

# PROGRAMMING FOR NON-PROGRAMMERS

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@castig | pfnp.me

# THE QUESTION

How do I communicate an idea from my head... to a computer?



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# PROGRAMMING FOR NON-PROGRAMMERS

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**1. WEB DEV PROCESS**

**2. WHICH LANGUAGE?**

**3. CODE!**

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# PROGRAMMING FOR NON-PROGRAMMERS

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**1. WEB DEV PROCESS**

**2. WHICH LANGUAGE?**

**3. CODE!**

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# PROGRAMMING FOR NON-PROGRAMMERS

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**1. WEB DEV PROCESS**

**2. WHICH LANGUAGE?**

**3. CODE!**

What is Programming?  
(...and why do I care?)

# PROGRAMMING

- a set of instructions
- used to solve a problem

# PEANUT BUTTER & JELLY SANDWICH





# PEANUT BUTTER & JELLY SANDWICH

- find two slices of bread



# PEANUT BUTTER & JELLY SANDWICH

- find two slices of bread
- spread peanut butter on one slice of bread



# PEANUT BUTTER & JELLY SANDWICH

- find two slices of bread
- spread peanut butter on one slice of bread
- spread jelly on the other slice of bread



# PEANUT BUTTER & JELLY SANDWICH

- find two slices of bread
- spread peanut butter on one slice of bread
- spread jelly on the other slice of bread
- put the two slices of bread together



**PROBLEM SOLVED!**



# PROGRAMMING

- a set of instructions
- used to solve a problem

# WHY ARE WE HERE?

- to learn to think like a developer

# WHY ARE WE HERE?

- to learn to think like a developer
- to understand the tools (aka. Programming Languages)



# WHY ARE WE HERE?

- to learn to think like a developer
- to understand the tools (aka. Programming Languages)
- and to understand the constraints

# I. WEB DEV PROCESS

## Understand the Problem

# Vocabulary

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# PROGRAMMING FOR NON-PROGRAMMERS

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## VOCABULARY



*In a browser*

- ▶ CHROME
- ▶ SAFARI
- ▶ FIREFOX
- ▶ OPERA
- ▶ INTERNET EXPLORER



*Directly on your Operating System*

- ▶ IPHONE
- ▶ ANDROID
- ▶ OSX
- ▶ WINDOWS



- ▶ DECODE THE GENOME
- ▶ XBOX
- ▶ VIDEO GAMES
- ▶ OTHER HARDWARE
- ▶ ANYTHING ELSE I MAY HAVE MISSED

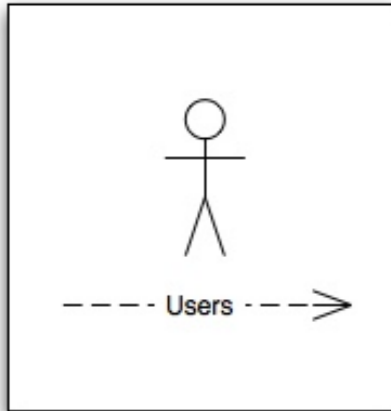
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# PROGRAMMING FOR NON-PROGRAMMERS

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[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## PRODUCT DEVELOPMENT



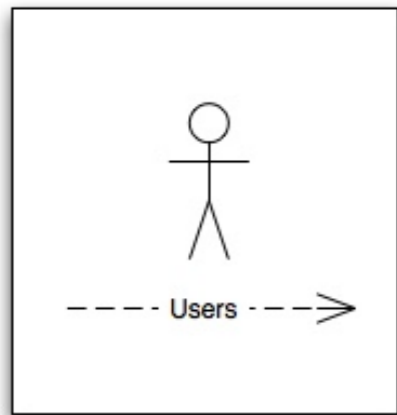
- MVP - Minimal Viable Product
- Minimum features needed to test your assumptions
- Build, Measure, Learn
- Validate your idea

*The worst thing*  
is to build something  
that no body wants.

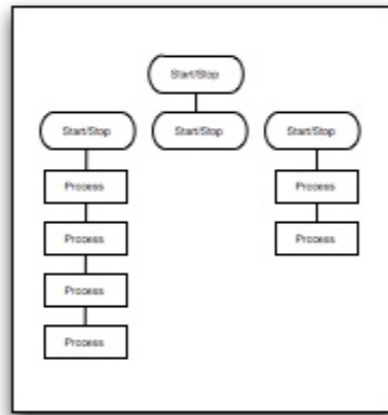
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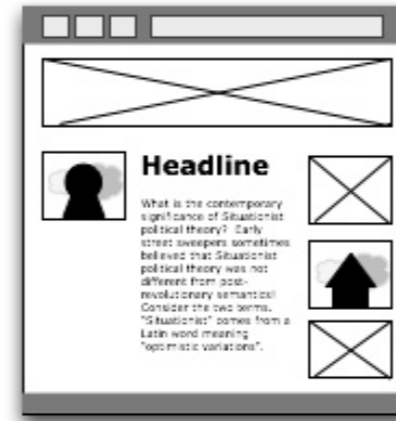
## A TYPICAL WEB DEVELOPMENT CYCLE



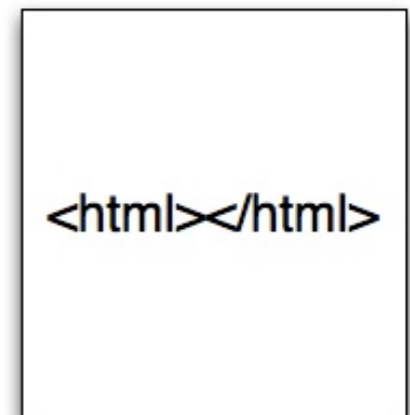
User-Experience  
(UX)



Information  
Architecture (IA)



Visual Design

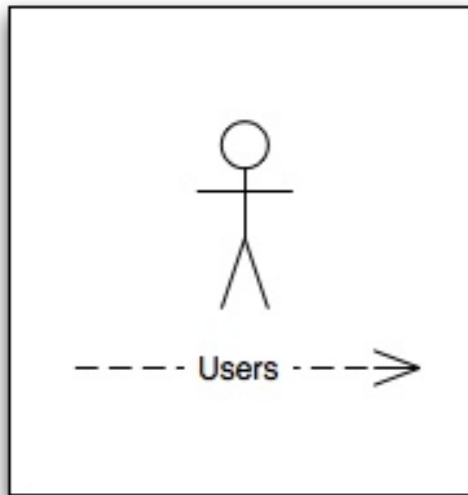


Development

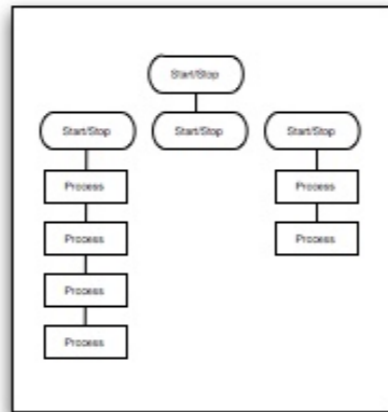
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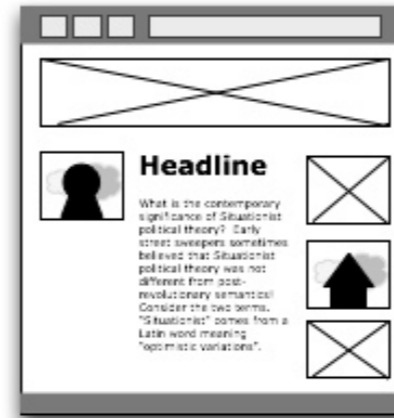
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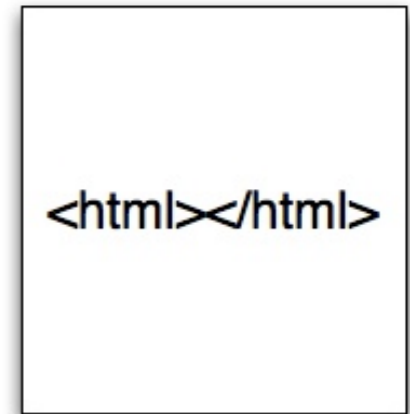
User-Experience  
(UX)



Information  
Architecture (IA)



Visual Design



Development



## DERBY JACKPOT

## SIGNUP

SIGN UP, Bet on LIVE RACES and WIN REAL CASH!

**PLAY NOW**Already have an account? [Login](#)**Play**  
With Your Friends**Watch**  
Live Horse Races**Win**  
Real Cash

Must live in the USA and be over the age of 18 to play.

RECENT  
BIG  
WINNERSBill from NY  
won \$320Eric from NY  
won \$212Walter from NY  
won \$91Grace from NY  
won \$72Dan from NY  
won \$74

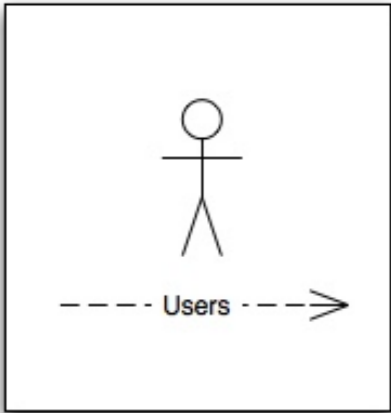
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# PROGRAMMING FOR NON-PROGRAMMERS

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[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## USER-EXPERIENCE (UX)



- Who are our users?
- How do we know if the user is hitting their goals?
- What are the most important features of this site?
- What does the program do when there are errors?
- What are the biggest risks?

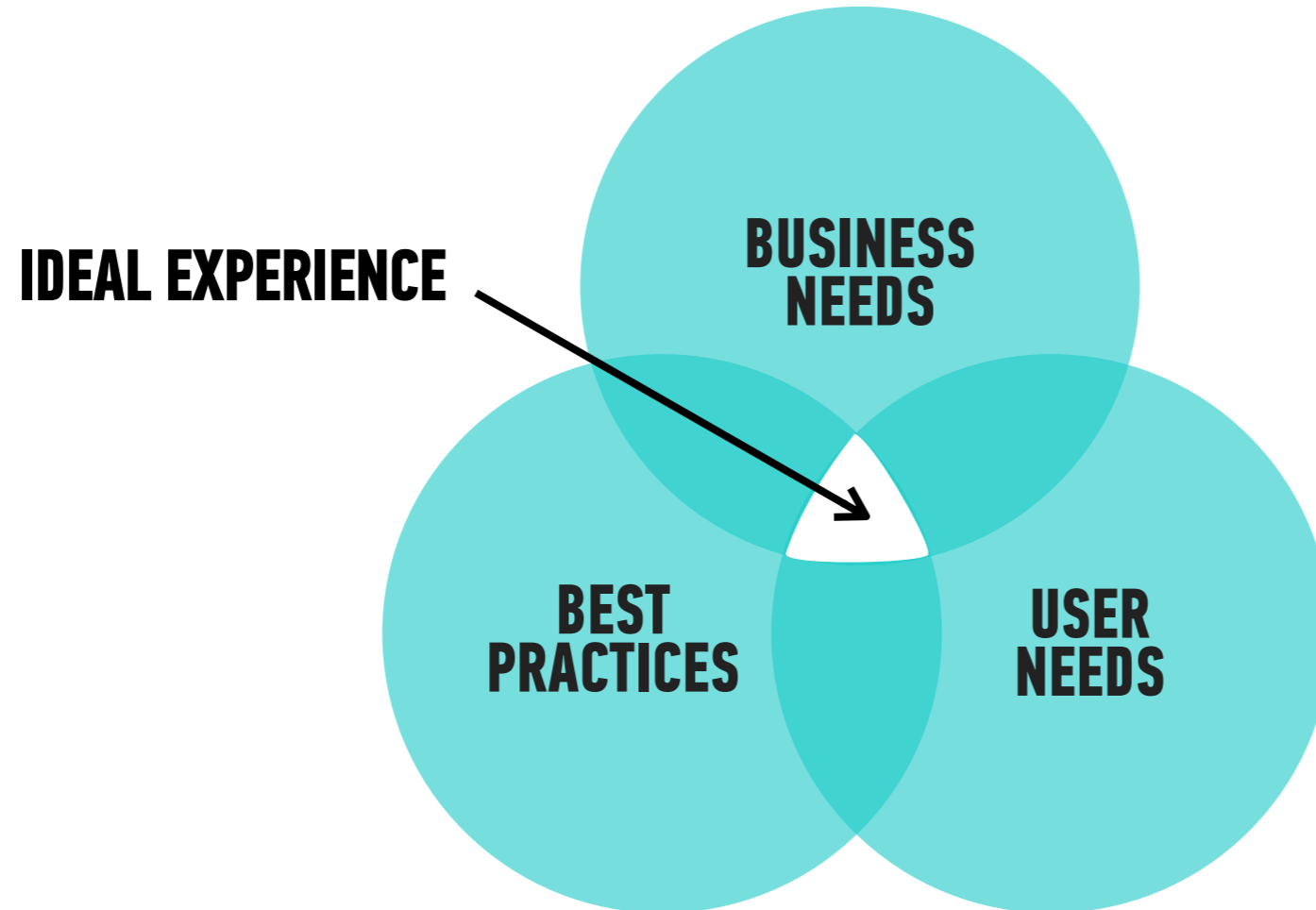
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# PROGRAMMING FOR NON-PROGRAMMERS

