

http://highlevelstudios.com/images/basic_design.jpg

Basic of Web Design

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COMPUTER SCIENCE DEPARTMENT, CMU
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- 1. Anatomy of a Website***
- 2. Types of Web Pages***
- 3. Steps in Website Design***

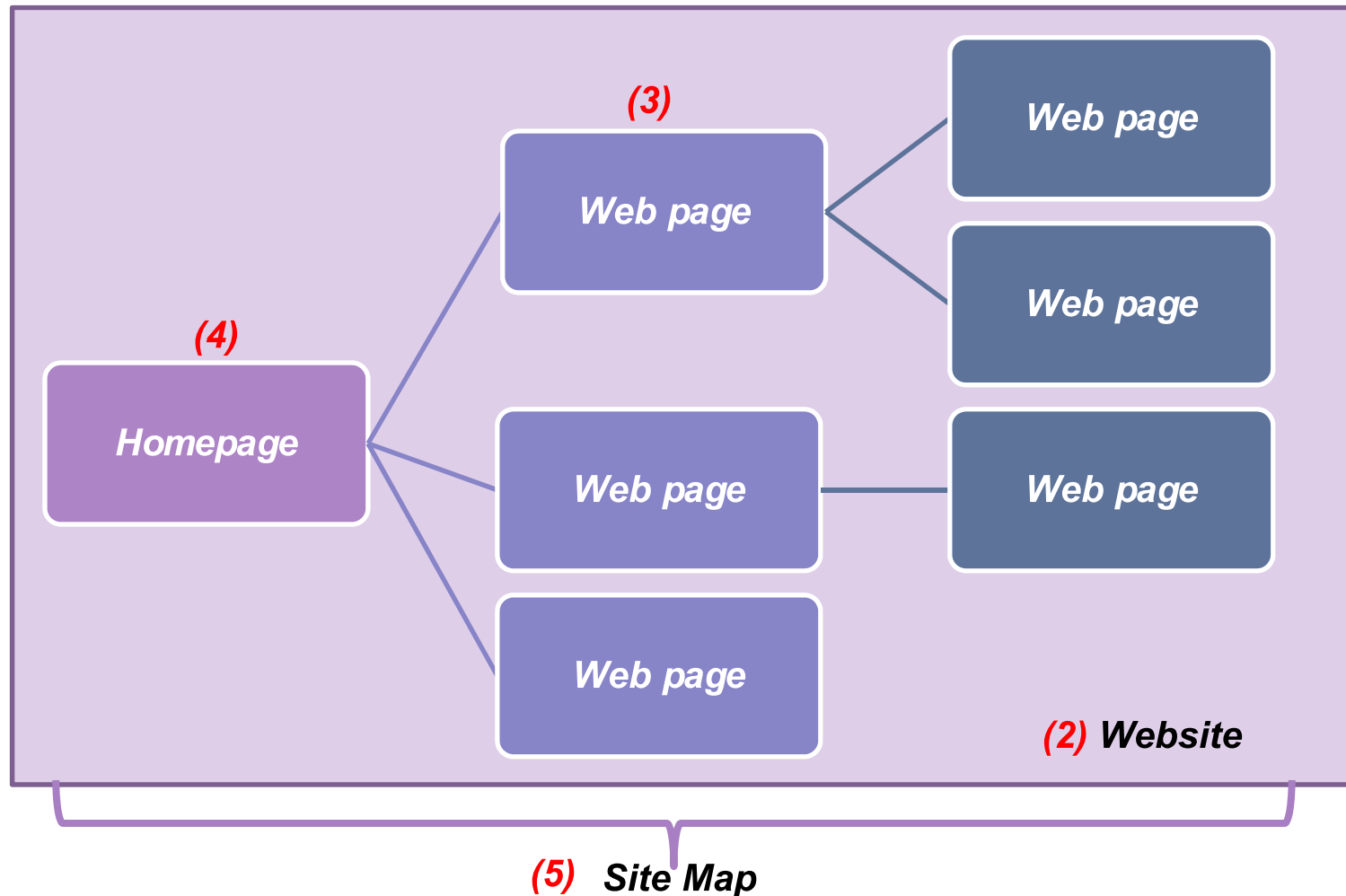


1. Anatomy of a Website



1. Anatomy of a Website

(1) Domain Name: *www.example.com*



1. Anatomy of a Website (cont.)

1. Domain Name

- *Human-readable, unique name that identifies an entity (such as website) on the Internet.*
- *Formed by the rules of Domain Name System (DNS)*
- *Example: <http://www.cs.science.cmu.ac.th/>*

2. Web Page

- *Documents readable by web browser*
- *Text/image/etc*
- *Addressed by URL*

3. Website

- *Set of related web pages served from a single domain*
- *Hosted on the same (set of) server(s)*



1. Anatomy of a Website (cont.)

4. Home Page

- ***Usually the first page you'll see on a website.***

5. Site map

- ***List of pages on a website, and how they are linked together***



2. Types of Web Pages



2. Two Types of Web Pages

Static Web Page

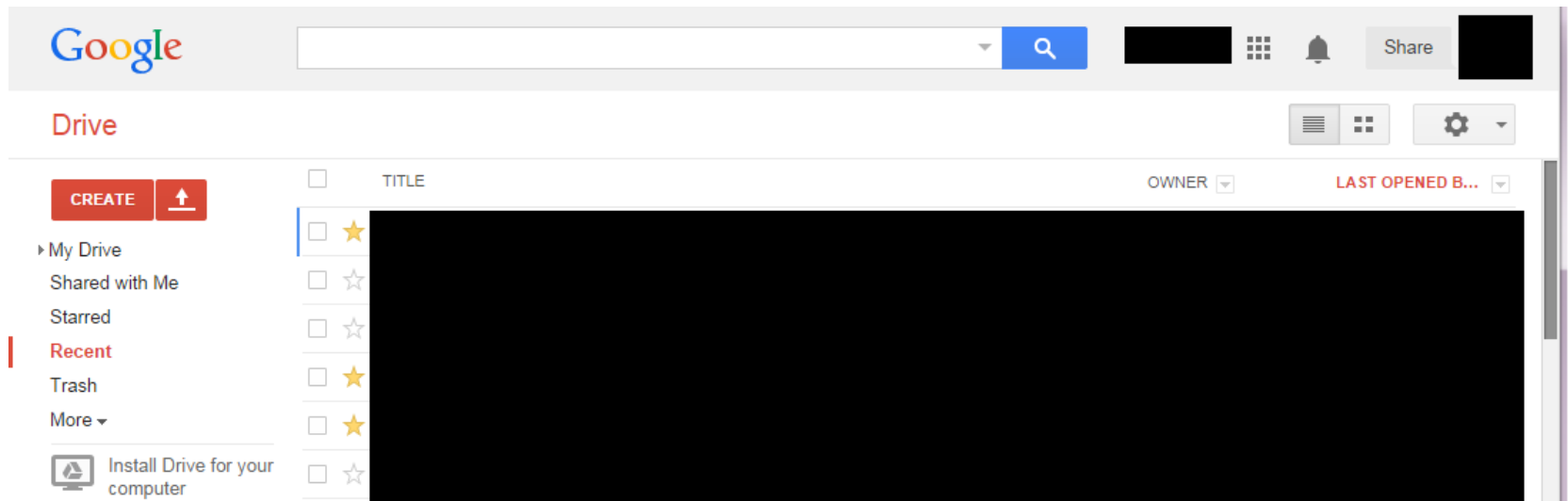
- *File delivered as stored*
- *Content does not changed unless the stored file changes*
- *Written only by Hypertext Markup Language (HTML)*

Dynamic Web Page

- *Generated by web application*
- *Content changes based on user's interaction (and other things)*
- *May interact with a database*



Dynamic Web Page Example



 ***Contents change on user interaction.***



Dynamic Web Page Example (2)

☐ **Google Doodles – Time/Location**



Thai Mother's Day 2014



Valentine 2012



World Cup 2014



Lunar New Year 2010



3. Steps in Website Design



3. Steps in Website Design

3.1. Analysis

3.2. Planning

3.3. Design

3.4. Content

3.5. Development

3.6. Testing

3.7. Deployment



3.1. Analysis

- ❑ ***“What do I want with this website?”***
- ❑ ***Emphasis on preliminary information gathering***
- ❑ ***Work out:***
 - ***Purpose of the website: what is this website about?***
 - ***Target Audience: who is this website for?***
 - ***Intended Use: how will people be using this website?***
 - ***These information will help you decide/create an appropriate website for your target audience***

3.2. Planning

- ❑ ***Outline the overall design of the website***
 - ***Sitemap***
 - ***Underlying/developing technology (types of pages, data required, etc.)***

