: looks clean and elegant
- Analogous: similar to mono, but offers more nuances
- Complementary: high contrast
- Triadic: contrasting and more balanced
- Tetradic: unbalanced, unless one is used as dominant color



Acme Inc > Design

Search

1 item selected

Share

Open

Add comment

Version history

Rename

Move

Copy

Delete

	Name	Modified	Members
<input type="checkbox"/>	Assets	--	6 members
<input type="checkbox"/>	Creative briefs	--	6 members
<input checked="" type="checkbox"/>	Design all hands 3-22.pptx	3/20/2017 3:15PM by Alex	9 members
<input type="checkbox"/>	Q4 Budget.xls	3/17/2017 10:33AM by Robin	8 members
<input type="checkbox"/>	Staff review.docx	3/15/2017 1:28PM by Kate	6 members

Monochromatic color scheme



Book Prepare Fly Explore

GVA / EN Login

Flight

Flight & Hotel

Hotel

Rental car

SWISS Choice

From
Geneva **GVA**

To

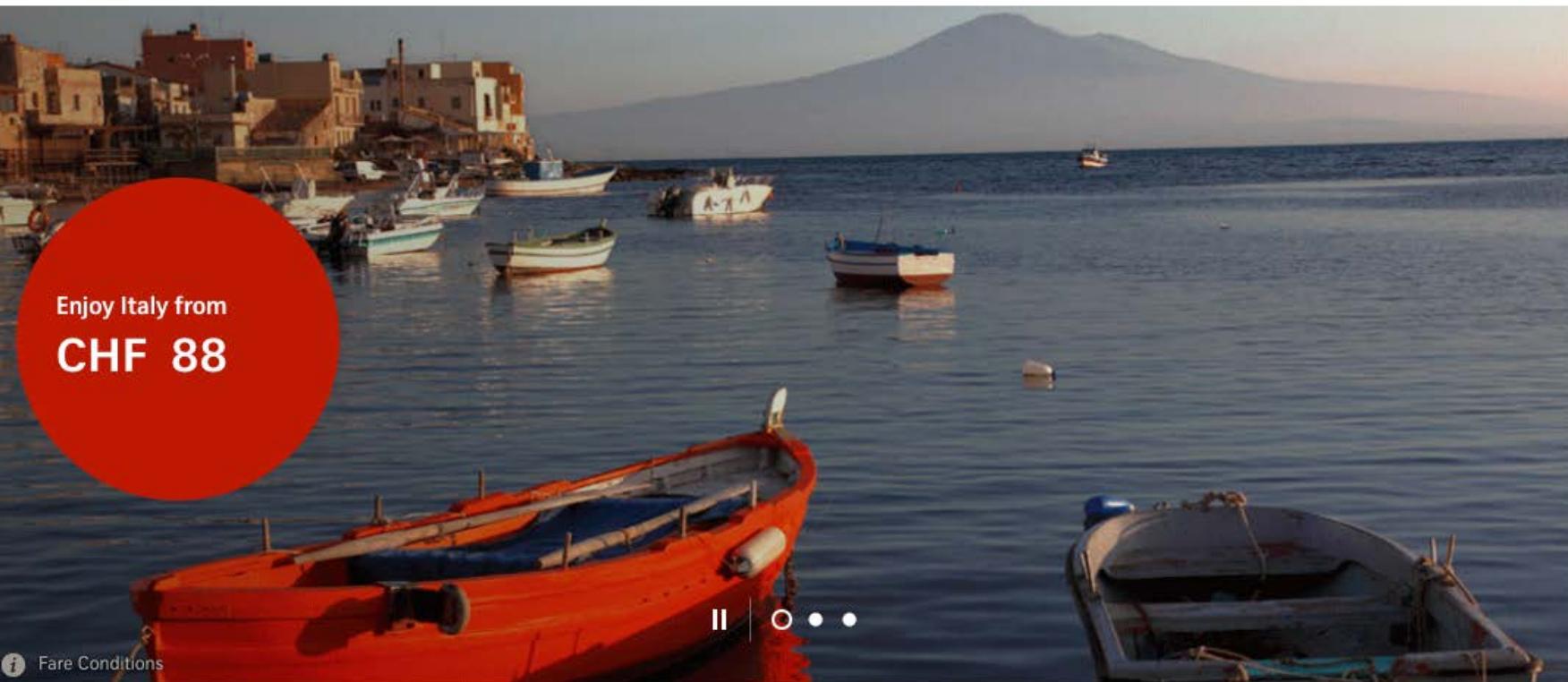
Outbound flight
Su 25/03/2018

Return flight
Su 01/04/2018

1 Adult, 0 Children, 0 Infants
1 Passenger

[Advanced search](#) ▾ [Arrivals and departures](#) ▾ [Inspire me](#) ▾ [Miles & More](#) ▾ [Check-in](#) ▾

Search



II | O • •

Monochromatic color scheme

Bruges ▾ Hotels ▾ Flights ▾ Vacation Rentals ▾ Restaurants ▾ Things to Do ▾ Forum ▾ Best of 2016 ▾ More ▾

Find: Hotels

Near: Bruges, Belgium

 Search

Europe ▶ Belgium ▶ Flanders ▶ West Flanders Province ▶ Bruges ▶ Bruges Hotels

Bruges Hotels

Your Hotel Search

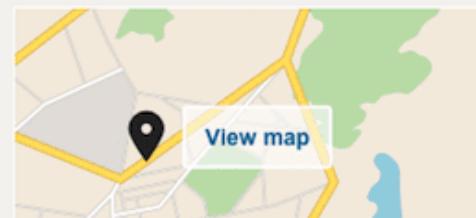
Thu 01/12/2017

Tue 01/17/2017

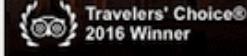
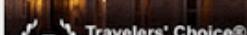
1 room