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[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## UX



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## PROGRAMMING FOR NON-PROGRAMMERS

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“I want all of the features!”

# PROGRAMMING FOR NON-PROGRAMMERS

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## CASE STUDY: IDEAS, FEATURES, GOALS



# PROGRAMMING FOR NON-PROGRAMMERS

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## Who is our user?

The image shows a screenshot of the DerbyJackpot website. The main content area features a sign-up form with the following elements:

- DERBY JACKPOT** logo at the top.
- SIGNUP** banner with three stars on either side.
- Text: **SIGN UP, Bet on LIVE RACES and WIN REAL CASH!**
- Form fields for **Email**, **Password**, and **Confirm Password**.
- PLAY NOW** button.
- Text: **Already have an account? Login**

On the right side, there is a **RECENT BIG WINNERS** section with a list of winners:

Winner Name	Amount Won
Bill from NY	won \$320
Eric from NY	won \$212
Walter from NY	won \$91
Grace from NY	won \$72
Dan from NY	won \$74

At the bottom of the main content area, there are three promotional boxes:

- Play With Your Friends** (with social media icons for Twitter and Facebook)
- Watch Live Horse Races** (with a laptop icon)
- Win Real Cash** (with a stack of money icon)

Below these boxes is the text: **Must live in the USA and be over the age of 18 to play.**

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## CASE STUDY: USER RESEARCH

The image is a screenshot of a Facebook user's profile page. At the top, there is a blue navigation bar with a search icon on the left, a profile picture of a man, and the name "Christopher" followed by "Home" and a dropdown arrow. Below the navigation bar, there is a "Sponsored" section with a megaphone icon and a "Create an Ad" link. The main content area features a "Previous · Next" link. On the left side, there is a large, partially visible promotional banner with the text "Get 50% off one cup of" and "5th birthday!". On the right side, there is a sponsored advertisement for SurveyMonkey. The ad has a title "\$50 Giftcard for Gamblers" and the URL "surveymonkey.com". It includes an image of red dice and playing cards. The ad text reads: "Do you gamble and play games online every month? Answer a short survey for a chance to win a \$50 gift card to Best Buy."

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## CASE STUDY PERSONAS



**Mary**  
*Dickinson, North Dakota*



**John**  
*Long Island, New York*



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## PERSONAS: WHAT JOHN CARES ABOUT...

- Has 5+ computers in his home but says he would gamble on his iPad or a PC netbook running Firefox primarily.
- Has an iPhone 4, can't wait to convince his wife he needs the new one. Doesn't think he would gamble on the iPhone but could see wanting to check his account.
- Has a Facebook and Twitter profile but would not want to use it to setup an account. He would like to be able to see who of his Twitter and Facebook friends is playing the game however.
- Watches video online, sports clips mostly.
- Pays for Netflix.
- Does most, if not all, shopping online out of convenience and selection.

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## PERSONAS: WHAT JOHN CARES ABOUT

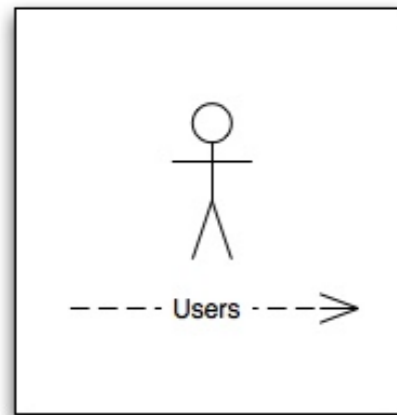
- › This isn't sketchy is it?
- › How can I get my friends involved?
- › How often are the races on the weekends?
- › How good quality are the videos?
- › How will the load time be on my iPad?
- › How much do I need to play?
- › How much could I win?
- › Do I need to know about horses to make smart bets?

# Information Architecture

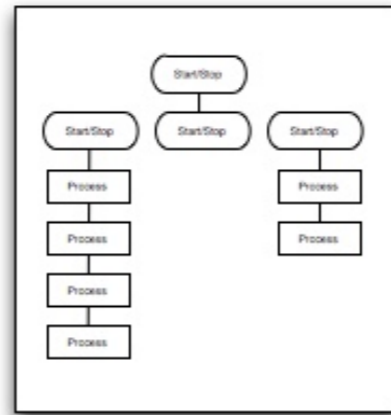
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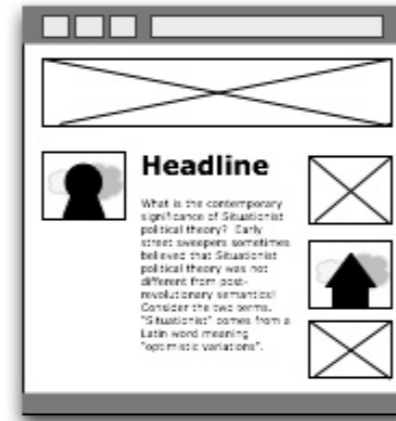
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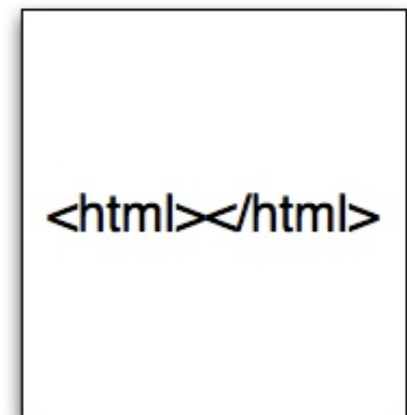
User-Experience  
(UX)



Information  
Architecture (IA)



Visual Design

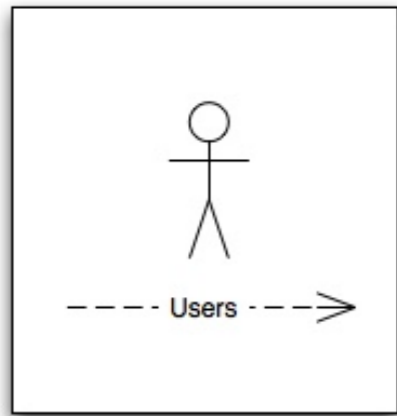


Development

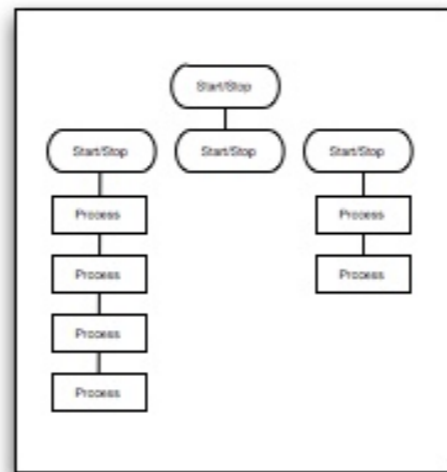
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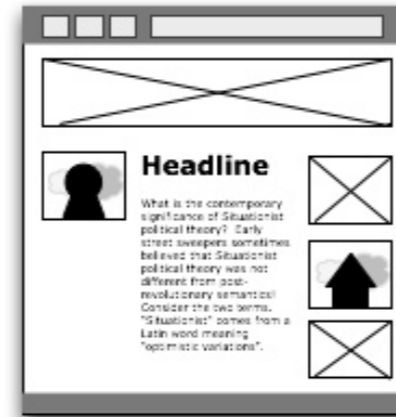
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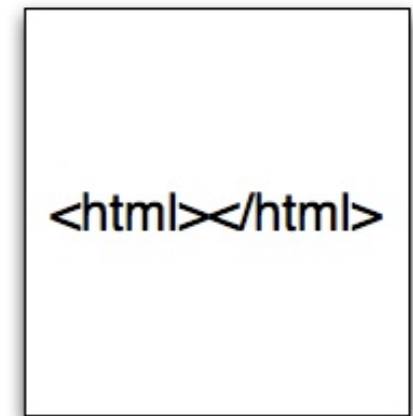
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(UX)



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Visual Design



Development

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## INFORMATION ARCHITECTURE (IA)



A model or blueprint for the site, resulting in deliverables such as:

- wireframes
- flow diagrams
- sitemap

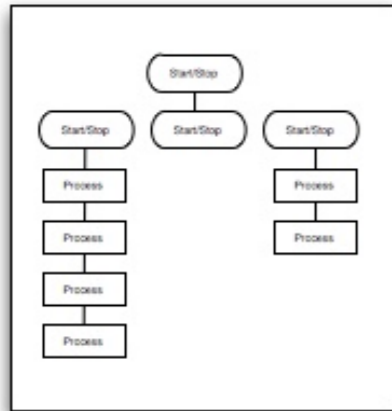
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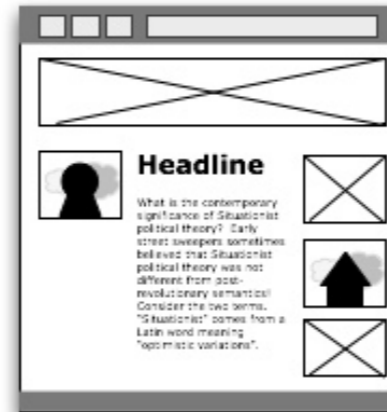
[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## IA: THE BLUEPRINT