- ❑ ***Decide the structure of website***
 - ***Features***
 - ***A website should not be too complex***

- ❑ ***Determine how information of the website will be connected***
 - ***Group similar information together for ease of navigation***

3.3. Design

3.3.1. Maximize *usability* for the target audience

3.3.2. Decide an appropriate *page layout*

3.3.3. Select fitting *fonts and typography*

3.3.4. Use the right *colors* to highlight your contents/ set the right mood.

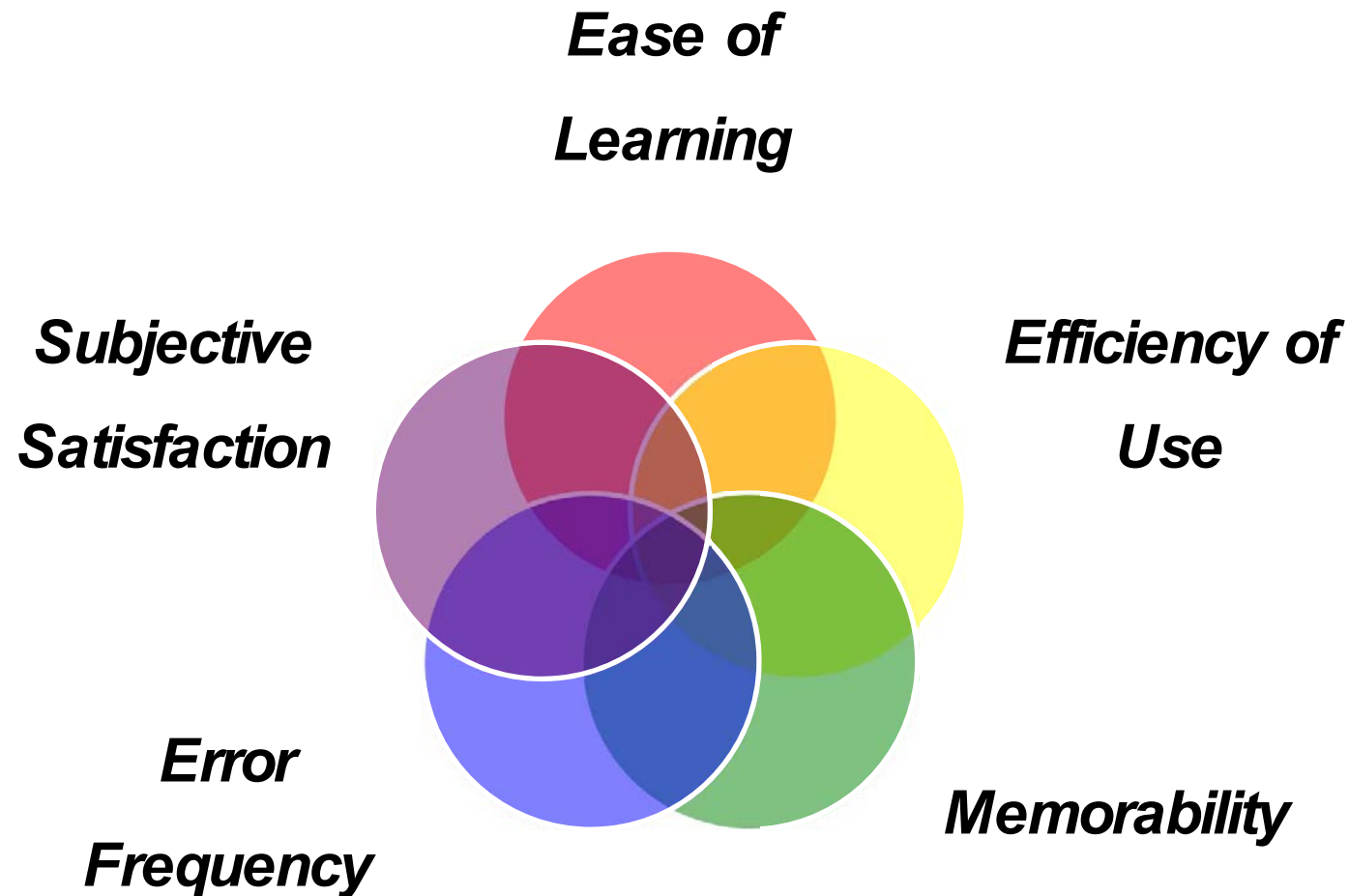


3.3.1 Usability

- ❑ ***Usability is the quality of **user experience** while they are interacting with the system/ website***
- ❑ ***Usability is the main goal of website design***
- ❑ ***Ideal usability is when user can figure out how to use and navigate the website quickly and painlessly***
 - ***What to do, where to click, etc.***
 - ***User interface is important for this***



3.3.1 Usability (cont.)



3.3.1 Usability (cont.)

- ❑ ↑ **Ease of learning** : user can understand the user interface and can access the information in the website quickly
- ❑ ↑ **Efficiency of use** : user can navigate the website efficiently (least time, least amount of clicks, etc.)
- ❑ ↑ **Memorability** : user can remember our website (preferably fondly, so that they will come back)
- ❑ ↓ **Error frequency** : minimized coding error and Navigation error
- ❑ ↑ **Subjective satisfaction** : maximize user's enjoyment (or at least, minimize user's frustration) in using the website

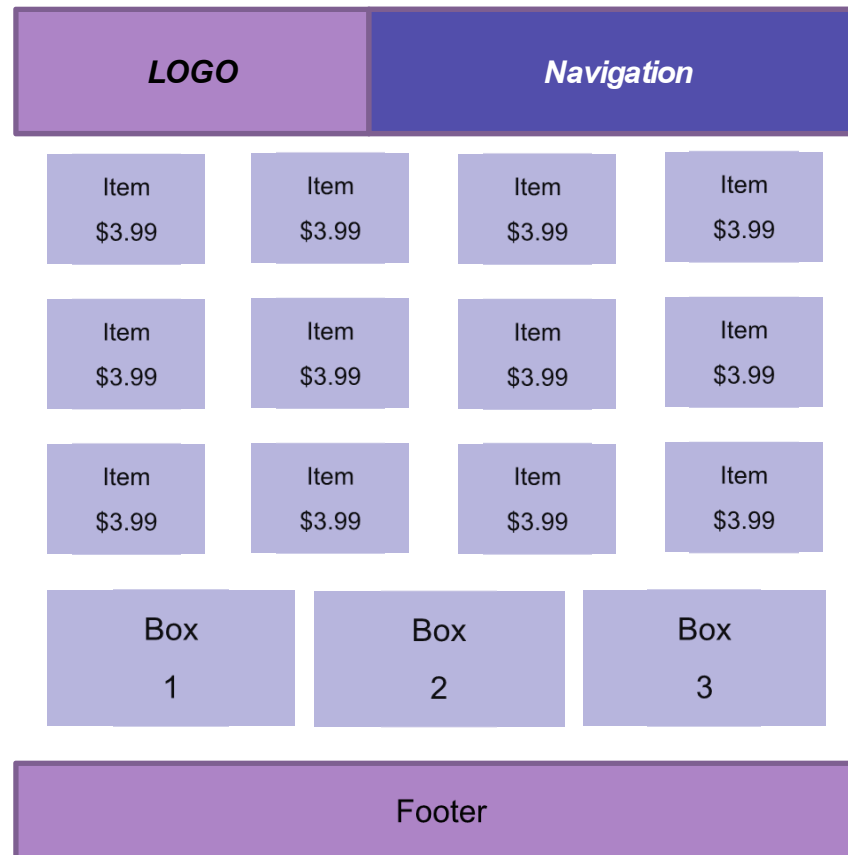


3.3.2 Page layout

- ❑ ***Page layout*** is planning and allocate areas for different information you want to display on the web pages. You should finish page layout before you start building the website
- ❑ ***Wireframe model*** is one of the popular method in page layout
 - *The model will simulate how the contents will look on the webpages with boxes with labels*
 - *No decoration, no “look-and-feel”*
- ❑ ***Page layouts are usually in grids, as the following examples:***