2 adults ▾ 0 children ▾

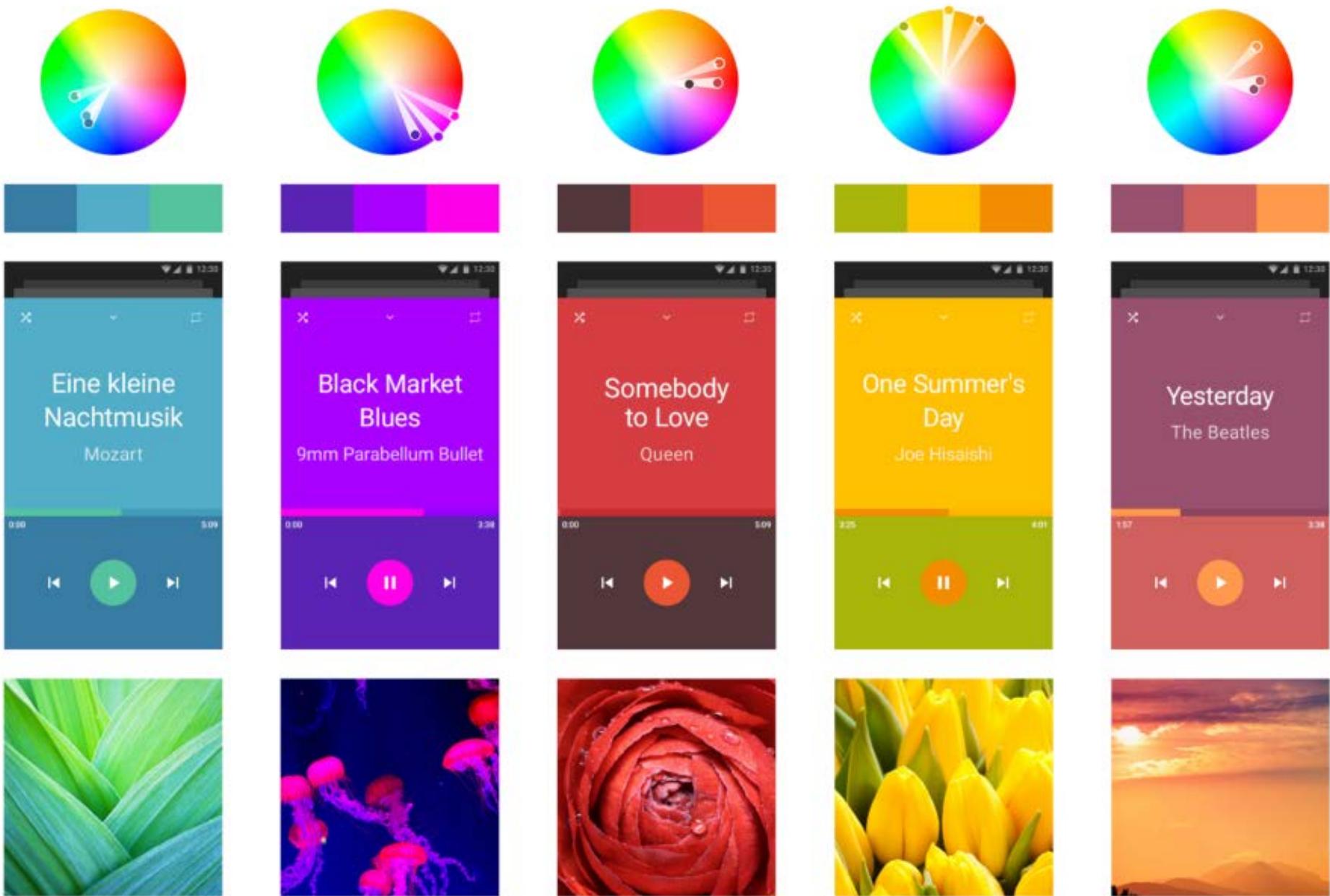
Update Search

 View map

Sort by: Traveler Ranked ▾ **Popularity** ▾ Lowest Price Distance ▾

 Grand Hotel Casselbergh Bruges  Sponsored  2,987 Reviews #1 of 98 Hotels in Bruges by Popularity "Not quite up to expectations" 12/20/2016 "Fairly good hotel, great location" 12/20/2016 	 \$120* /night View Deal >	TripAdvisor \$120* Booking.com \$120* ▾ Hotwire.com \$120* ▾ View 4 deals ▾
 Grand Hotel Casselbergh Bruges   2,987 Reviews #1 of 98 Hotels in Bruges by Popularity "Not quite up to expectations" 12/20/2016 "Fairly good hotel, great location" 12/20/2016 	 \$120* /night View Deal >	TripAdvisor \$120* Booking.com \$120* ▾ Hotwire.com \$120* ▾ View 4 deals ▾

Two-color analogous scheme



Triadic and analogous color scheme inspired by nature

Multi-color scheme

fitbit

HOME TRACKER COMMUNITY ANALYTICS

My Dashboard

LOG FOOD LOG ACTIVITY TRACK WEIGHT



0 % of 70,000 weekly steps
Select another goal

Daily Historical

Calories Sun, Feb 6

2557 calories burned
0 calories eaten

Want to challenge yourself to be more active? [Start a free week trial of the Fitbit trainer now!](#)

Intraday calories **burned every 5 min** eaten



Activity Sun, Feb 6

13888 steps taken
6.23 miles traveled
885 active score *

You have recorded 1 activities

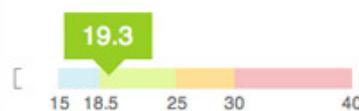


p
Male, 24
5' 9"
Joined Jan 27, 2011
Synced 3 days ago
Battery level: Full

[View profile](#) [Edit profile](#) [Share stats](#) [Change profile pic](#) [Upload pictures](#)

My Stats

My Body's Weight **BMI** Hide



19.3
under normal over obese

My best stats All-time 30 days 7 days
13,888 steps on Feb 6, 2011
2,549 calories burned on Feb 6, 2011
6.71 miles on Feb 5, 2011
877 active score on Feb 6, 2011
81 very active min on Feb 26, 2011

Rank by **Fitbit** Gender Age BMI
My rank among members who use a Fitbit .