### SITEMAPS & FLOW DIAGRAMS

Establish flow and order



### WIREFRAMES & CONTENT

Define the user interaction and ease the handoff process to the creative team

# PROGRAMMING FOR NON-PROGRAMMERS

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## BRAINSTORMING

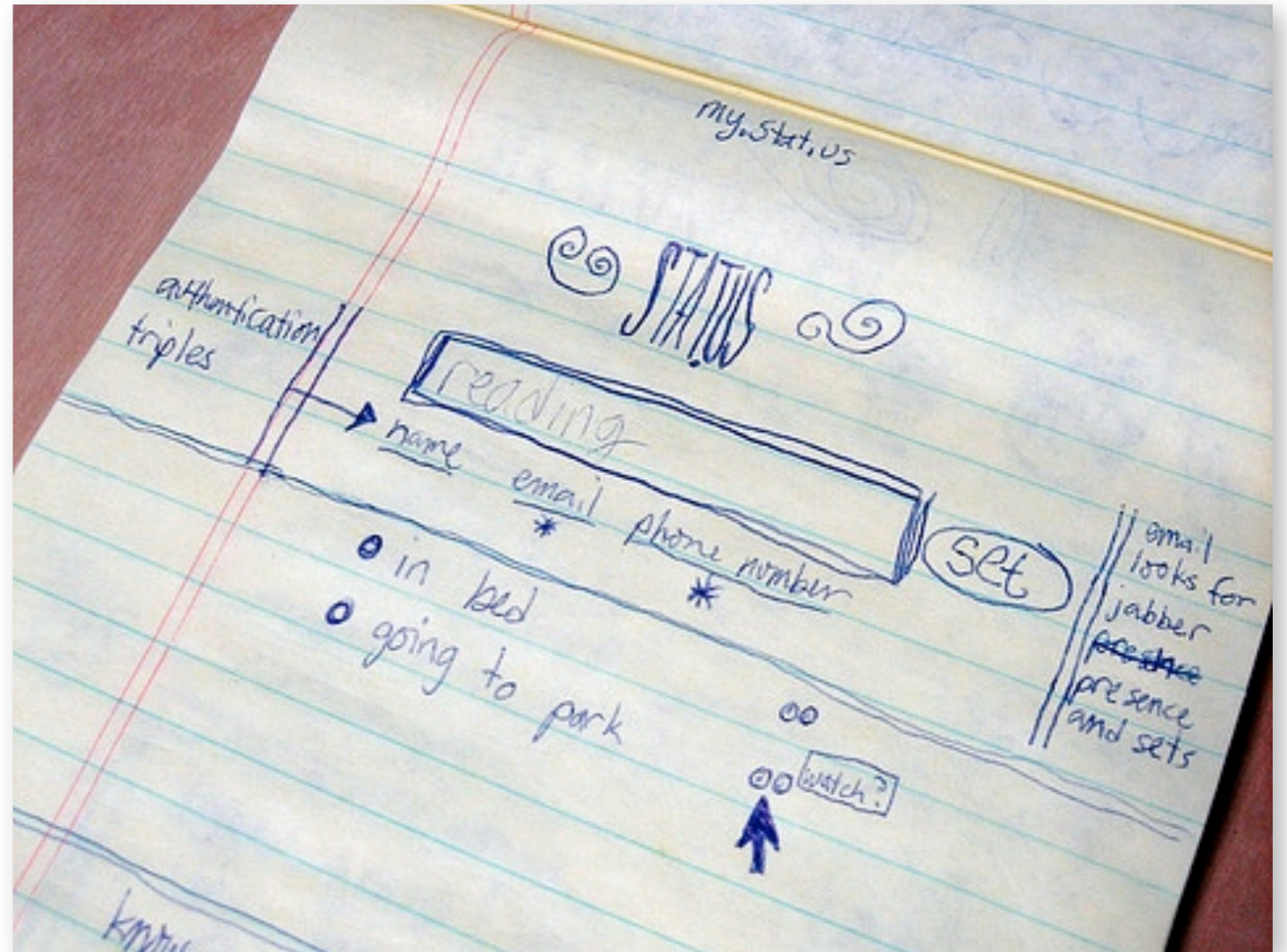




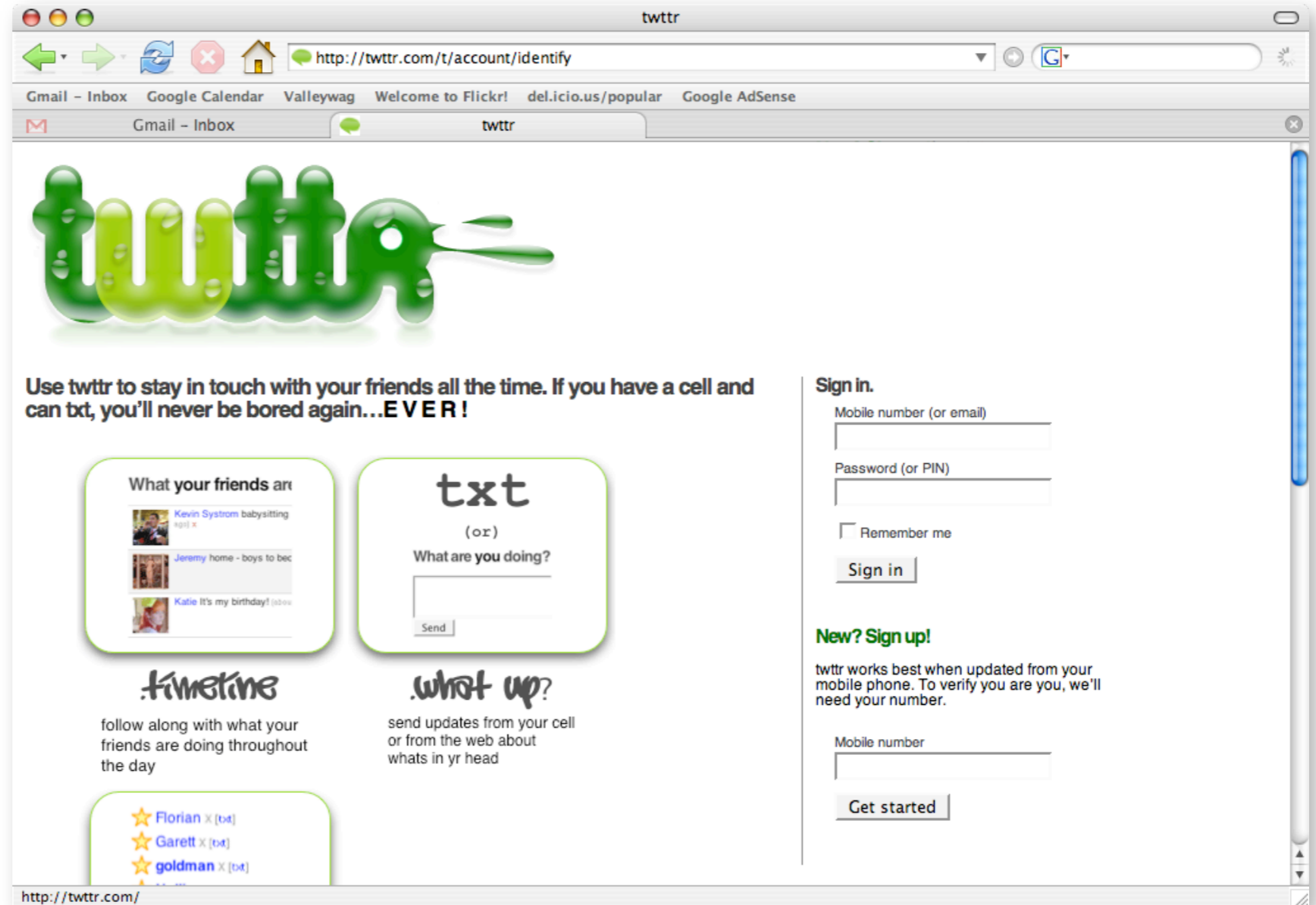
# PROGRAMMING FOR NON-PROGRAMMERS

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## BRAINSTORMING



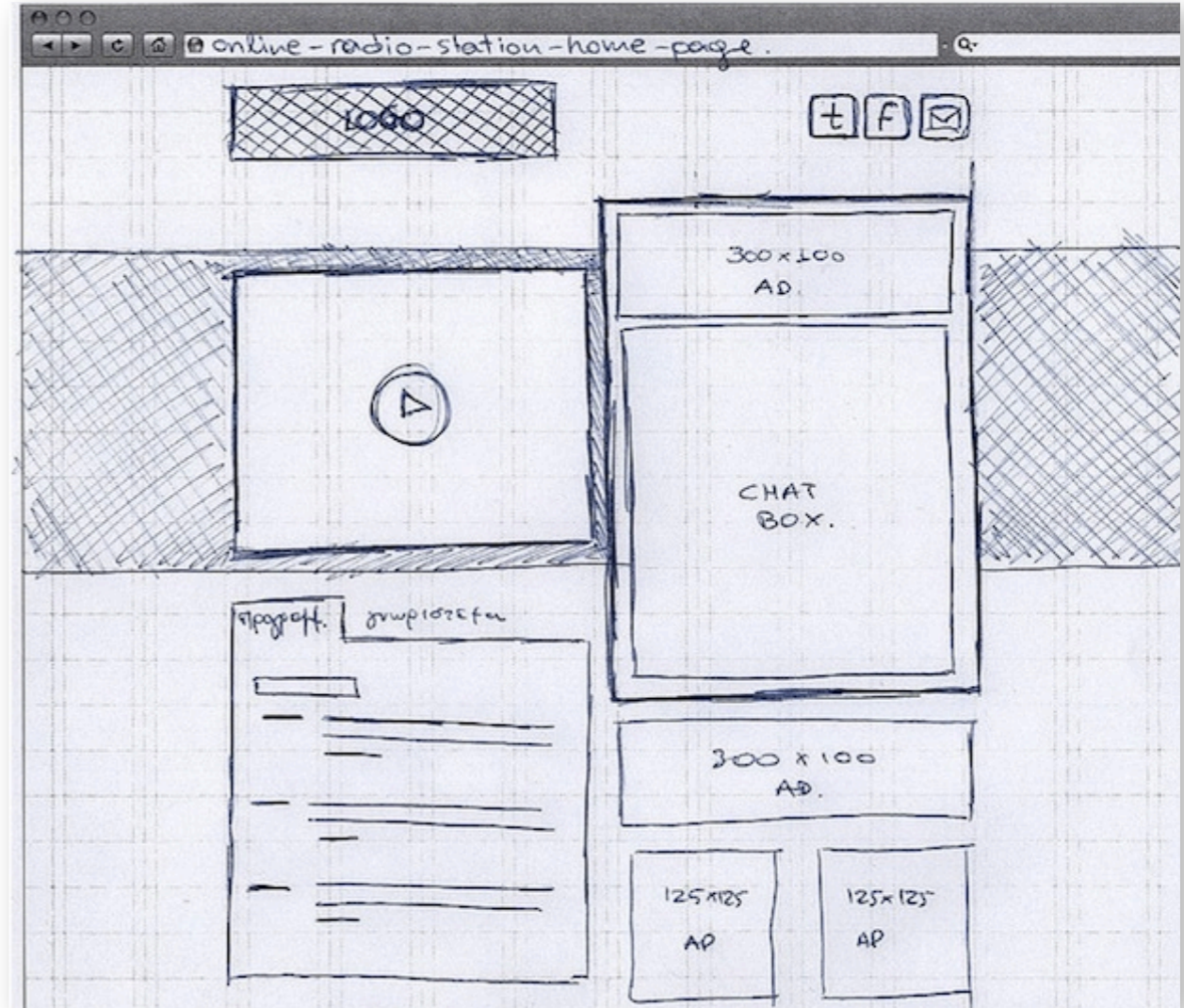
# TWITTER (PROTOTYPE)