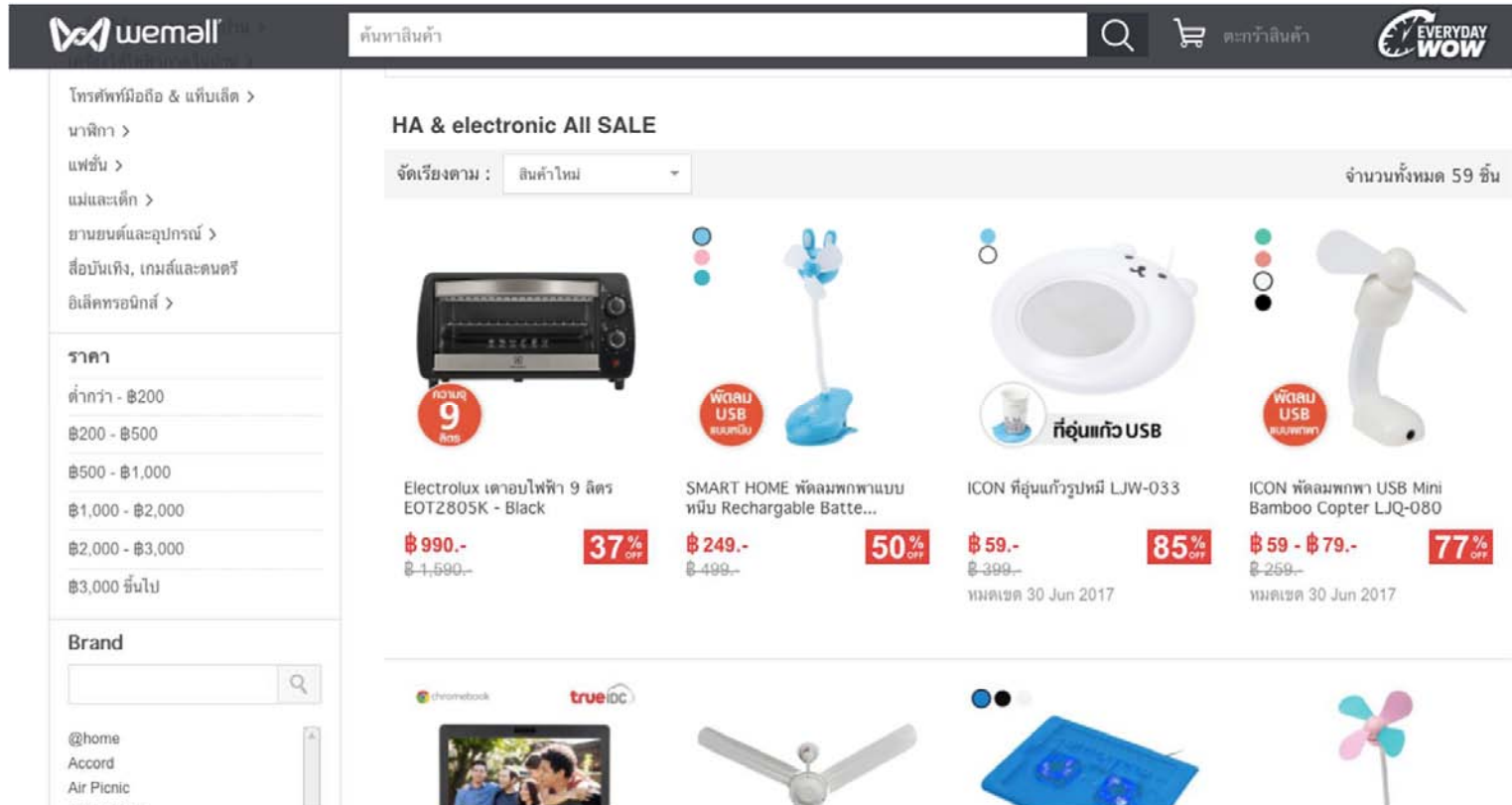
3.3.2 Page layout (cont.)




Layout #1



3.3.2 Page layout (cont.)


Website with Layout #1



wemall ค้นหาสินค้า   ตะกร้าสินค้า 


โทรศัพท์มือถือ & แท็บเล็ต >
นาฬิกา >
แฟชั่น >
แม่และเด็ก >
ยานยนต์และอุปกรณ์ >
สื่อบันเทิง, เกมส์และดนตรี
อิเล็กทรอนิกส์ >

ราคา
ต่ำกว่า - ฿200
฿200 - ฿500
฿500 - ฿1,000
฿1,000 - ฿2,000
฿2,000 - ฿3,000
฿3,000 ขึ้นไป

Brand
 
@home
Accord
Air Picnic

HA & electronic All SALE
จัดเรียงตาม : สินค้าใหม่ จำนวนทั้งหมด 59 ชิ้น

Product	Original Price	Discount	Final Price	End Date
Electrolux เตาอบไฟฟ้า 9 ลิตร EOT2805K - Black	฿1,590.-	37% OFF	฿990.-	30 Jun 2017
SMART HOME พัดลมพกพาแบบ หมั่น Rechargeable Batterie	฿499.-	50% OFF	฿249.-	30 Jun 2017
ICON ที่อุ่นแก้วรูปหมี LJW-033	฿399.-	85% OFF	฿59.-	30 Jun 2017
ICON พัดลมพกพา USB Mini Bamboo Copter LJQ-080	฿259.-	77% OFF	฿59.-	30 Jun 2017