- Contrast text with its background
- Most web interfaces employ sans-serif fonts, e.g., Verdana, Tahoma, Arial, Helvetica.
- Cases: it's slower to read upper-case letters than lower-case letters (10% slower)
- Now look up and read the title of the slide. You may ask why I chose to use small caps?
- If you want users to pay attention to titles and keywords, you may want to put the entire word in upper case letters



DESIGN PRINCIPLES ON COLOR AND FONT

- Use a small color palette, opting for less-saturated ones and combining them with neutral colors
- Keep high-contrast accent colors for special controls
- Do not vary too much on typography (except sizes)



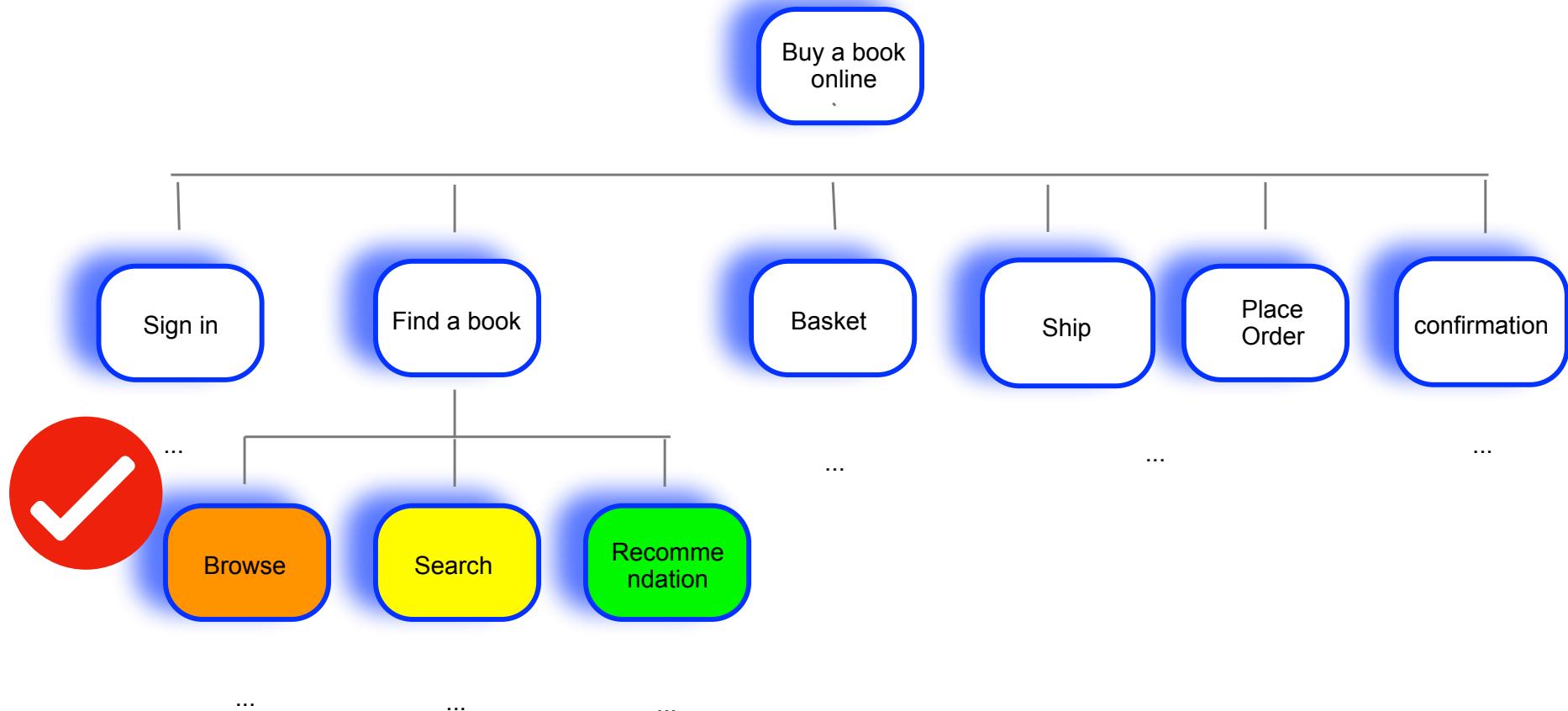
Create hierarchy

WHAT IS A VISUAL HIERARCHY?

Visual hierarchy is a *visual rendering* of the information hierarchy.

- Based on scenarios, determine what users need to understand: instantly, secondary, exceptionally; i.e., what is the information delivery priority?
- This ranking informs the visual hierarchy

Goal-Directed Task Tree



For illustrating search/browse/recommend;
it's otherwise not complete

Deliver to Richard
Austin 78751

Best Sellers Help Pearl's Amazon.com Browsing History Find a Gift Prime Video Whole Foods New Releases Buy Again Pantry Gift Cards Registry

Books Advanced Search New Releases Best Sellers & More Children's Books Textbooks Textbook Rentals Best Books of the Month

Amazon Best Sellers

Our most popular products based on sales. Updated hourly.