# PROGRAMMING FOR NON-PROGRAMMERS

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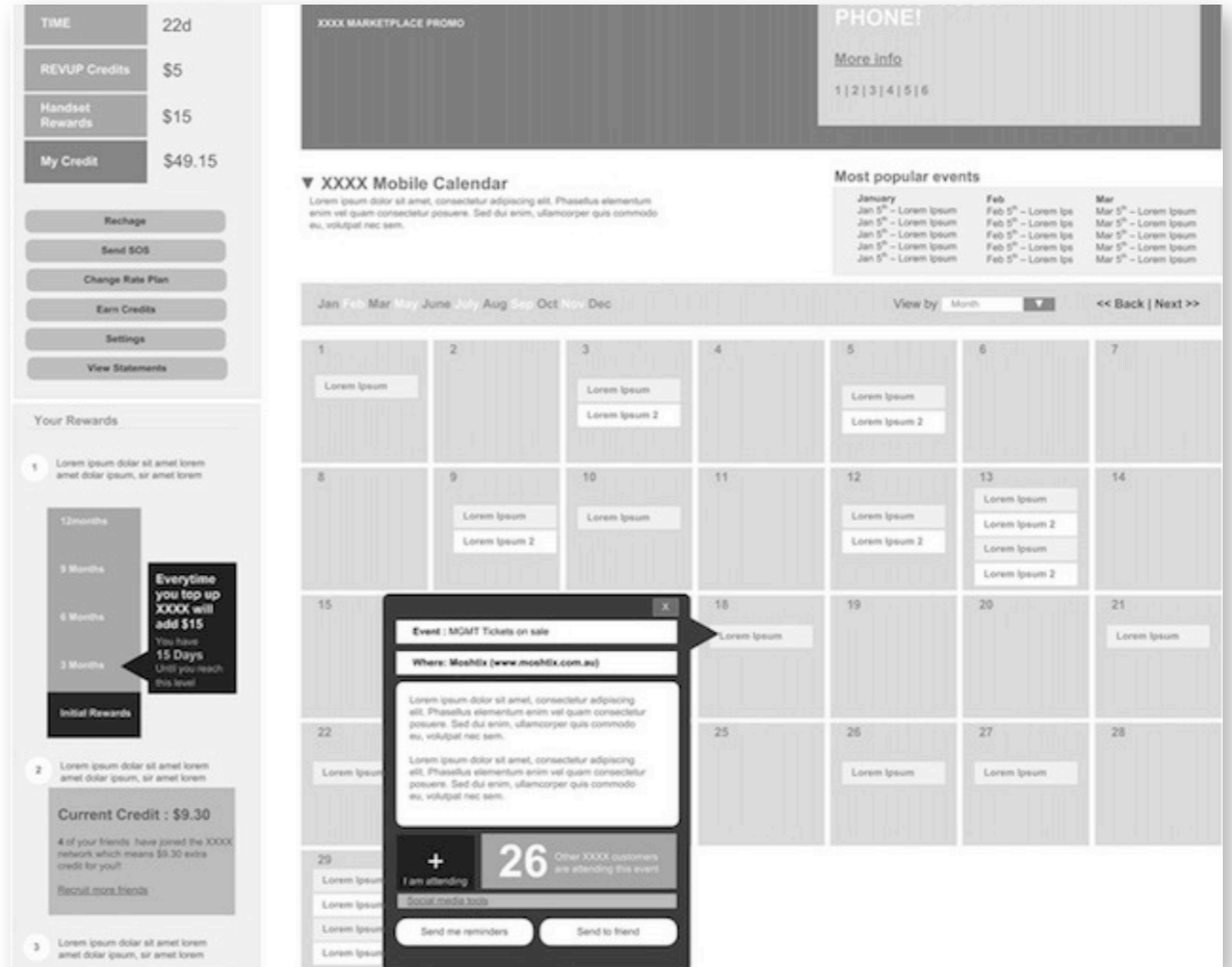
## LOW FIDELITY MOCKUPS



# PROGRAMMING FOR NON-PROGRAMMERS

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# HIGH FIDELITY MOCKUPS



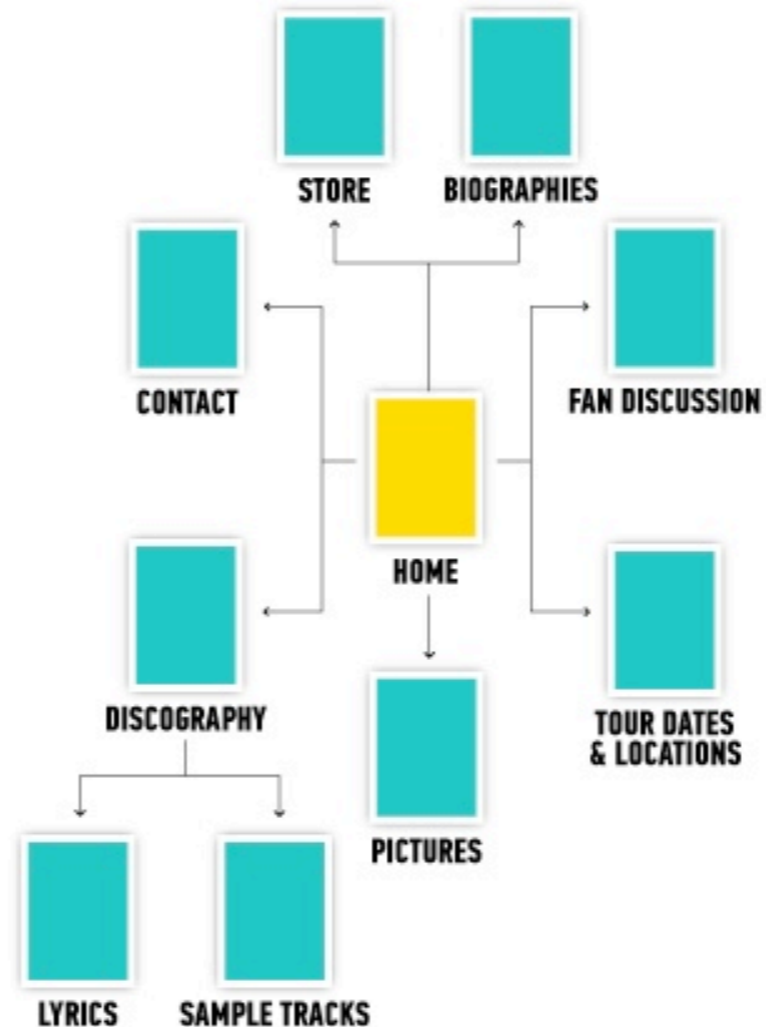
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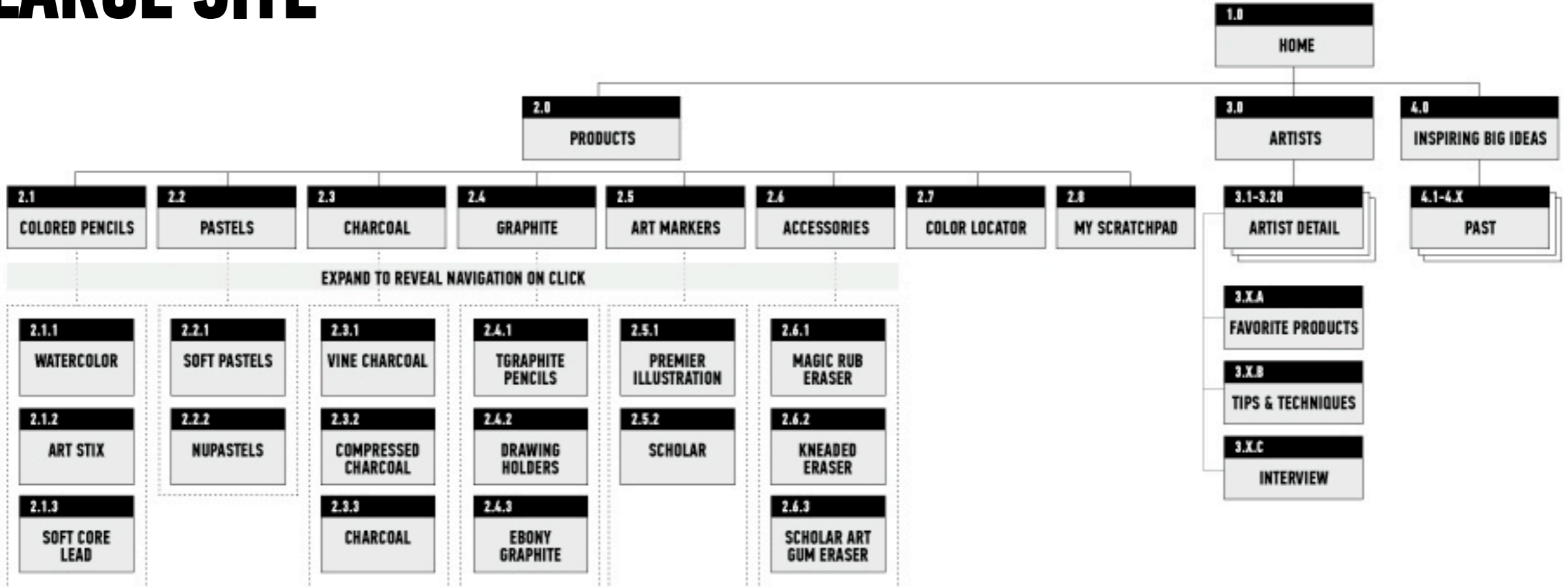
## SMALL SITE



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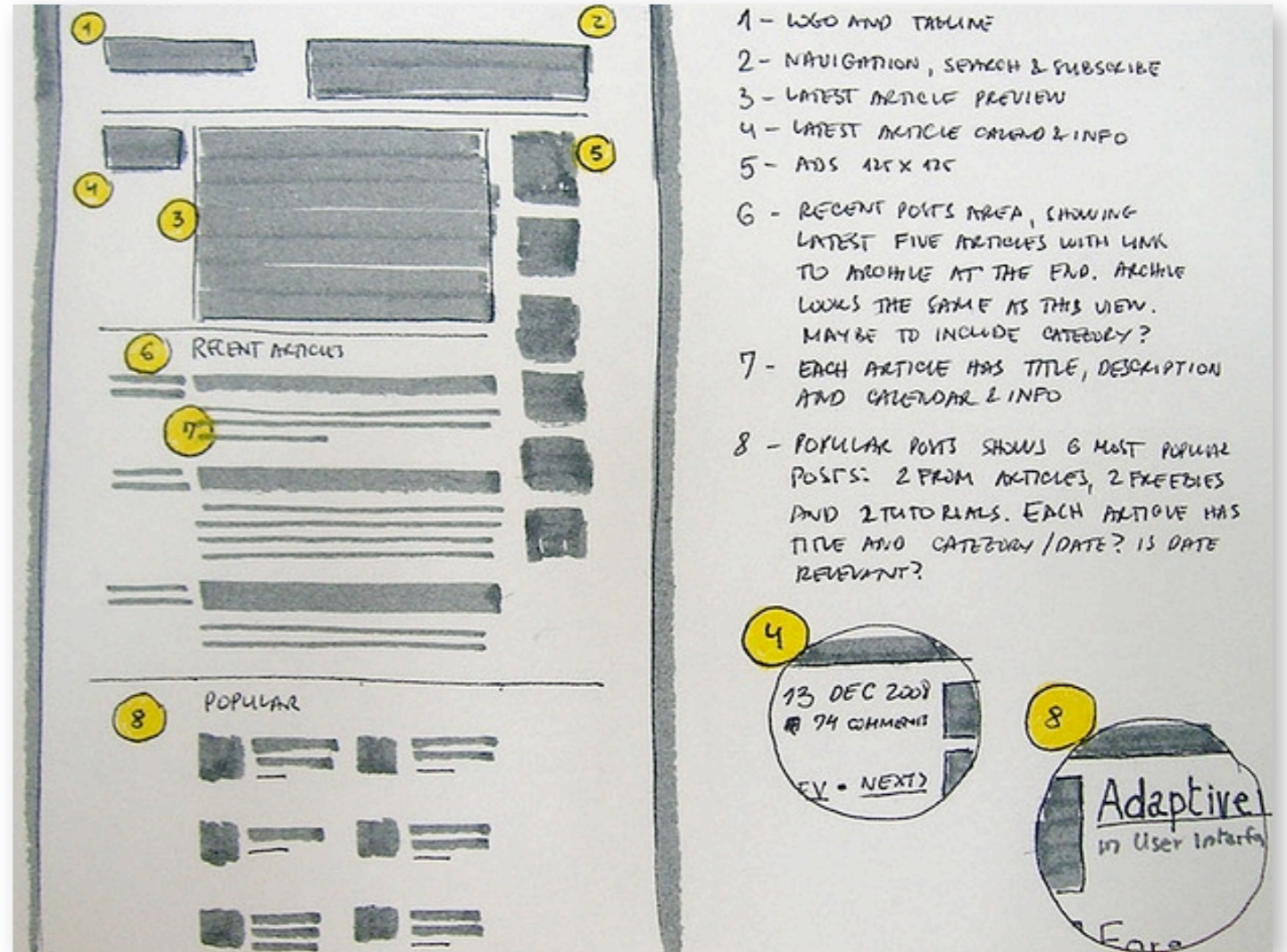
## LARGE SITE