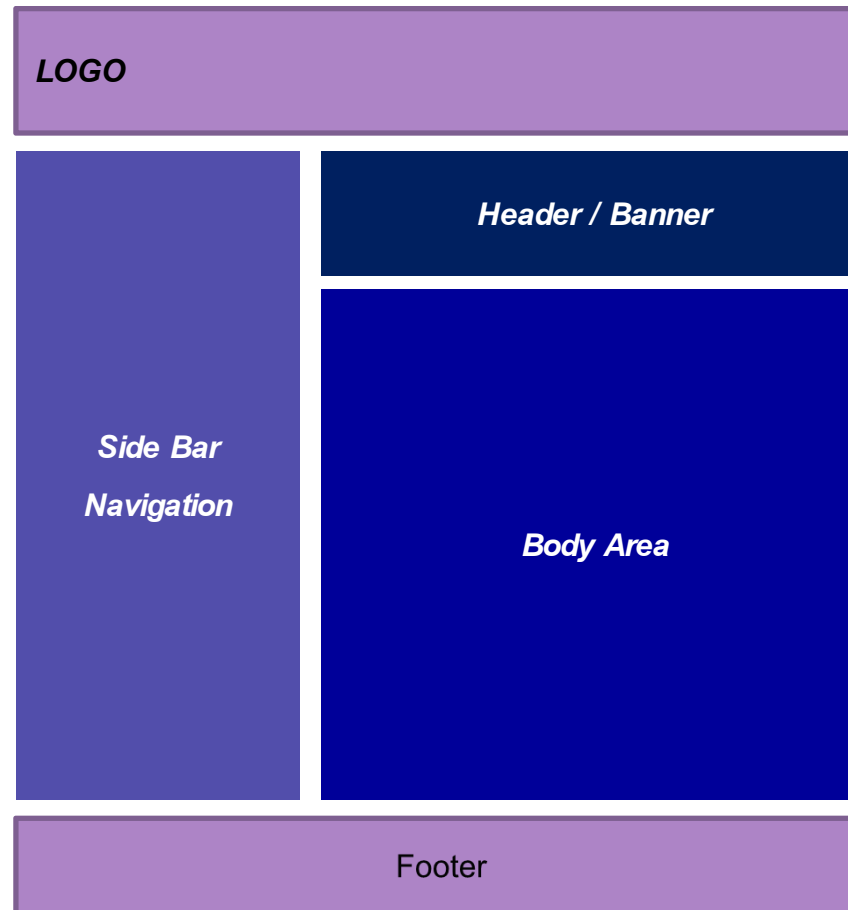
chromebook trueIDC 

<http://www.wemall.com/category/ha-electronic-all-sale-3745837321408.html>



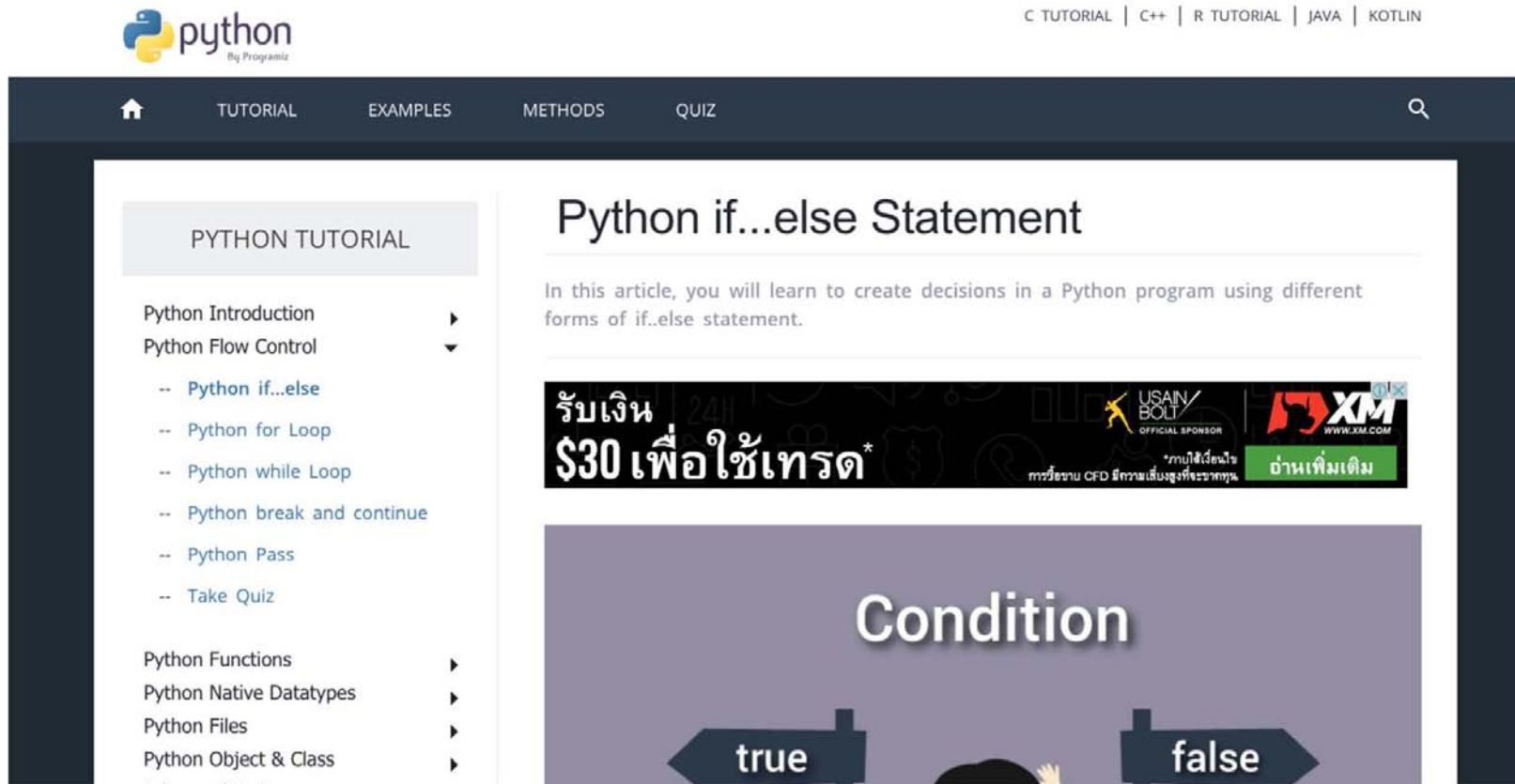
3.3.2 Page layout (cont.)

Layout #2



3.3.2 Page layout (cont.)

Website with Layout #2

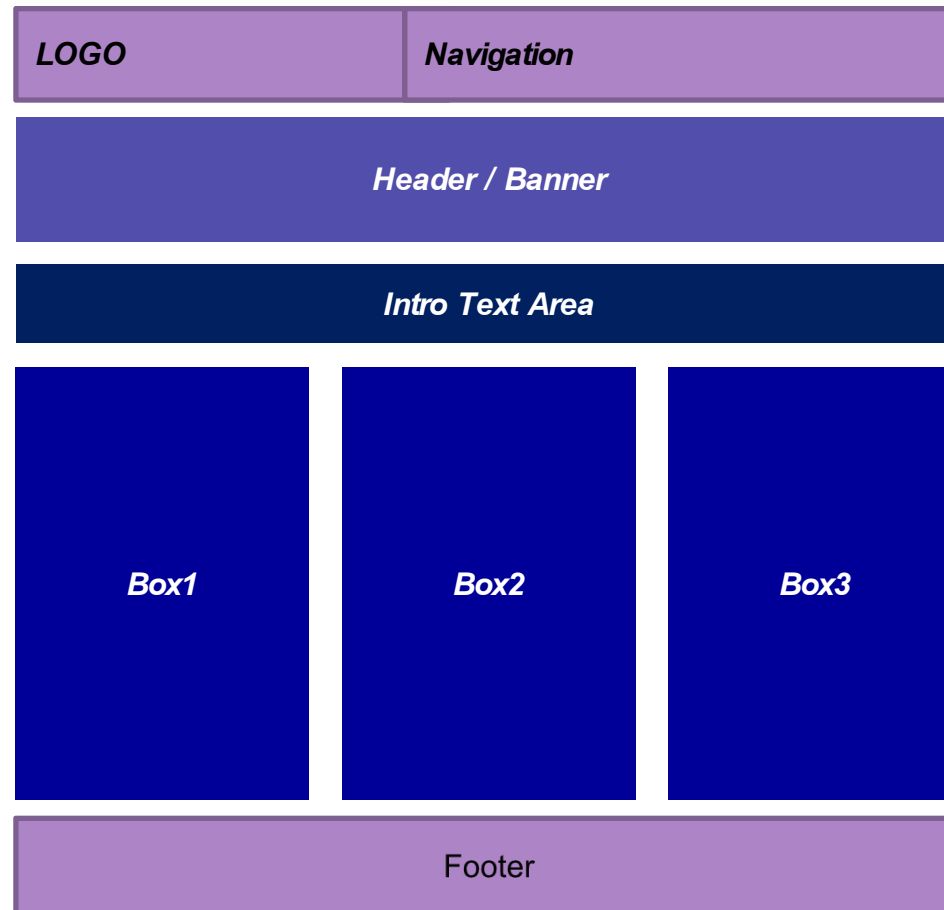


The screenshot shows the Python Programiz website. The top navigation bar includes links for C TUTORIAL, C++, R TUTORIAL, JAVA, and KOTLIN. The main navigation bar has links for TUTORIAL, EXAMPLES, METHODS, and QUIZ. The left sidebar contains a 'PYTHON TUTORIAL' section with a list of topics: Python Introduction, Python Flow Control (expanded to show 'Python if...else', 'Python for Loop', 'Python while Loop', 'Python break and continue', 'Python Pass', and 'Take Quiz'), Python Functions, Python Native Datatypes, Python Files, and Python Object & Class. The main content area is titled 'Python if...else Statement' and includes an introductory paragraph. Below the text is a large advertisement for XM with Thai text 'รับเงิน \$30 เพื่อใช้เทรด*' and 'อ่านเพิ่มเติม'. At the bottom of the main content area is a diagram titled 'Condition' showing a person's head between two arrows labeled 'true' and 'false'.