Any Department

Books

Science & Math

Agricultural Sciences

Archaeology

Astronomy & Space Science

Behavioral Sciences

Biological Sciences

Chemistry

Earth Sciences

Environment

Essays & Commentary

Evolution

Experiments, Instruments &

Measurement

History & Philosophy

Mathematics

Nature & Ecology

Physics

Reference

Research

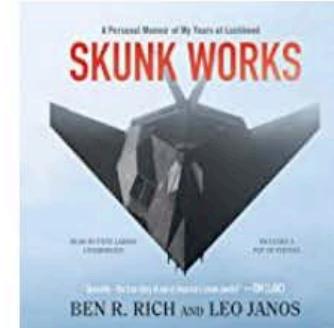
Science for Kids

Technology

eGift cards
for every

Best Sellers in Science & Math

#1

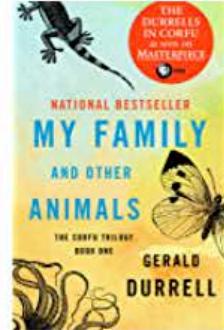
Skunk Works: A Personal Memoir of My Years of...
Ben R. Rich

4.5 762

Audible Audiobook

\$10.00 Free with Audible trial

#2

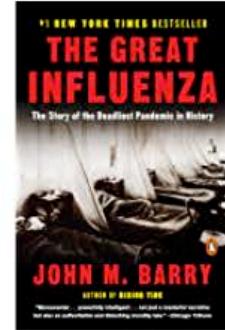
My Family and Other Animals (The Corfu Trilogy...
Gerald Durrell

4.5 1,553

Kindle Edition

1 offer from \$1.99

#3

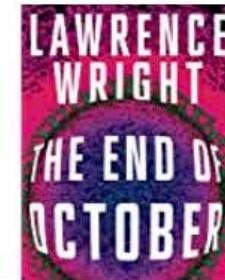
The Great Influenza: The Story of the Deadliest...
John M. Barry

4.5 923

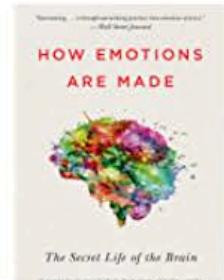
Kindle Edition

\$4.76

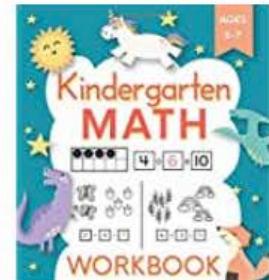
#4



#5



#6



- In most cases, there are only two levels of IH, thus two VH (most important vs. not so important)
- Most important items are “verbs” and they often represent control items (buttons)
 - Sign up
 - Confirm
 - Register
 - Add to cart
 - Place order
- These “call to action” items are important for users finish the tasks and for businesses (transaction)

- Use hue, saturation, value, size, and position to distinguish levels of hierarchy
- The most important elements should be larger, have greater contrast in hue, saturation, and value in relation to the background, and be positioned above or outdented in relation to other items.



Review your order



Important message

Check this box to default to these delivery and payment options in the future.

Shipping address [Change](#)
Paris Hilton
HILTON NEW ORLEANS RIVERSIDE
2 POYDRAS ST
NEW ORLEANS, LA 70130-1656
United States
Phone: +1 504-561-0500

Payment method [Change](#)
 ending in 3828

Billing address [Change](#)
Same as shipping address

Gift cards & promotional codes Enter Code Apply**Place your order in CHF**

By placing your order, you agree to Amazon's [privacy notice](#) and [conditions of use](#).

Amazon Currency Converter is Enabled. [Learn more](#)

Order Summary

Items:	CHF 25.00
Shipping & handling:	CHF 7.58
Total before tax:	CHF 32.58
Estimated tax to be collected:	CHF 0.00

Order total: **CHF 32.58**

Selected payment currency CHF USD[\(Change card currency\)](#)**Applicable Exchange Rate**

1 USD = 1.0002204797 CHF
(includes all Amazon fees and charges)

[How are shipping costs calculated?](#)[Why didn't I qualify for free shipping?](#)

[Click Here and Save \\$7.58 on this Order: Amazon Customer, don't forget about FREE Two-day Shipping for your Prime eligible items. Also enjoy unlimited fast, FREE shipping on all future Prime orders.](#)

» [Special Offer: Get your One-Week Trial of Amazon Prime for only \\$1.99. Afterwards, Prime is just \\$12.99/month. Cancel anytime.](#)

Estimated delivery: April 13, 2018

TOPLUS 6mm Premium TPE Yoga Mat with Carrying Strap Eco Friendly Fitness Exercise Mat, 72" x 24", Purple

\$24.99[Amazon Prime eligible](#) [Join now](#)**Quantity: 1** [Change](#)

Sold by: Toplus Collection

 [Add a gift receipt](#)[and see other gift options](#)**Choose a delivery option:**

- Friday, April 13**
\$7.58 - Standard Shipping
- Tuesday, April 10**
\$13.43 - Two-Day Shipping
- Monday, April 9**
\$21.88 - One-Day Shipping

Squint Test

DO NOT OVER EMPHASIZE

- Don't use all emphasis techniques at once - often one is enough
- If two items are different in importance, tune down the less important one
- A good visual hierarchy is hardly noticed by users
- Only the lack of one jumps out at users



Establish relationships

TWO TYPES OF RELATIONSHIPS

- Based on scenarios (or task trees), determine
 - which elements have similar functions
 - which elements are used together
- Elements have similar functions are grouped visually even if they are not grouped spatially (semantic groups)
- Elements most often used together are grouped spatially to minimize mouse and eye movement (spatial groups)

HOW TO MAKE GROUPS VISIBLE?

- Use visual consistency to mark semantic groups. For example, all search buttons should look the same.
- Use space, lines, boxes, color, and alignment to make spatial groups.

EXAMPLES OF GROUPING

Bad

Mmmm:

Mmmm:

Mmmm:

Mmmm:

Mmmm:

Good

Mmmm:

Mmmm:

Mmmm:

Mmmm:

Mmmm:

Excellent

Mmmm:

Mmmm:

Mmmm:

Mmmm:

Mmmm:

1-24 of over 4,000 results for Sports & Outdoors : Sports & Fitness : Exercise & Fitness : "yoga mat"

Sort by Relevance

 FREE Shipping

All customers get FREE Shipping on orders over \$25 shipped by Amazon

Show results for

- Any Category
- Sports & Outdoors
- Sports & Fitness
- Exercise & Fitness
 - Yoga Mats
 - Exercise Mats
 - Yoga Towels
 - Yoga Mat Bags
 - Pilates Floor Mats
 - Yoga Blocks
 - Yoga
 - Yoga Straps
 - Yoga Starter Sets
 - Straps
- See more

Refine by

International Shipping (What's this?)