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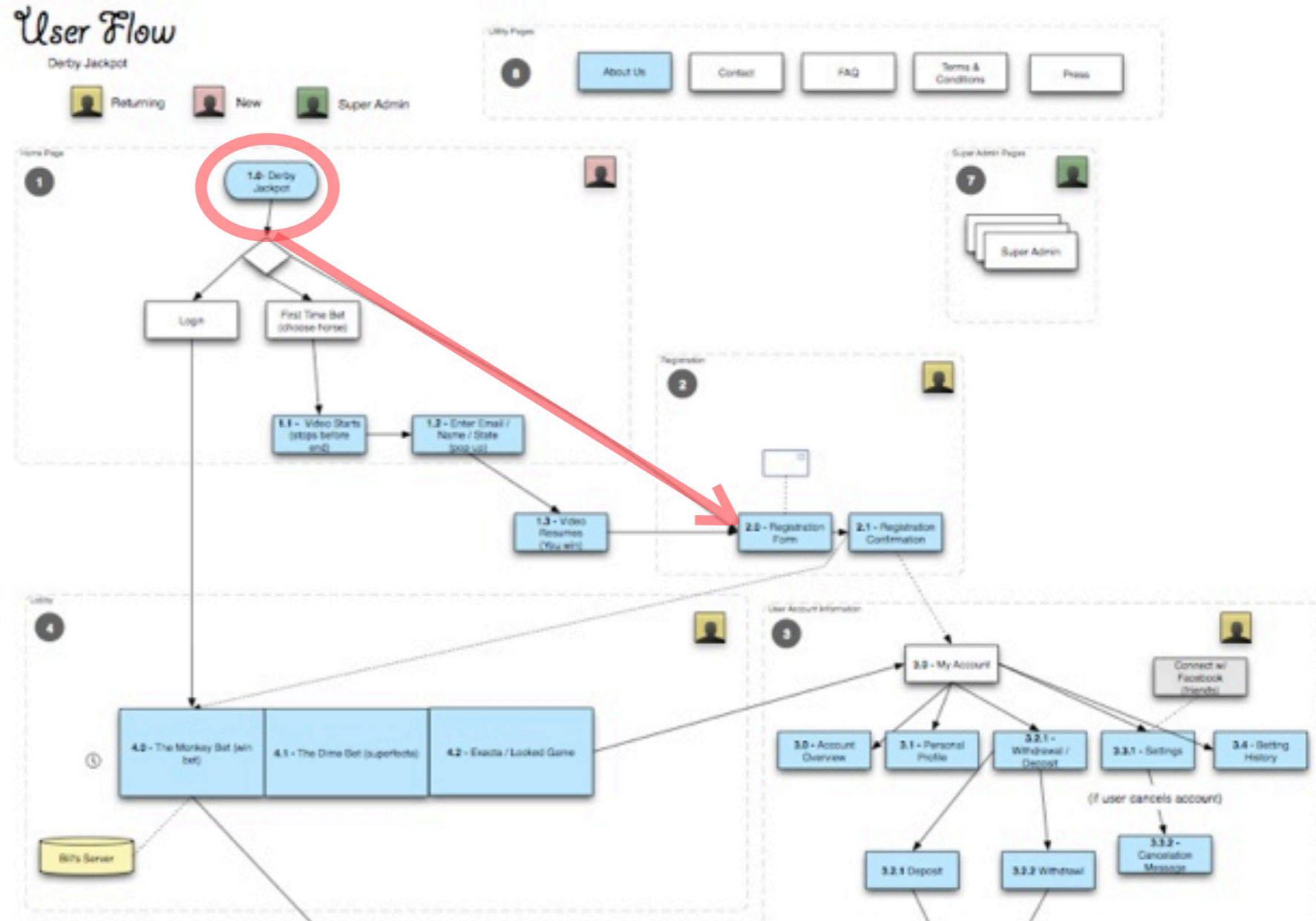
## FUNCTIONAL



# PROGRAMMING FOR NON-PROGRAMMERS

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## FLOW DIAGRAM

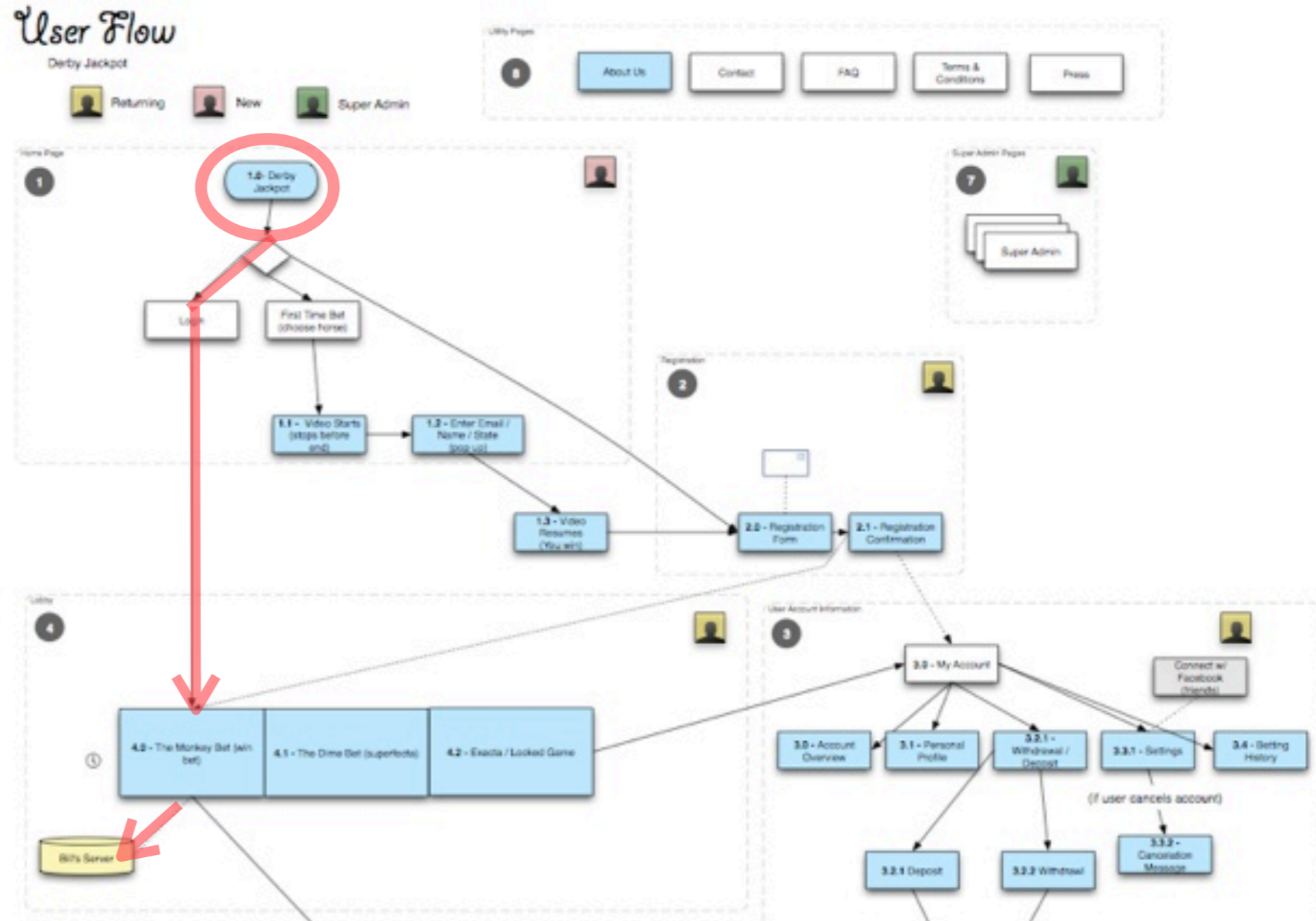




# PROGRAMMING FOR NON-PROGRAMMERS

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## FLOW DIAGRAM



# PROGRAMMING FOR NON-PROGRAMMERS

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

# IPHONE WIREFRAMES

Map views



List views



Notifications



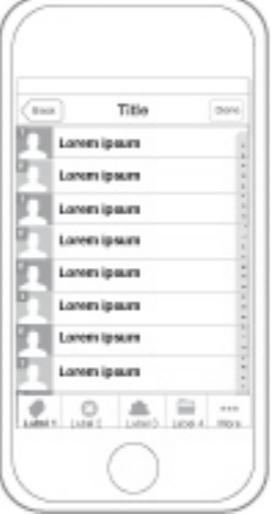
Profile pages



Table views



Contact lists



Web views



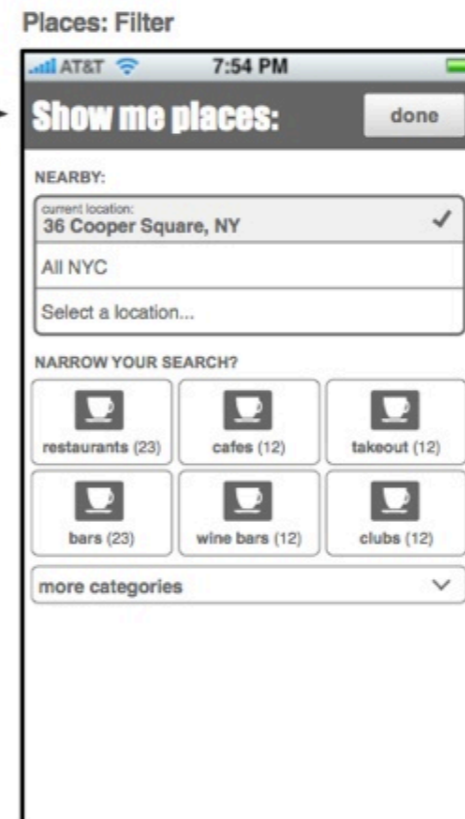
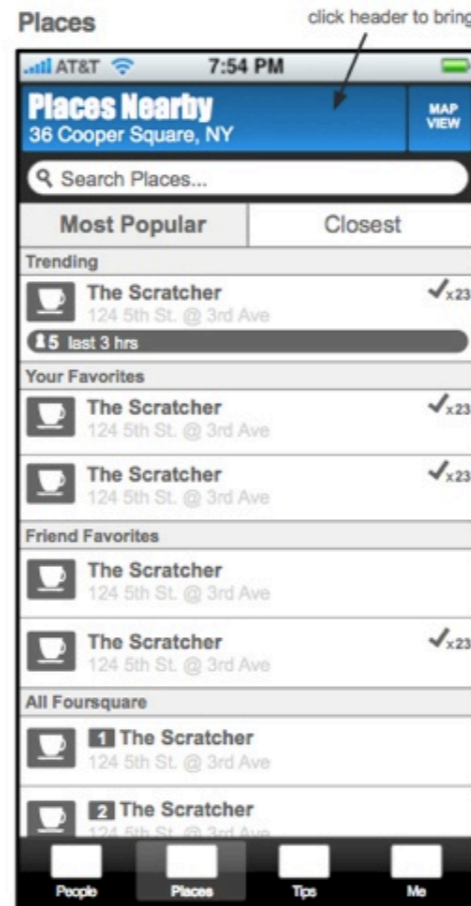
Keyboard