<https://www.programiz.com/python-programming/if-elif-else>

3.3.2 Page layout (cont.)

Layout #3



3.3.2 Page layout (cont.)

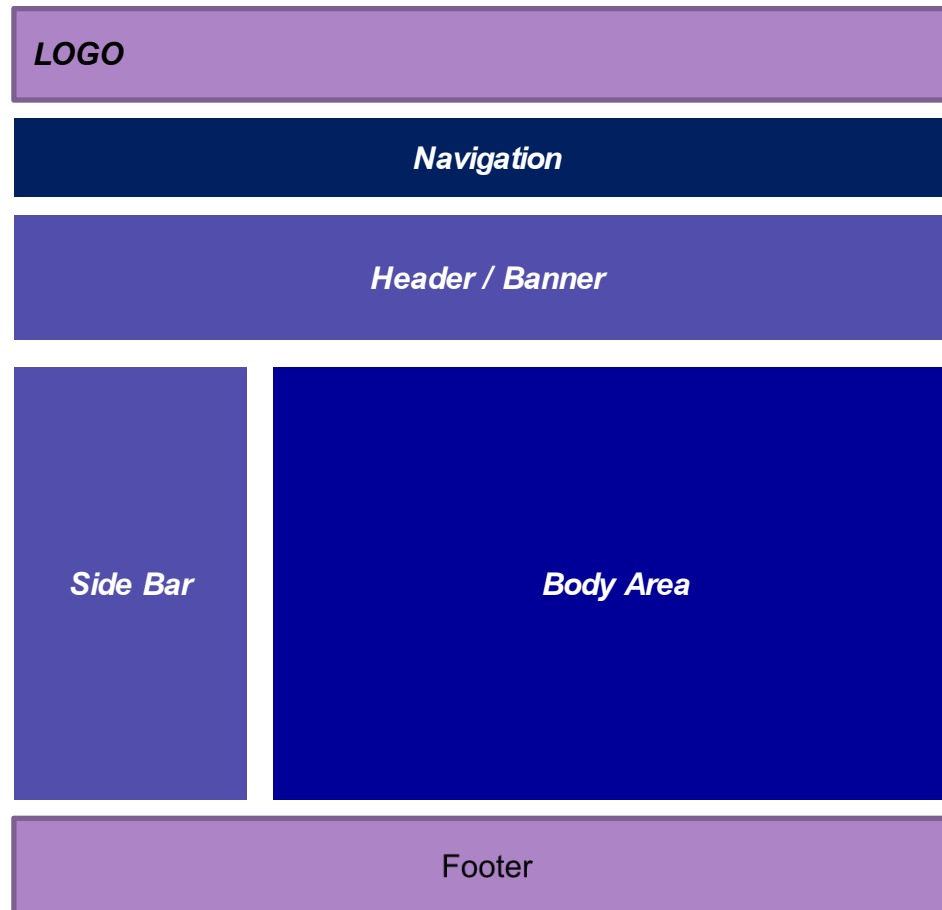
Website with Layout #3



<http://edition.cnn.com/2017/06/15/europe/grenfell-tower-fire/index.html>

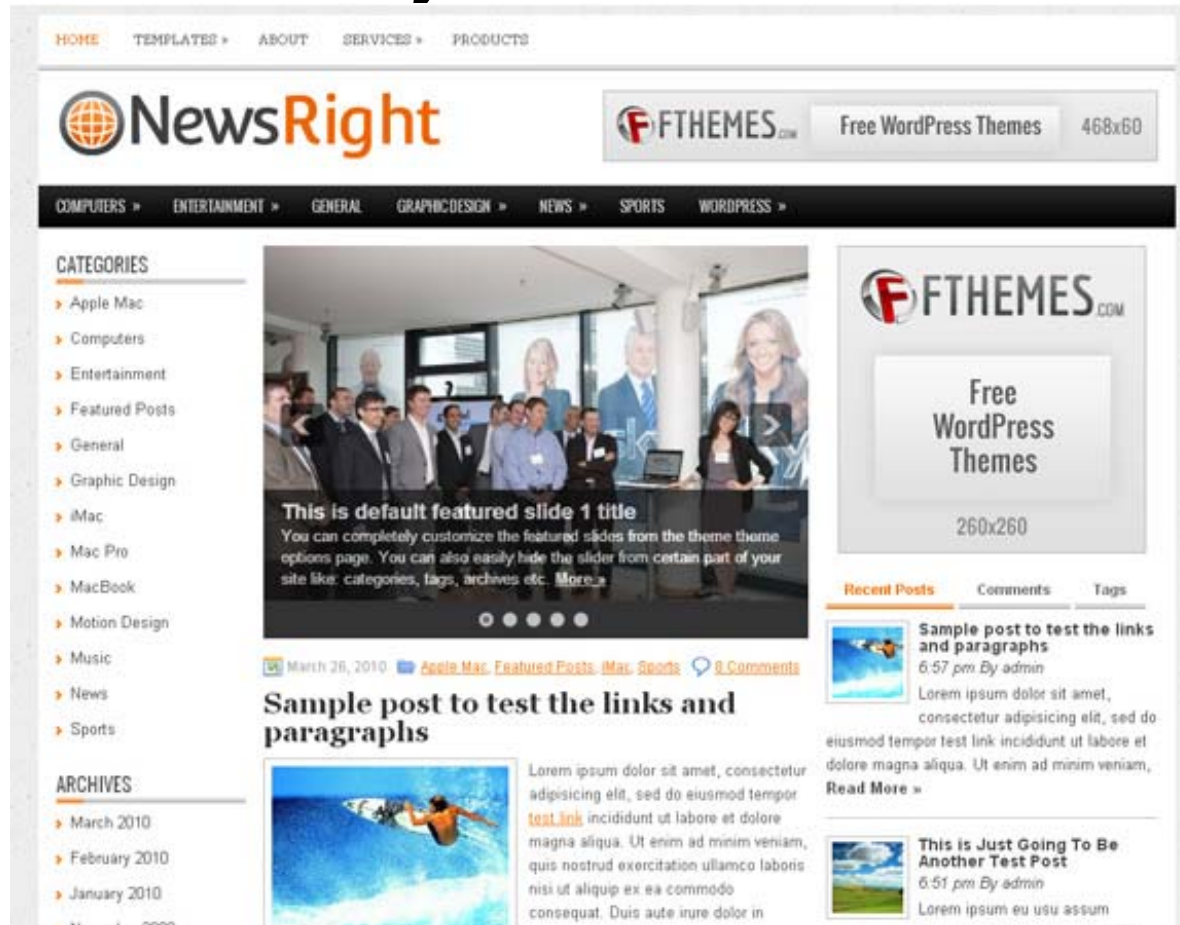
3.3.2 Page layout (cont.)

Layout #4



3.3.2 Page layout (cont.)

Website with Layout #4



<http://doublemesh.com/wp-content/uploads/2012/11/NewsRight.jpg>



3.3.2 Page Layout - Homepage Dimension

- ☐ ***Homepage contents should not exceed web browser's content area***
- ☐ ***The size of the web page should be smaller than most user's screen***
- ☐ ***Avoid horizontal scrolling***
- ☐ ***Although, some vertical scrolling is fine, the webpage should not be too long***
- ☐ ***Standard web page's width is 800 pixels***



3.3.3 Fonts and Typography

- ☐ *The main goal is the readability of contents*
- ☐ *The fonts should also fit the tone of the website (official/casual)*
- ☐ *Appropriate Size*
- ☐ *Font size is in pixels*
- ☐ *Font's color should stand out from the background*
- ☐ *Keep effect such as blinking or moving characters to a moderation*



3.3.3 Fonts and typography (cont.)

❑ *Different fonts
can have
different feels...*

❑ *...and relay
different
intentions*



3.3.3 Fonts and typography (cont.)

- ❑ *Font should stand out from the background*
- ❑ *This applies to other type of presentations, such as Word document or PowerPoint presentations*

*Which one
is more
comfortable
to read?*



3.3.3 Fonts and typography (cont.)

□ Three types of fonts

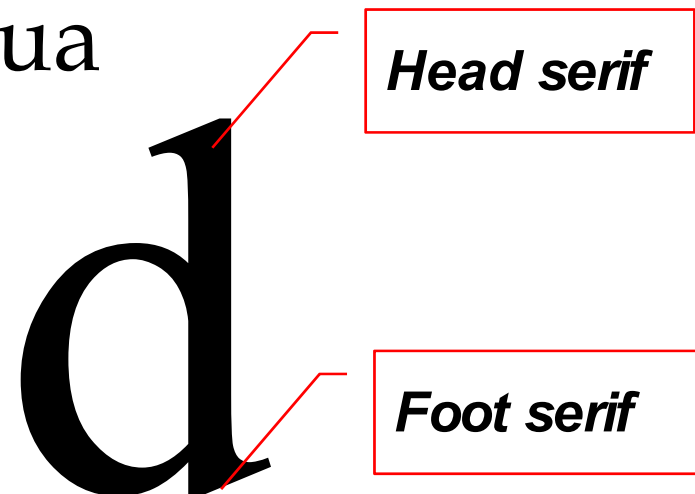
- **Serif**
- **San serif**
- **Script**

Script Nadianne Swing
Sans Serif *Greyhound Script*
Bosis Serif *Squicket*
Alinea Sans Jante Antiqua
TF Forever **Galena**
Franklin Gothic ExCd Alinea Roman
TF Ardent
Bookman Old Style
Gill Sans
Lucida Sans
SHOWCARD GOTHIC
Rotis Sans
Stellar Delta
Vellvé **Silica**
Lucida Bright
Rockwell
Century Old Style
Cicéro



3.3.3 Fonts - Serif

- ❑ *Has small lines at the end of the stroke*
- ❑ *Usually used in official documents*
- ❑ *Mostly for headers than contents*
- ❑ **Example:** Time New Roman, Georgia, Book Antiqua



3.3.3 Fonts - Sans serif

- ❑ **No Serif**
- ❑ **More modern fonts – (Usually) Easy to read, appropriate for contents**
- ❑ **Example: Arial, Tahoma, Calibri**

abc



3.3.3 Fonts - Script

- ☐ *Based on handwriting*
- ☐ *Harder to read*
- ☐ *Used in casual context*
- ☐ *Mostly as headers (if at all)*
- ☐ *Example: Vladimir Script, Freestyle Script*

abc



3.3.4 Color

- ❑ *The main goals of using colors*
 - *To draw user's **attention***
 - *To maintain website's **consistency***
- ❑ *Colors are made of primary colors, one model is **RGB**:*