- Ship to Switzerland

Subscribe & Save

- Subscribe & Save Eligible

Amazon Prime

- prime

Eligible for Free Shipping

- Free Shipping by Amazon

Avg. Customer Review

- & Up
- & Up
- & Up
- & Up

Price

[Under \\$25](#)

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Yoga Necessities at Great Prices

[Shop now](#)French Bull Yoga Block (Ziggy)
 primeFrench Bull - Yoga Strap (Blue Om...)
 primeFrench Bull - Hand Towel 2-pack (...)
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Showing results in Sports & Outdoors. Show instead results in All Departments.



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ASUTRA 100% Natural & Organic Yoga Mat Cleaner, SAFE FOR ALL MATS, No Sticky Or Slimy Residue - Cleans, Restores, Refreshes + FREE Microfiber...

by ASUTRA

\$10⁴⁰

Subscribe & Save

Save more with monthly Subscribe & Save deliveries.

\$10⁹⁵

Some colors are Prime eligible

FREE Shipping on eligible orders

2,874



Sponsored

Youmako TPE Yoga Mat 6mm Non-Slip Thick High Density Used for Exercise, Outdoor & home (black)

by youmako

\$23⁵⁹

Some colors are Prime eligible

FREE Shipping on eligible orders

295



Sponsored

Manduka eKO Lite Yoga and Pilates Yoga Mat by Manduka

\$46⁰⁷

\$52.00

Some sizes/colors are Prime eligible

FREE Shipping on eligible orders

295

Best Sellers



AmazonBasics 1/2-Inch Extra Thick Exercise...

\$17⁹⁹ 

BalanceFrom GoYoga All-Purpose 1/2-Inch...