# PROGRAMMING FOR NON-PROGRAMMERS

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

# FOURSQUARE



# PROGRAMMING FOR NON-PROGRAMMERS

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

# FOURSQUARE

The screenshot shows the Foursquare web interface for a user named Alex. At the top, there's a navigation bar with the Foursquare logo, 'Home', 'Friends', and 'Places' buttons. The user's home city is set to New York. A search bar is present with the text 'Find a place...' and a 'GO' button. Below the navigation bar, a 'Welcome Back Alex!' message is displayed with a placeholder for a profile picture and the text '(not Alex?)'. To the right of the welcome message, there's a notification for 'Veloce Wine Bar' checked in 3 hours ago, with a note that it's 3 checkins fewer than mayor Michael T1. Below this, there's a 'RECENT ACTIVITY' section with a map showing recent check-ins at various locations, marked with numbers 3, 4, 7, and 7. The main content area is divided into two columns. The left column contains a list of user statistics: 8 MAYORSHIPS (you're ALMOST mayor of Mudspot Cafe), 323 total checkins, 0 to-dos, 8 tips, 2 friend requests, 3 facebook friends have joined foursquare!, and 24 badges. The right column is titled 'Places To Go' and shows a list of 'Swift Hibernian Lounge' entries. Each entry includes the address '34 East 4th St, btw Bowery & Lafayette', a bar chart showing popularity by time of day (23% daytime, 58% evening, 19% late-night), and a '43 friend checkins' badge. A 'MORE >>' link is at the bottom of this list. The bottom right corner of the page features a 'Lost mayorship of Think Coffee!' notification and two notifications about checking into 'The Scratcher'.

# PUT STUFF HERE LATER

## HEADER 2

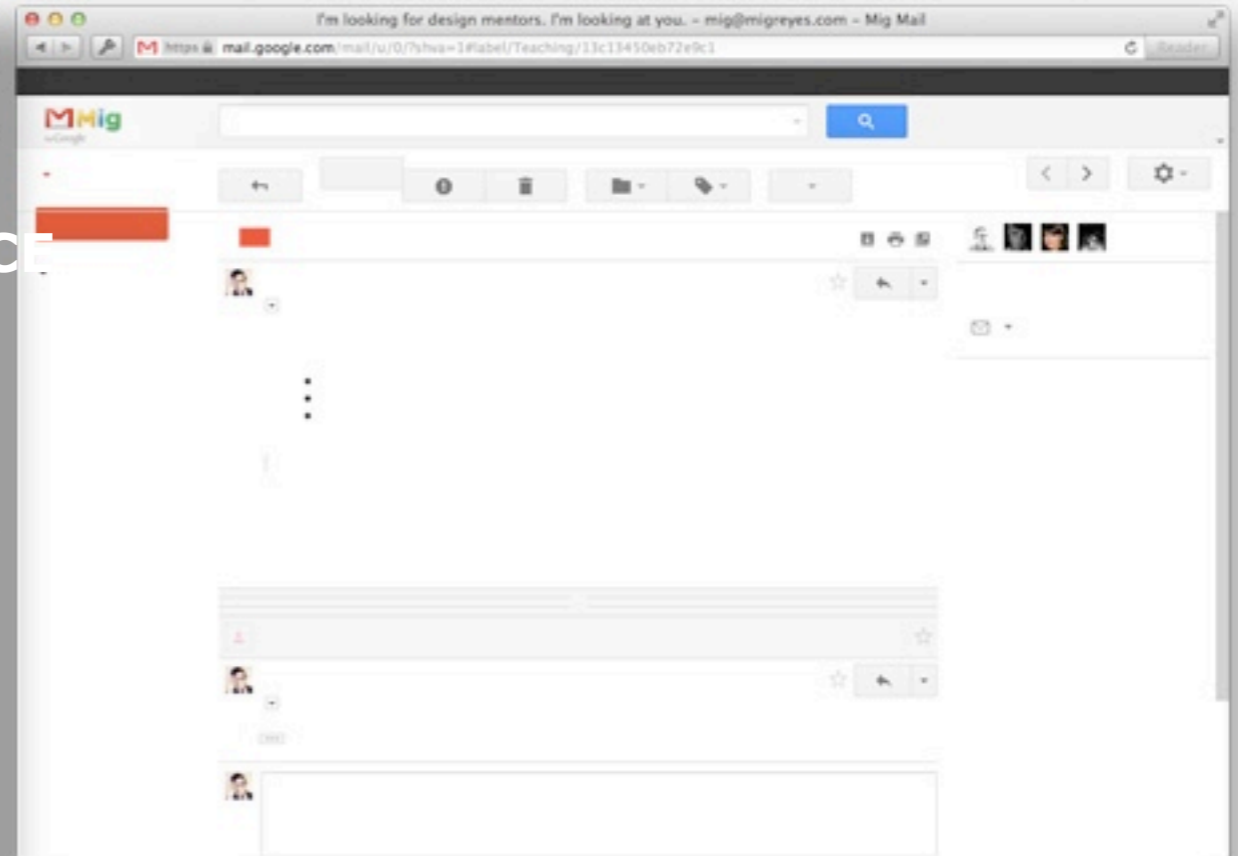
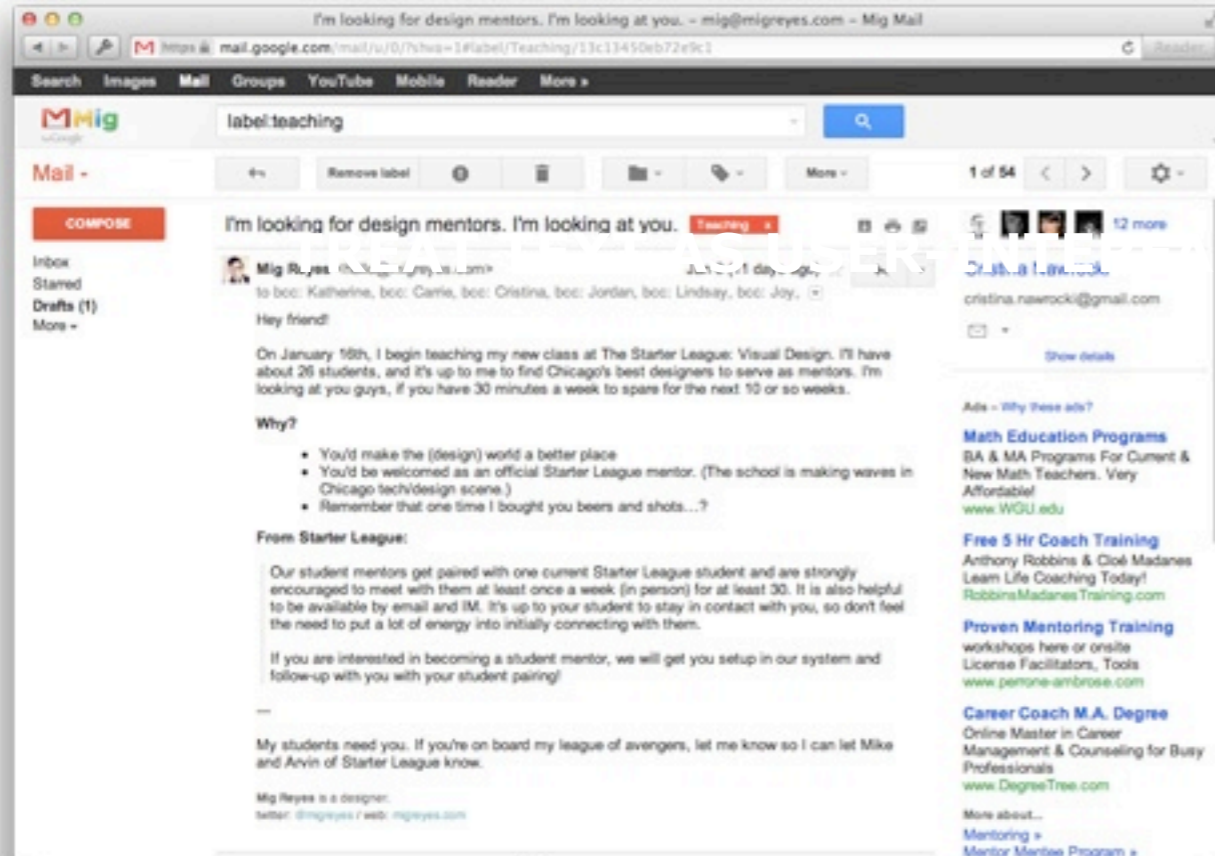
Sed posuere consectetur est at lobortis. Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Maecenas faucibus mollis interdum.

# CONTENT STRATEGY

## **TREAT TEXT AS USER-INTERFACE**

Typography has one plain duty before it and that is to convey information in writing. No argument or consideration can absolve typography from this duty. A printed work which cannot be read becomes a product without purpose.

# DESIGN. IS ABOUT WORDS.



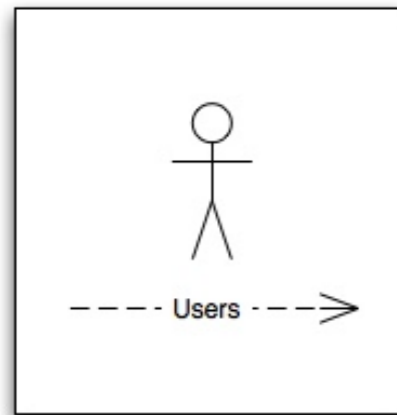
# Visual Design



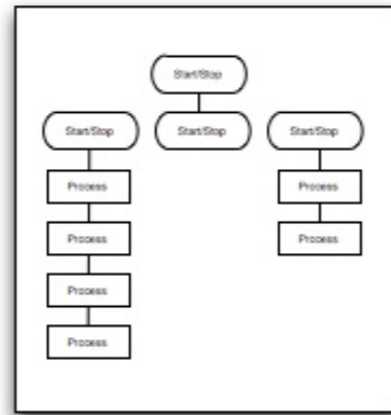
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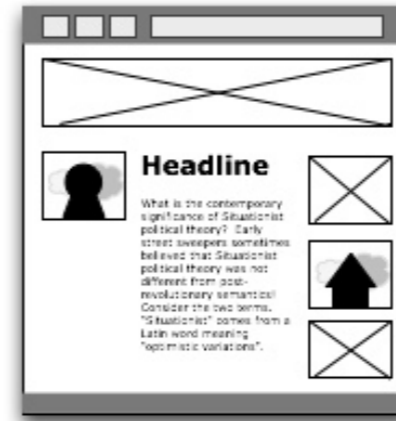
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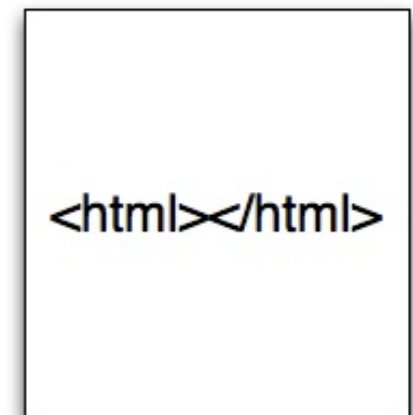
User-Experience  
(UX)