R = RED

G = GREEN

B = BLUE



3.3.4 Color - Hex Color Code

- ❑ Or **six-digit color code**, use to identify RGB colors
- ❑ Consists of 6 hexadecimal digit, whose value can be 0 – F (15) (0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F)
- ❑ So each R, G, B component can represent 256 values
- ❑ <http://htmlcolorcodes.com>

F F F F F F
R G B



3.3.4 Color - Hex Color Code

□ *Example: white (#FFFFFF), and black (#000000)*

FFFFFF	000000	333333	666666	999999	CCCCCC	CCCC99	9999CC	666699
660000	663300	996633	003300	003333	003399	000066	330066	660066
990000	993300	CC9900	006600	336666	0033FF	000099	660099	990066
CC0000	CC3300	FFCC00	009900	006666	0066FF	0000CC	663399	CC0099
FF0000	FF3300	FFFF00	00CC00	009999	0099FF	0000FF	9900CC	FF0099
CC3333	FF6600	FFFF33	00FF00	00CCCC	00CCFF	3366FF	9933FF	FF00FF
FF6666	FF6633	FFFF66	66FF66	66CCCC	00FFFF	3399FF	9966FF	FF66FF
FF9999	FF9966	FFFF99	99FF99	66FFCC	99FFFF	66CCFF	9999FF	FF99FF
FFCCCC	FFCC99	FFFFCC	CCFFCC	99FFCC	CCFFFF	99CCFF	CCCCFF	FFCCFF

<https://s-media-cache-ak0.pinimg.com/736x/43/03/f1/4303f16eb1ae762f4d8687d5821a9f8d.jpg>



3.3.4 Color - Color Theme

Choice of colors, or color theme, should be:

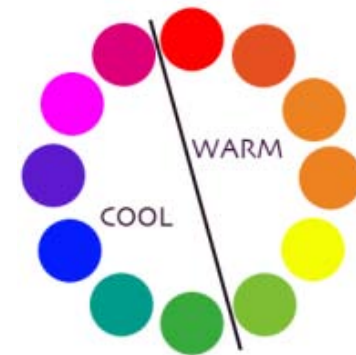
- ☐ ***Appropriate for website content and purpose***
 - ***For example, a website for Department of Education should not be too colorful***
 - ***A website for a cinema complex, on the other hand...***
 - ***If the website has a lot of content, the colors choice should make the content easy to read***
- ☐ ***Fit to the organization***
 - ***Organization may already have their color, the website should also use that to increase credibility***
 - ***(What is CMU's color?)***

3.3.4 Color - Color Theme

□ Different colors have different feels

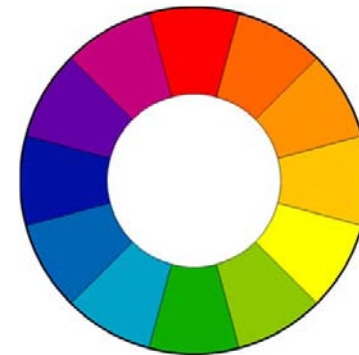
- Warm and Cool Colors
- Warm is energetic, stimulating
- Cool is calming, relaxing

Warm and Cool Colors



□ Color wheel

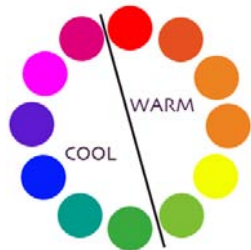
- Used for picking the right color



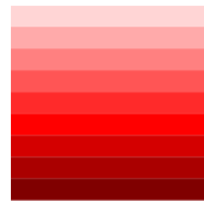
3.3.4 Color - Color Theme

- ❑ *Warm and cool colors*
- ❑ *Monochromatic colors*
- ❑ *Analogous colors*
- ❑ *Triad colors*

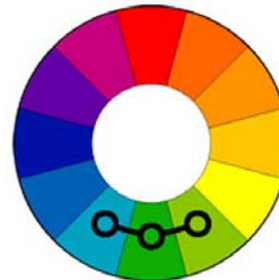
Warm and Cool Colors



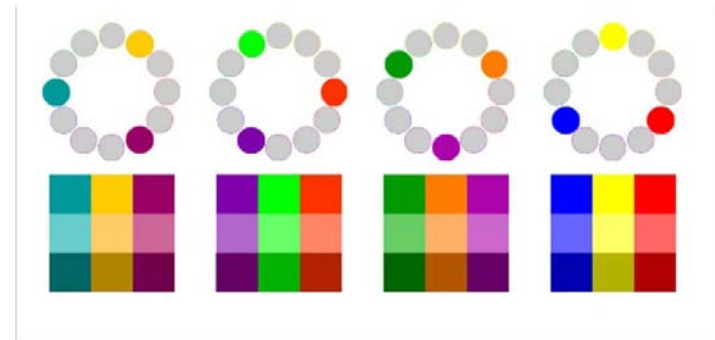
Monochromatic Colors



Analogous Colors



Triad Colors



<http://colorwheel.wikispaces.com/>



3.3.4 Color – Color Theme

Monochromatic Scheme

Using one hue and adding white, black or grey to create tints, tones, and shades.

Tints



or

Tones



or

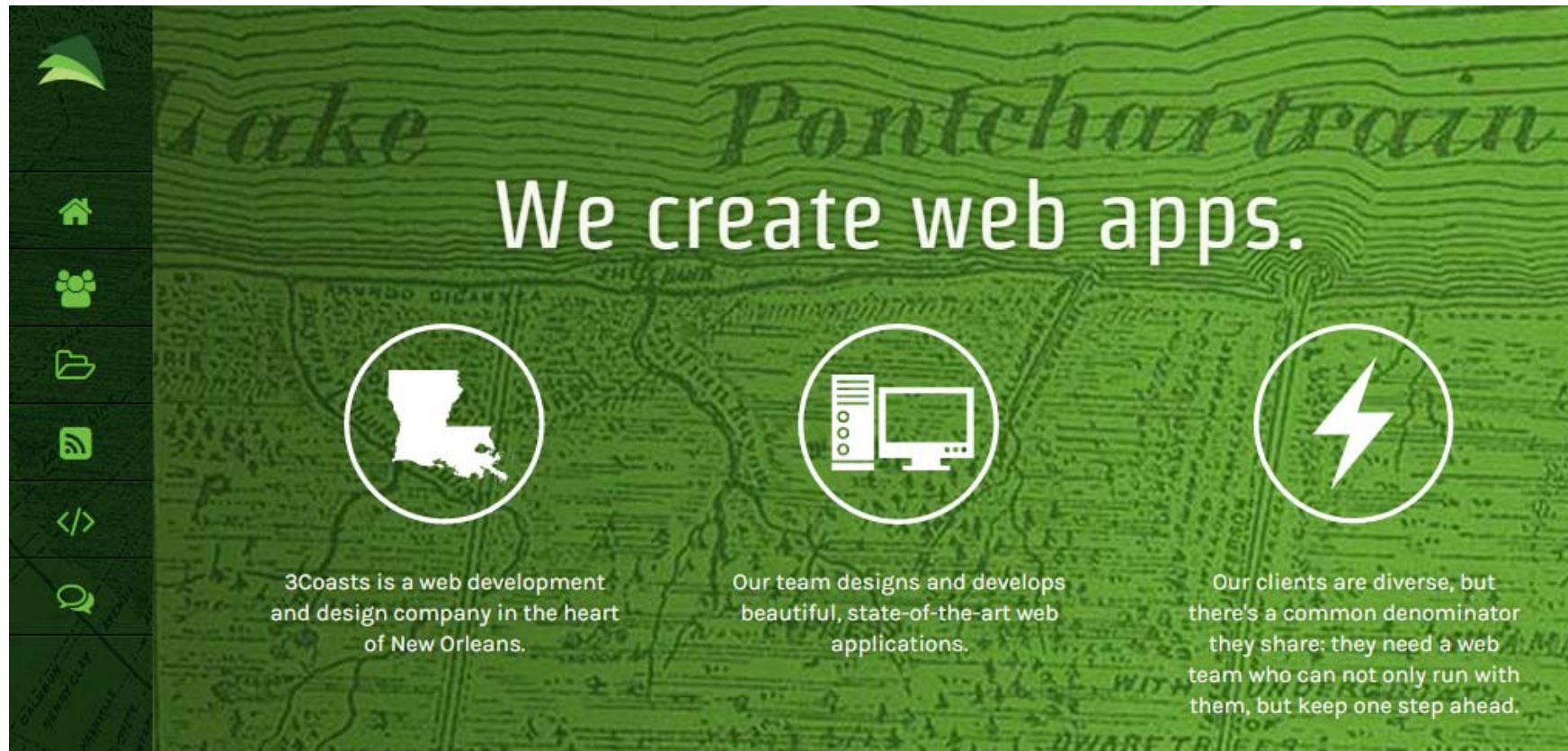
Shades



https://static1.squarespace.com/static/54b1c248e4b0c108166821e2/t/558f09b0e4b0fc259f094916/1435437491449/monochromatic_color_scheme