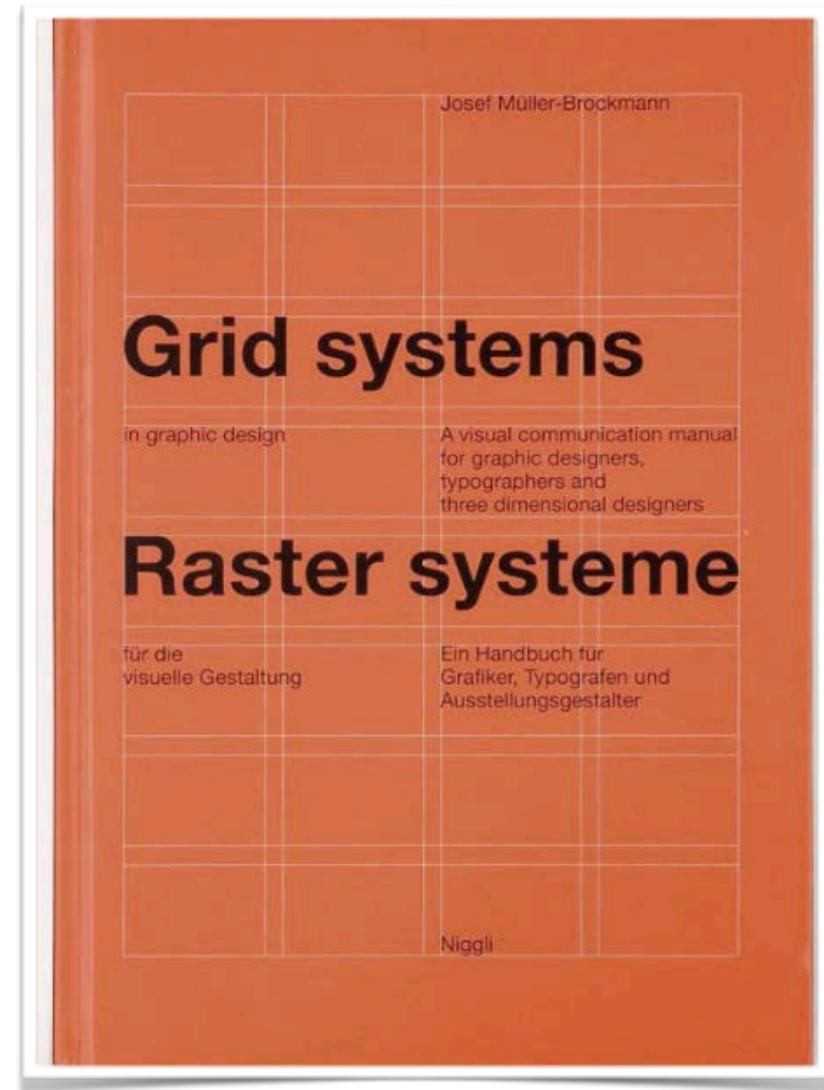
\$17⁹⁵

Amazon's Choice

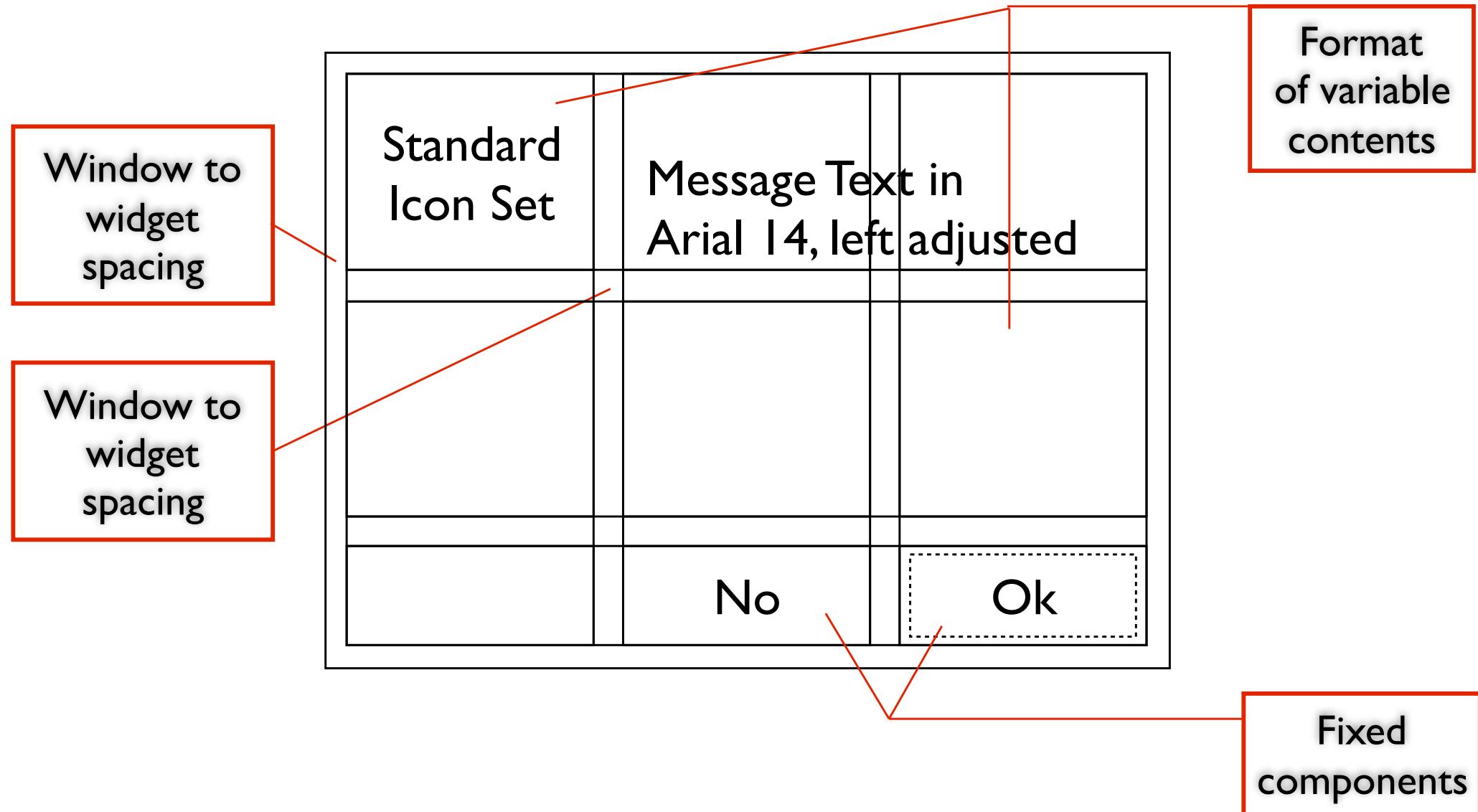


Grouping is achieved mainly by alignment and spacing with some thin lines.

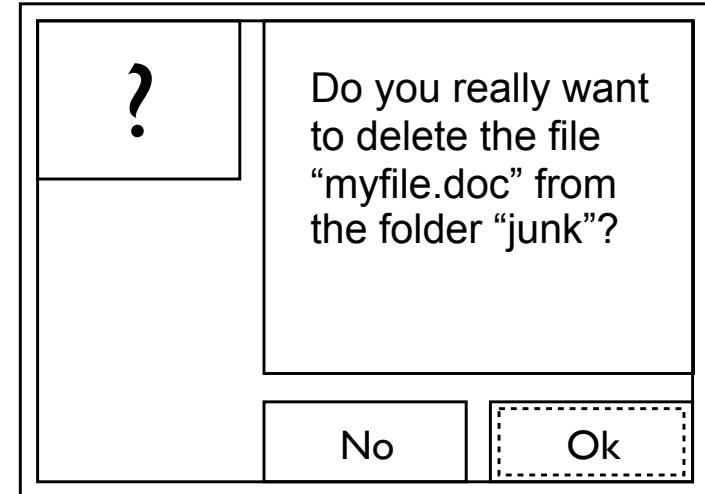
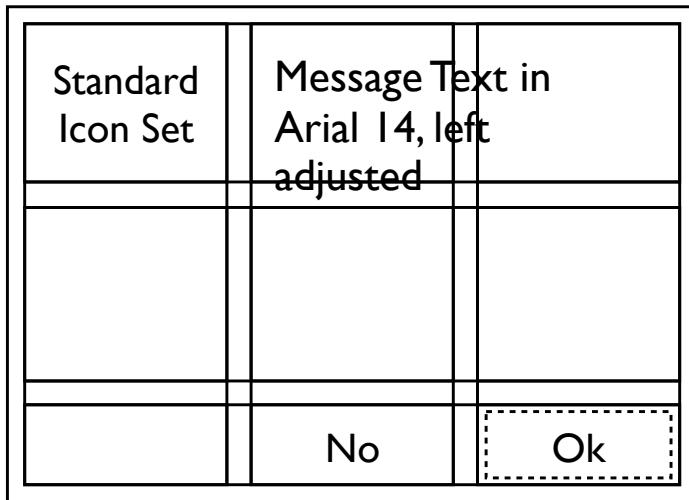
- ***Grid system***
 - a related set of check boxes, radio buttons, or text fields should be aligned according to a regular grid
 - groups of controls and other screen elements should all follow the same grid whenever possible
 - Popularized by Swiss typographers



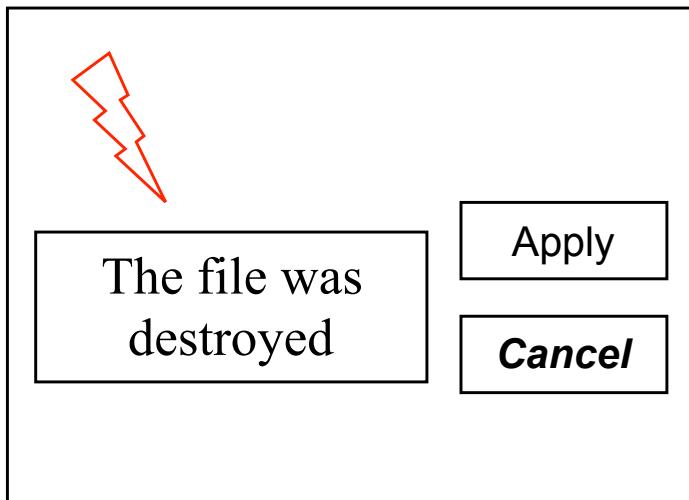
GRID TEMPLATE WITH CONTROL ITEMS



Good:



Bad:



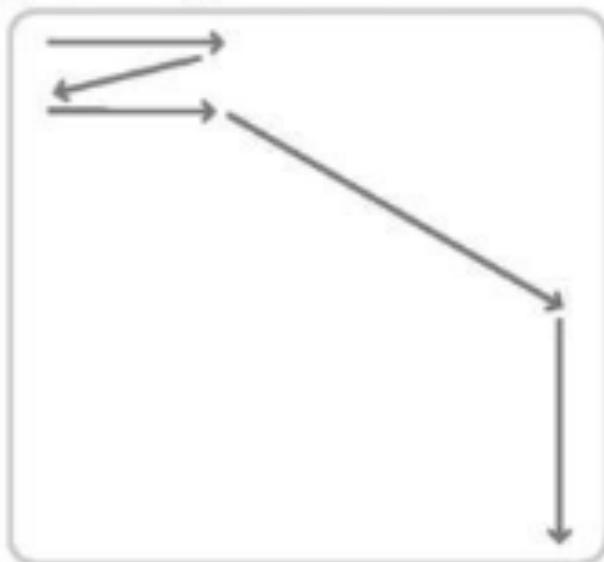
Slide from Saul Greenberg



Create a Logical Path

Good logical flow

Eye movements match the path through the interface



Bad logical flow

Everything is all over the place

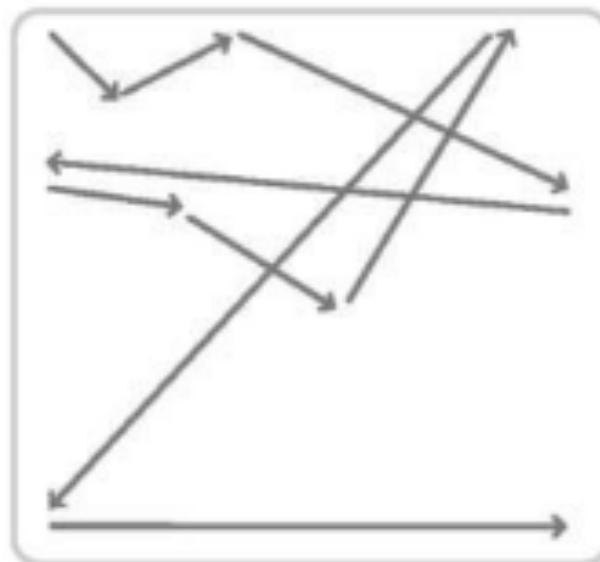


Figure 14-3 Eye movement across an interface should form a logical path that enables users to efficiently and effectively accomplish goals and tasks.

HOW TO CREATE A LOGICAL PATH?

- Use the task tree and create a task flow
 - Pay attention to the “and” tasks. This implies some tasks are done before others
 - For example, on amazon, we would expect users to first find books, put them into the shopping basket one by one, check out, pay, get confirmation (e-commerce site for buying books)
- Make this path correspond to how we read content on the screen.

1. Use visual properties to **group** elements (organization and grouping)
2. Use hue, saturation, value, and position to distinguish levels of **hierarchy** (visually operationalise the hierarchy)
3. The most important elements should be larger, have greater contrast in hue, saturation, and value in relation to other items (bring out the MIT, the most important thing)
4. Don't use all emphasis techniques at once – often one is enough (do not overemphasize)
5. If two items are different in importance, tune down the less important one (less is more)
6. Put related items spatially together to minimize mouse and eye movement (**proximity** of content)
7. Put controls next to items being controlled (**proximity** of controls)
8. Make functionally similar items visually the same
9. Create visual structure using **alignment** and grid (alignment)
10. Create a **logical path** (logical path)



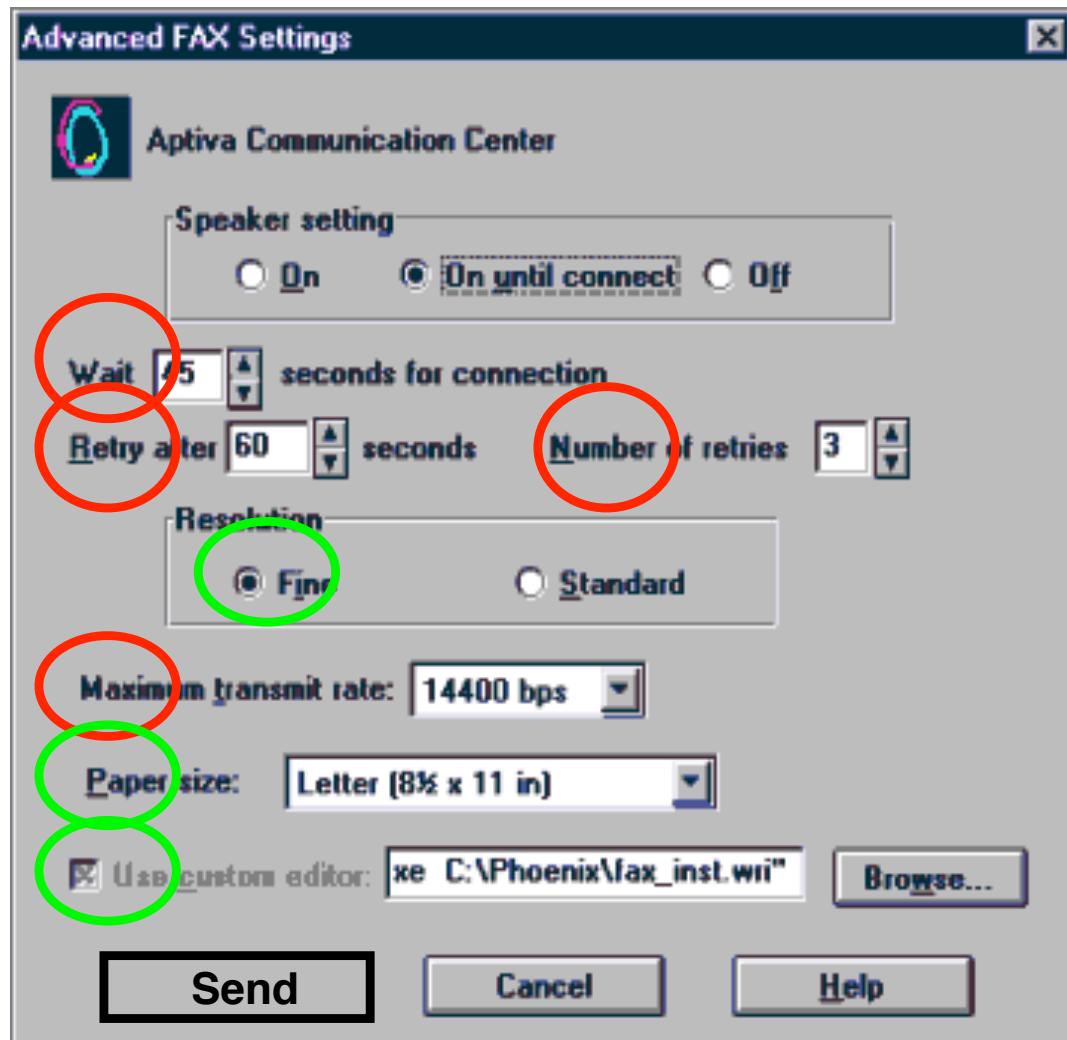
Examples and critiques of visual interface design