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Visual Design

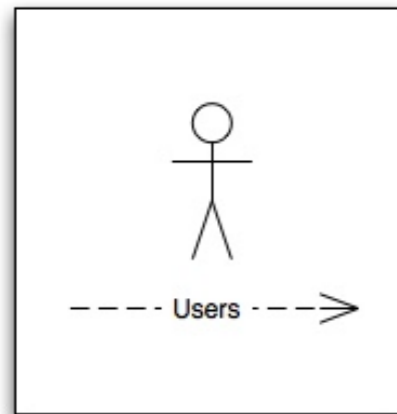


Development

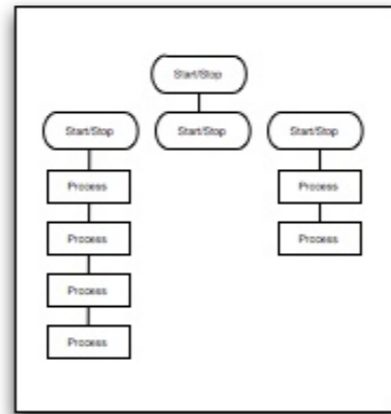
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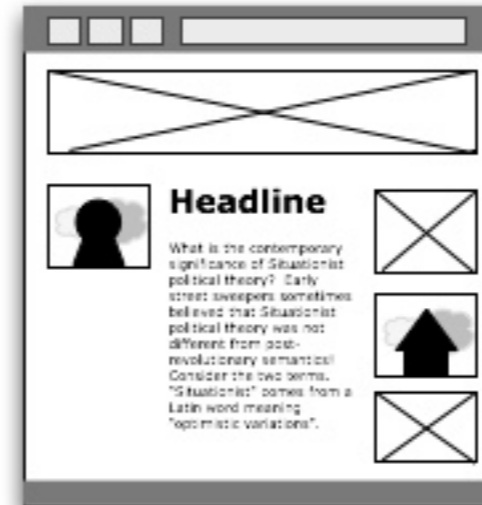
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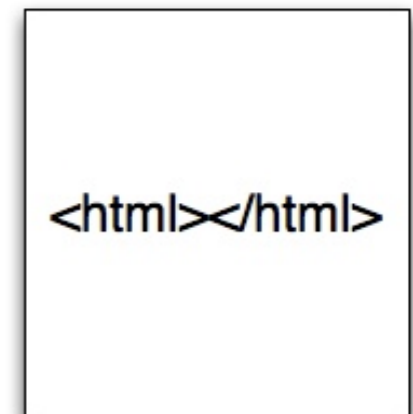
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Visual Design



Development

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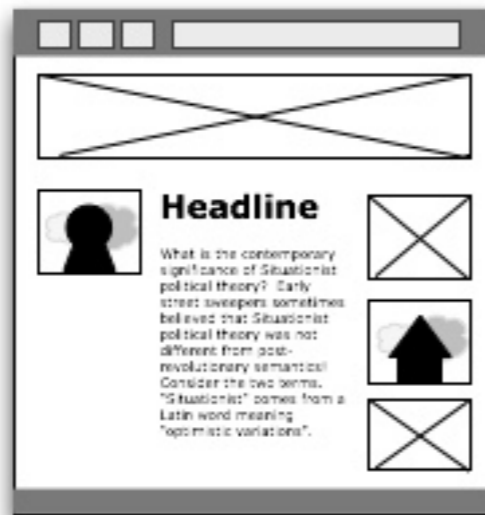
# PROGRAMMING FOR NON-PROGRAMMERS

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[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## VISUAL DESIGN

Wireframes become design comps



# PROGRAMMING FOR NON-PROGRAMMERS

source: [www.risk-show.com](http://www.risk-show.com)

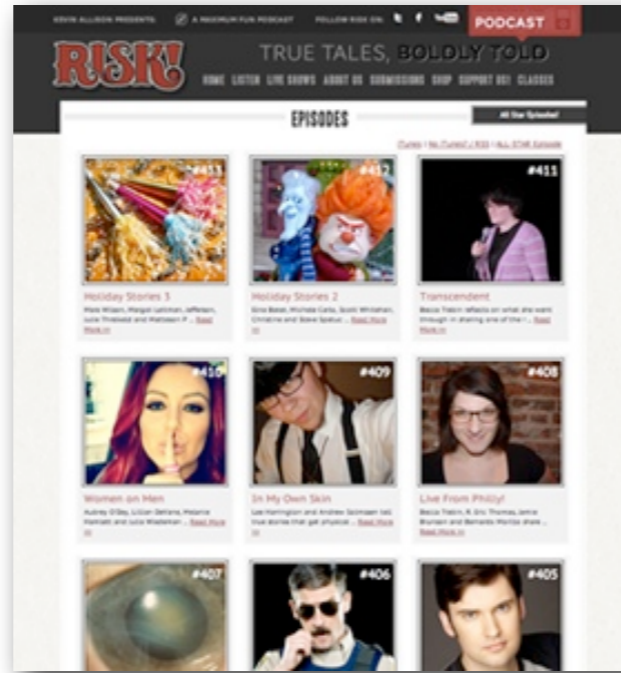
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## VISUAL DESIGN

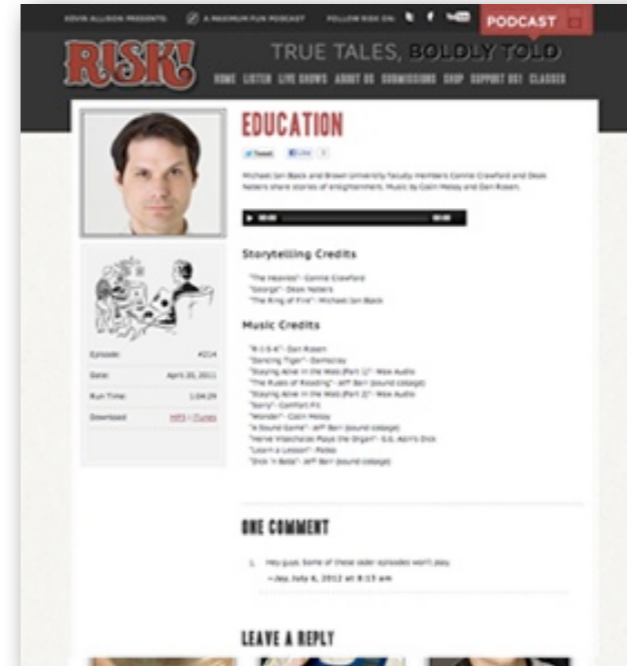
Each wireframe template becomes a comp template



Homepage



Listen



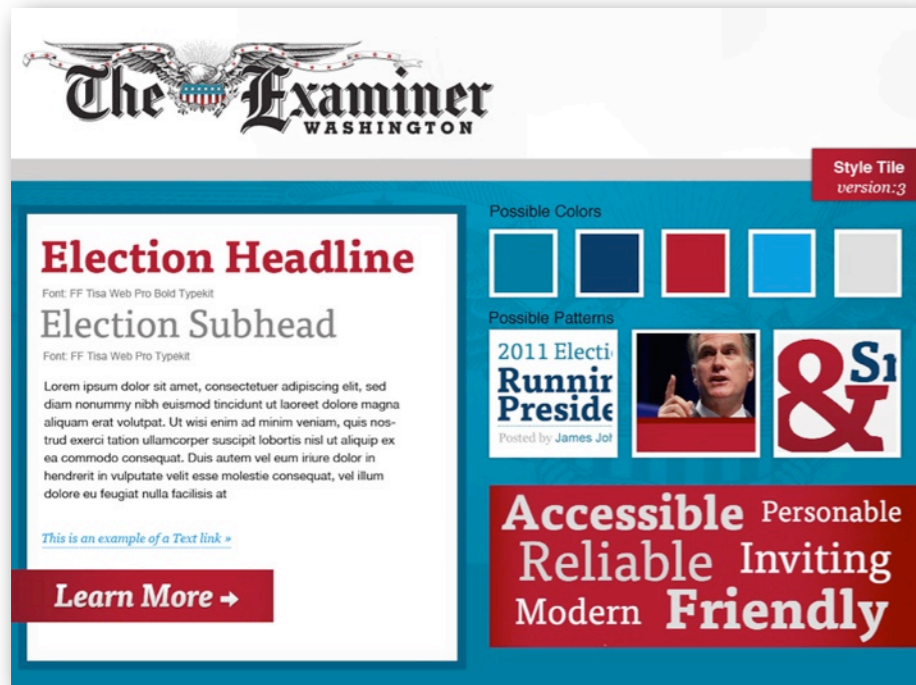
Blog

# PROGRAMMING FOR NON-PROGRAMMERS

source: [www.risk-show.com](http://www.risk-show.com)

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## STYLE GUIDE



Style Tile



Final

# VISUAL DESIGN

## PRINT

- CMYK
- inches
- 300 dpi
- Illustrator / InDesign
- PDF, Word Doc

## DIGITAL

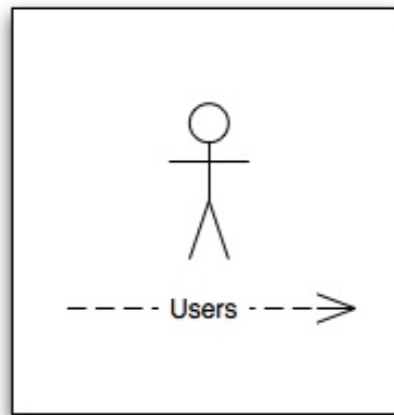
- RGB
- pixels
- 72 dpi
- Photoshop (for the Web)
- PNG, JPG, GIF

Development

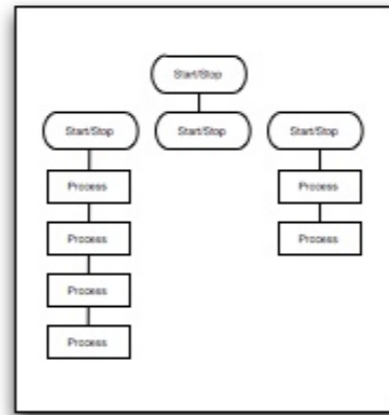
# PROGRAMMING FOR NON-PROGRAMMERS

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

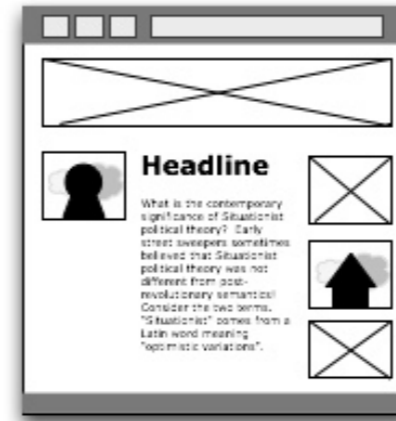
## A TYPICAL WEB DEVELOPMENT CYCLE



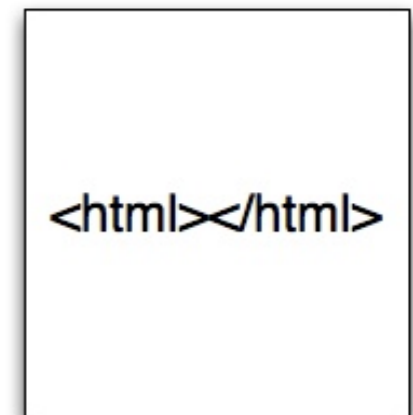
User-Experience  
(UX)



Information  
Architecture (IA)