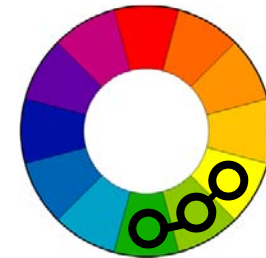
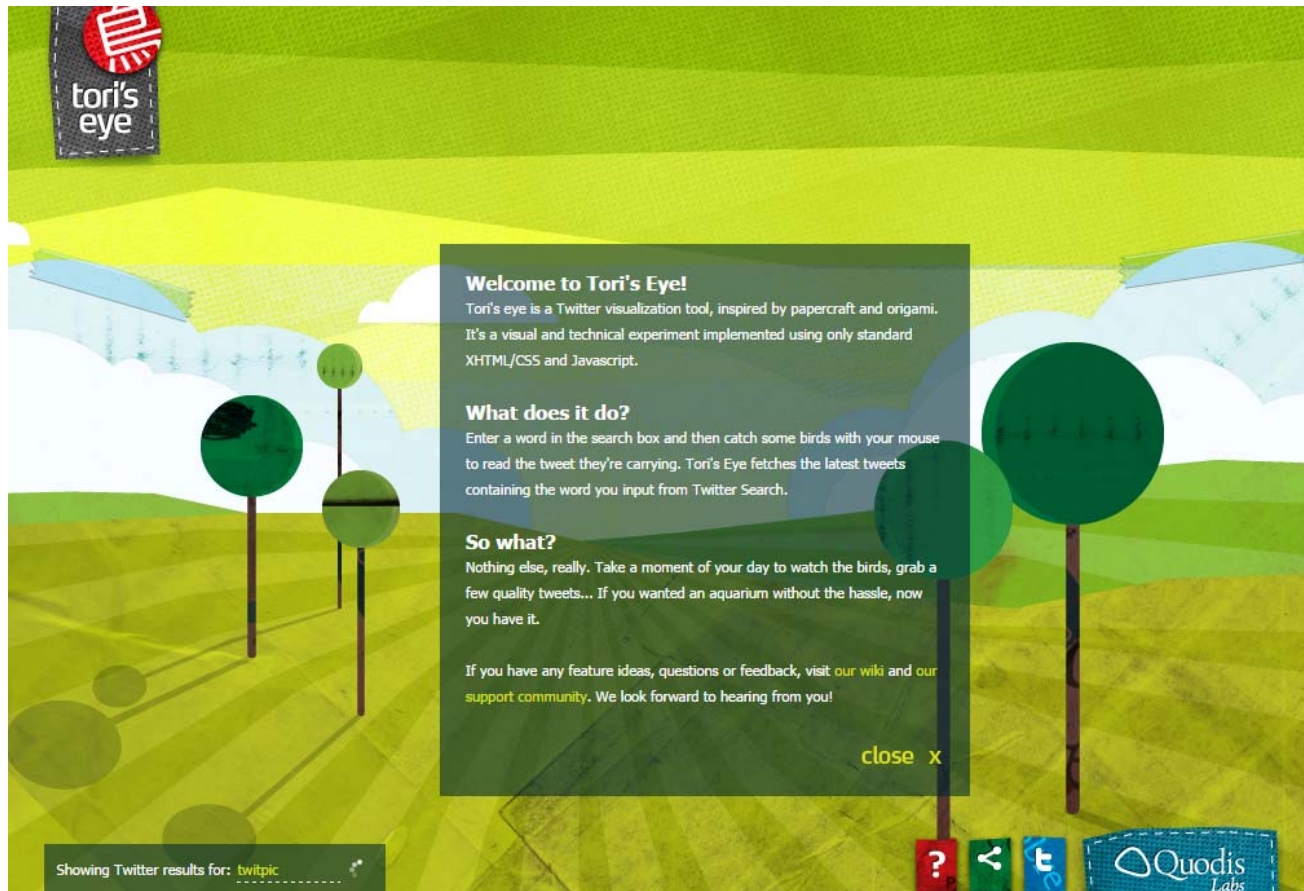
Monochromatic Web Page



www.3coasts.com



Web Page with Analogous Colors



Tori's Eyes: torieyes.quodis.com



3.4. Content

□ *The contents are the most important parts of the website. You need to make sure that the information in the contents has the following properties:*

- **Accuracy:** *you need to make sure that the information is verified to be correct, comes from credible source. Also, make sure the spelling and grammar are correct*
- **Timeliness:** *the information should be up-to-date*
- **Coverage (completeness):** *the information should fit and adequate for the purpose of the website.*

3.4. Content

3.4.1. Copywriting

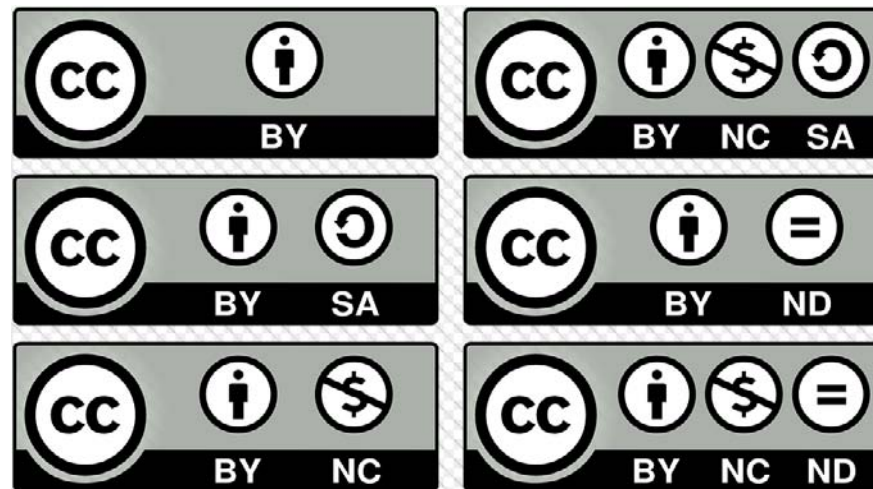
3.4.2. Images and Graphics

3.4.3. Search Engine Optimization (SEO)



3.4.1 Copywriting

- ❑ *To use other people's contents in your website, you should get their permissions. Also, they should be properly credited*
- ❑ *Example of such (conditional) permission is Creative Commons license*



3.4.2 Images and graphics

- ☐ *The images and other graphical objects should load quickly*
- ☐ *The file size should not exceed 100 KB*
- ☐ *For small logo or graphical objects with limited colors, the file size should be about 20 KB*
- ☐ *Use appropriate file types*
 - *True color picture: jpeg or jpg*
 - *Graphical effect: gif or png*
 - ❖ *Make sure to compare file sizes before picking one*
- ☐ *You can use photo editors such as GIMP, Photoshop or Pixlr to edit the pictures/graphics before using them on the website.*

3.4.2 Images and graphics (cont.)

- ☐ ***The images and graphical objects should be relevant to the contents***
- ☐ ***Avoid using excessive animation and other effects***
- ☐ ***If you are going to incorporate music into the website, it should***
 - 1) NOT start automatically OR***
 - 2) There's a button to turn the music off***

3.4.3 Search Engine Optimization

- ❑ ***Search engine*** is a system that gather data about all (listed) web pages on the Internet. This includes how web pages are linked to each other. Search engine can use such information to help users locate what they are interested in
- ❑ ***Search engine*** will have an algorithm that can change information on web pages into search results, ordered in a way that should be useful to the users
- ❑ ***Search engine examples:***



<https://www.brontobytes.com/blog/wpcontent/uploads/2016/03/search-engines.png>

3.4.3 Search Engine Optimization (cont.)

- ❑ **Search Engine Optimization (SEO)** is a process that can help a company or an organization to increase their website's visibility on the search engine
- ❑ **SEO will make a website appears at top order of the search results. This make it easier for users to see the website**
- ❑ **The results will be listed on organic search (non-ads) part of the search results**
- ❑ **More information by googling “search engine optimization starter guide”**

3.4.3 Search Engine Optimization (cont.)

The screenshot shows a Google search results page for the query "baseball cards". The page is divided into several sections:

- Navigation:** Links for Web, Images, Videos, Maps, News, Shopping, Gmail, and more.
- Google Logo:** The standard multi-colored Google logo.
- Search Bar:** Contains the text "baseball cards" and a "Search" button.
- Left Sidebar:** Includes filters for "Everything", "Shopping", "News", "Videos", "Maps", "Images", and "More". It also has sections for "Any time" (Latest, Past 2 days), "All results" (Related searches, Wonder wheel), and "More search tools". A "Something different" section lists "sports cards", "hockey cards", "trading cards", "football cards", and "rookie cards".
- "Paid" Search, AdWords:** A section labeled "Advanced search" containing two sponsored links:
 - Baseball Cards:** www.deanscards.com/baseballcards. Dean's Baseball Cards Over 800,000 Cards Online.
 - Vintage Baseball Cards:** stores.shop.ebay.com/Online-Cards. Huge Collection: Mickey Mantle, Mays Aaron, Ryan (1950's-1979). Stores.shop.ebay.com is rated ★★★★★ on Google Products (30 reviews).
 - Charm City Cards:** Baseball, Football, Basketball, Hockey Boxes, packs, cases. Weekly Specials www.CharmCityCards.com.
- Organic Search:** A section containing:
 - TOPPS - Welcome to the home of topps!** Topps Becomes the Official Card of USA Baseball - The Quirks of 2010 Topps Heritage Baseball - Topps signs #1 Draft Pick Stephen Strasburg to Exclusive Deal ... www.topps.com/ - Cached - Similar
 - Baseball Card | Value Price Guide | Selling Cards Worth** CardPricer.com is the web's most comprehensive online baseball card price guide. Our software allows you to research cards, view cards, and organize cards ... www.cardpricer.com/ - Cached - Similar
 - Shopping results for baseball cards**
 - 1994 Upper Deck Baseball Cards Complete Set (550 cards) Alex ... \$80.00 new - Amazon.com
 - 2007 Topps Series 1 Baseball Cards Box \$79.77 new - Amazon.com
 - 2006 Topps Baseball Cards Unopened Rack Pack (21 cards including 3 ... \$3.99 new - Amazon.com
 - News for baseball cards**
 - Even Bob Sheppard had trading card - 10 hours ago Those three cards were it for Sheppard, despite six decades in baseball, ... So, in all, Sheppard's baseball card total of four trails Mantle by a mere ... ESPN - 781 related articles »
 - Jordin Sparks, Stuart Scott in card set - ESPN - 2 related articles »

http://static.googleusercontent.com/media/www.google.com/en/webmasters/docs/search-engine-optimization-starter-guide.pdf



3.5. Development

3.5.1. Web Authoring Tools

3.5.2. Web Publishing Services

3.5.3. Responsive Web Design



3.5.1 Web Authoring Tools

- ❑ *Tools to create a web page*
- ❑ *For those with programming background, they can use HTML and CSS to create a web page*
- ❑ *The alternative is to use WYSIWYG (What You See Is What You Get) web authoring tools, which can be divided into 2 categories*
 - *Application software such as Adobe Dreamweaver, KompoZer*
 - *Online service that provide web authoring tools alongside web publishing service. Examples: Google Sites, Wordpress.com, Weebly*



3.5.1 Web authoring tools (cont.)

Music with Mrs. Stoa

Emerson Elementary and Starry Kindergarten Music

Home

- Class Announcements
- Class Calendar
- Reading List
- Useful Links
- Lomax: The Hound of Music
- Kindergarten Take Home Notes
- Emerson Encore: 2nd & 3rd Grade Chorus
- Contact Me

Meet Your Teacher

Tip: How to post an announcement, student of the month, word of the week, or new assignments

Recent Announcements

2nd Annual Dance The 2nd Annual Barn Dance was held on 15th. The gym families danced with Mr. Roth and Mrs. Stoa. One of the highlights of the evening...

Posted Feb 3, 2010 2:43 PM by Kelli Stoa

Cedar Rapids Opera Theatre Performs Cedar Rapids Opera Theatre performed, "Little Red's Most Unusual Day" for students at both Starry and Emerson on January 13th, 2010. The story line was a comic take on...

Posted Feb 9, 2010 10:51 AM by Kelli Stoa

Winter Assembly Staff and students alike enjoyed a school assembly in the gym during our last afternoon together in 2009. 3rd grade students narrated as each grade level presented songs

Click here to read about Mrs. Stoa

Google Sites

Kosmos Example Blog

HOME SAMPLE CV SAMPLE TEACHING SAMPLE BLOG FOR MORE HELP...

Wordpress

About

Welcome to the Kosmos sample WordPress.com page/blog. This page has been set up so that you can see how a free WordPress page can be used to create a free personal website and/or blog.

If you plan to use your WordPress site as a personal site, you should consider first disabling comments.

[How to disable comments](#)

This is the sidebar. Depending on the theme you choose, you can change the side that it's on or get rid of it altogether. WordPress allows you to add "widgets" here. We have added the Twitter and Facebook widgets for Kosmos, but there are many more to choose from. For more on using social media like Facebook as a teacher, check out our podcast with Dr. Stephen Horvitz on Social Media for Academics.

PAULA NEAL MOONEY

Blogger

Wheel in the Sky Keeps on Turning...

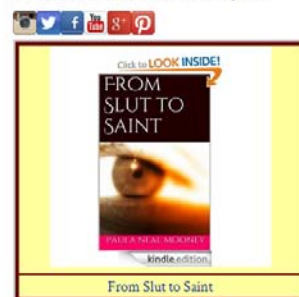
- Paula's Yahoo stuff...
- Paula's CNN iReport stuff...
- Paula's Examiner stuff...
- Some of Paula's Amazon Kindle stuff...
- Paula's Venture Beat stuff...

Tuesday, May 08, 2007

Paula's List of Blogger Salaries...Are you on the list?

Update: For those who continue to enjoy this post, check out my

Thanks for the "Like" and "Follow" and reading love...



Terry Richardson's Diary

01. Terry 02. Diary 03. People 04. Models 05. Random 06. T Shirt of the Week 07. Archive 08. Twitter 09. Facebook 10. 12. Subscribe

Tumblr

NEWER

September 29, 2011



ภาควิชาวิทยาการคอมพิวเตอร์
COMPUTER SCIENCE DEPARTMENT, CMU
คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่

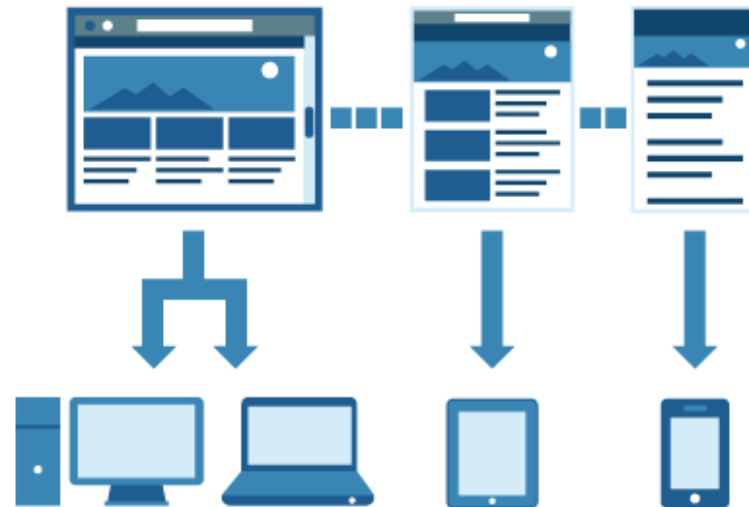
3.5.2 Web Publishing Services

- ☐ ***Provide web authoring tools, hosting, and (sometime) domain name***
- ☐ ***Included web authoring tools are usually in WYSIWYG***
- ☐ ***Usually provide themes for easy selection of your website's look***
- ☐ ***Can have free & paid versions***



3.5.3 Responsive web design

- ❑ ***Modern way of website design to display contents***
- ❑ ***Design for webpages to display on different devices (screen sizes) with automatic adjustment***



<https://web.stoms.co.th/wpcontent/uploads/2013/10/responsive-web1.png>



3.6. Testing

❑ *There are a few steps in preliminary website testing:*

- **Technical testing:** *checking the navigations that all clicks will take you to the correct destinations and/or actions*
- **Browser compatibility:** *can the web pages be display correctly on all browsers*
- **Goal accomplishment:** *check that the contents fit the purposes of the website*



3.7. Deployment

- ❑ ***When you distribute the website for actual use, you should also do:***
 - ***Have a way of **monitoring** to watch over all workings of the website and a way for users to submit error report***
 - ***When errors are detected, perform **bug fixes** to fix those errors***
 - ***Also, regularly perform **maintenance**, not only to make sure the website works correctly, but to make sure the information on the website remain correct, timely and complete***