CONFUSING CONTROLS WITH DATA ELEMENTS

Find these examples at
[http://halloffame\(gp.co.at](http://halloffame(gp.co.at)

Form Title -- (appears above URL in most browsers and is used by WWW search)	Background Color:
Q&D Software Development Order Desk	FFFFBF0 ...
Form Heading -- (appears at top of Web page in bold type)	Text Color:
Q&D Software Development Order Desk	000080 ...
E-Mail responses to (will not appear on dversch@q-d.com	Background Graphic: ...
Text to appear in Submit button	<input type="radio"/> Mailto
Send Order	<input checked="" type="radio"/> CGI
Text to appear in Reset button	
Clear Form	
Scrolling Status Bar Message (max length = 200 characters)	
WebMania 1.5b with Image Map Wizard is here!!	
<< Prev Tab	Next Tab >>

POOR GROUPING AND VISUAL DESIGN



Did not respect user task order (violation of logical path principle); did not provide organization; alignment is poor

Reference: IBM's Aptiva Communication Center

POOR COLOR SCHEME, ORGANISATION, AND VIH



interface

Dashboard My account 12 Embed code Billing Settings

Dashboard

STREAM SETTINGS

Stream with: Windows Media Server

Select a vhost: 3553

Updating

TRAFFIC USED

You have 1 overdue invoice with total of \$19.9

Date	45Mb used	192 listeners
5 AUG	45Mb	192

SHORTCUTS

Statistics >

1 AUG 2 AUG 3 AUG 4 AUG 5 AUG 6 AUG

Calendar Documents Groups

Calendar Create new event Export view as PDF

Day Week Compact Full Month

07/05/2013

Close views and calendars management

	Mon 06/05	Tue 07/05	Wed 08/05	Thu 09/05	Fri 10/05
7:00	TA meeting for the first week 11:00 AM - 12:00 PM	TA meeting for the first week 11:00 AM - 12:00 PM	TA meeting for the first week 11:00 AM - 12:00 PM	TA meeting for the first week 11:00 AM - 12:00 PM	TA meeting for the first week 11:00 AM - 12:00 PM
8:00					
9:00					
10:00					
11:00					
12:00					
13:00					
14:00					
15:00					
16:00					
17:00					
18:00					
19:00					

▼ Invitations

Add in calendar

Usual meeting - Valentine Sintsova (See)

▼ Views

Default private

▼ Calendars

my calendars

add to view - Default - private Index Outbox

▼ Availabilities



Travel-o-Guide

Your travel mate

[Home](#) [My Account](#) [Search Trip](#) [Create Trip](#) [Contact](#)

Login

User ID

Password

[Forgot your ID or Password](#)

Search by Trip Code

Enter 4 digit code



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- [Skiing in Swiss Alps](#)
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[Whisky bucket a mystery](#)

It started out to be a great night (night before the FMP). Me and two friends were sitting on the beach at dusk. [Read More](#)

Search

Travel Theme

<input type="checkbox"/> culturist	<input type="checkbox"/> shopper	<input type="checkbox"/> discoverer
<input type="checkbox"/> relaxer	<input type="checkbox"/> comfort seeker	<input type="checkbox"/> beach burn
<input type="checkbox"/> travel enthusiast	<input type="checkbox"/> sportsman	<input type="checkbox"/> adventurer

Destination

Continent

Country

City

Duration

-

From To

Budget



Go



Travel-o-Guide

Your travel mate

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Search by Trip Code

Enter 4 digit code

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Search

Travel Theme

culturist shopper discoverer
 relaxer comfort seeker beach bum
 travel enthusiast sportsman adventurer

Destination

Europe

Duration

Weekends 01/09/30 30/09/30

Budget

500

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Popular Destinations



Brazil

- [Brazil](#)
- [Vienna](#)
- [Mexico](#)

Today's Travel Story

[Whisky bucket a mystery](#)

It started out to be a great night (night before the FMP). Me and two friends were sitting on the beach at dusk.. sipping on a nice cold Chang beer, looking around and laughing to ourselves about what a great place this was and saying we wouldn't want to be anywhere else in the world. [Read More](#)



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**VID is simple for a simple user task;
visual hierarchy is clear**