Visual Design



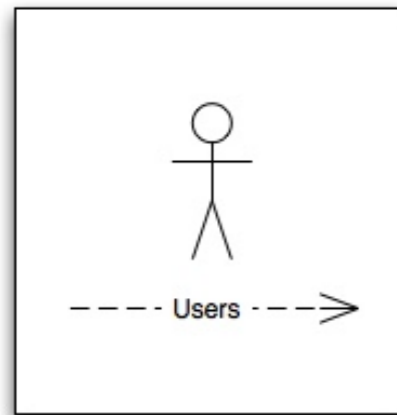
Development



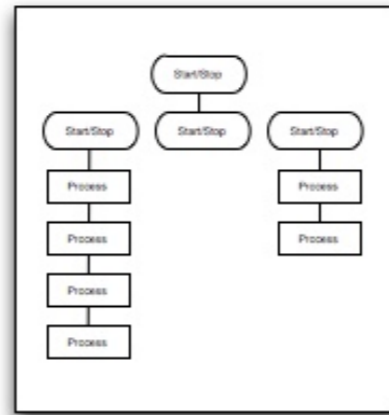
# PROGRAMMING FOR NON-PROGRAMMERS

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

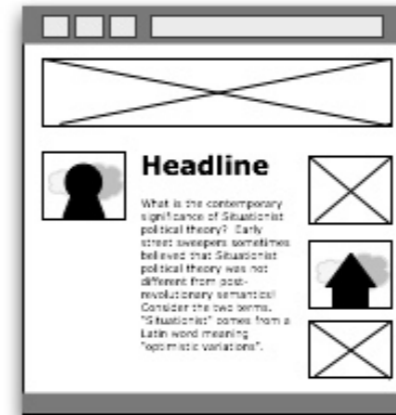
## A TYPICAL WEB DEVELOPMENT CYCLE



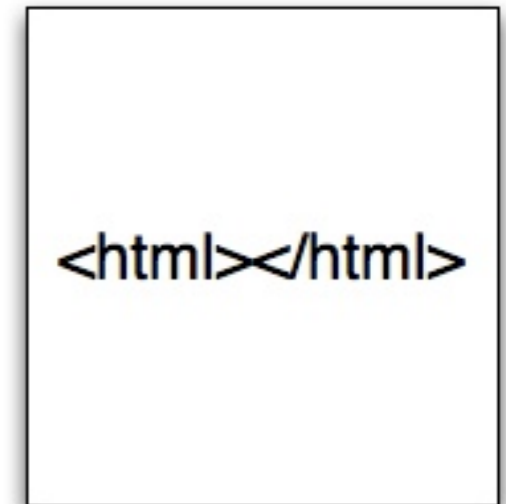
User-Experience  
(UX)



Information  
Architecture (IA)



Visual Design



Development

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## DEVELOPMENT

Comps become graphics & real text

# PROGRAMMING FOR NON-PROGRAMMERS

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## DEVELOPMENT

Comps become graphics & real text



general-assembly-logo.png



social-media.png



mailer.png



### Real Text:

General Assembly offers classes, and events at the intersection of technology, design, and entrepreneurship. Together with our members, thought leaders, and seasoned practitioners, we offer a robust curriculum focused on

# FRONT-END DEVELOPMENT *(noun)*

the client-side structure and behavior of a web site; put simply it mostly concerns how things look on the page

# BACK-END DEVELOPMENT *(noun)*

the server-side programming that processes the “business logic”, database, web services and other utilities

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## DEVELOPMENT

*The development process can be broken into two separate responsibilities:*

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## DEVELOPMENT

*The development process can be broken into two separate responsibilities:*

### FRONT-END WEB DEVELOPMENT

1. Client Side
2. How things look to the user
3. Involves: Images, content, structure
4. HTML, CSS, JavaScript

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

[ 1. PLAN ] [ 2. DESIGN ] [ 3. DEVELOP ]

## DEVELOPMENT

*The development process can be broken into two separate responsibilities:*

### FRONT-END WEB DEVELOPMENT

1. Client Side
2. How things look to the user
3. Involves: Images, content, structure
4. HTML, CSS, JavaScript

### BACK-END WEB DEVELOPMENT

1. Server Side
2. How things works
3. Involves: “business logic” and data
4. Ruby, PHP, C + +, Java, etc



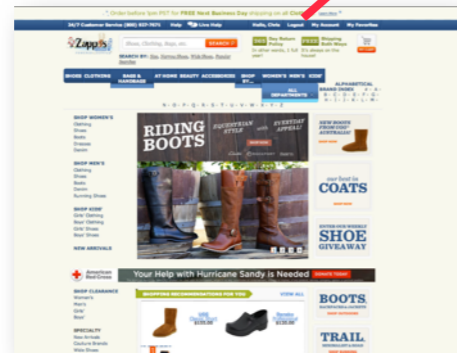
# PROGRAMMING FOR NON-PROGRAMMERS

## ZAPPOS.COM

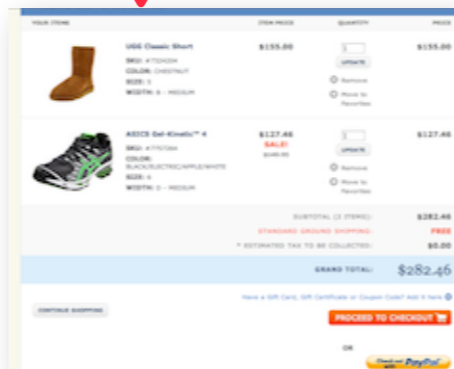
### BACK-END



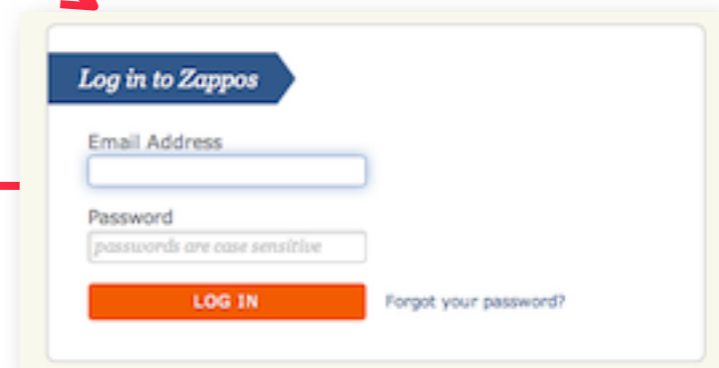
### FRONT-END



homepage

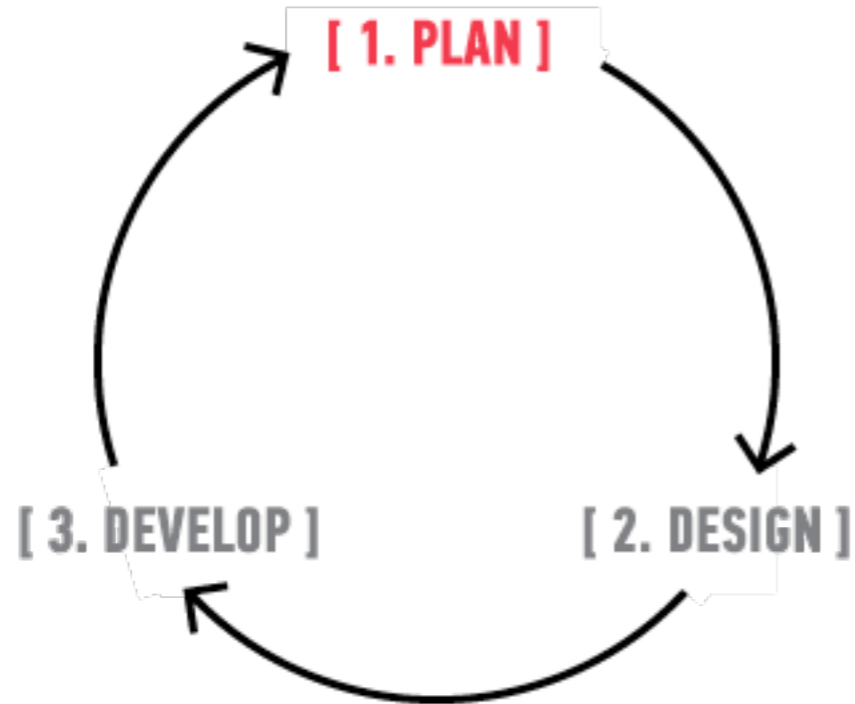


cart



registration

## WEB DEVELOPMENT PROCESS



- Product Development
- *User Experience*
- *Information Architecture*
- Content Strategy
- Project Manager
- Business Analyst
- *Visual Designer*
- *Front-end developer*
- *Back-end developer*
- Usability
- Security
- SEO Expert
- Analytics Expert
- Quality Assurance (QA) Tester
- Server Administrator
- Growth Hacking

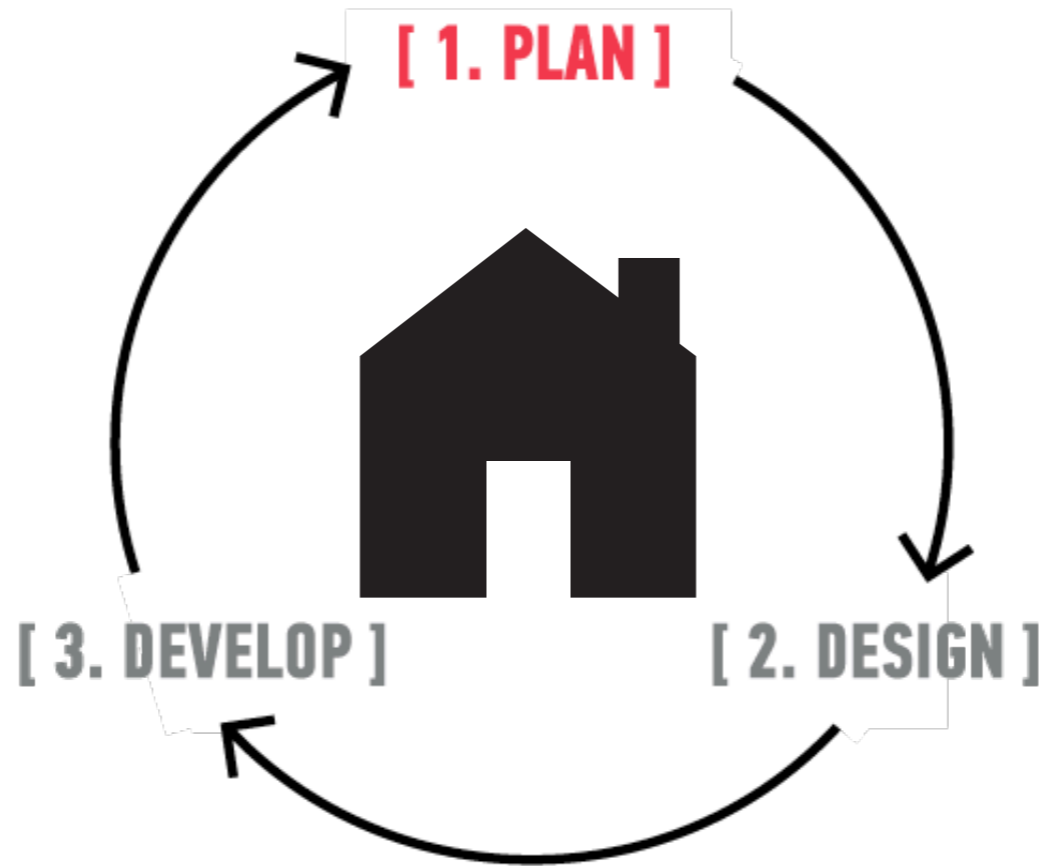
## POST-LAUNCH ROLES

1. Growth Hacker
2. SEO
3. Analytics Expert
4. Quality Assurance

---

# PROGRAMMING FOR NON-PROGRAMMERS

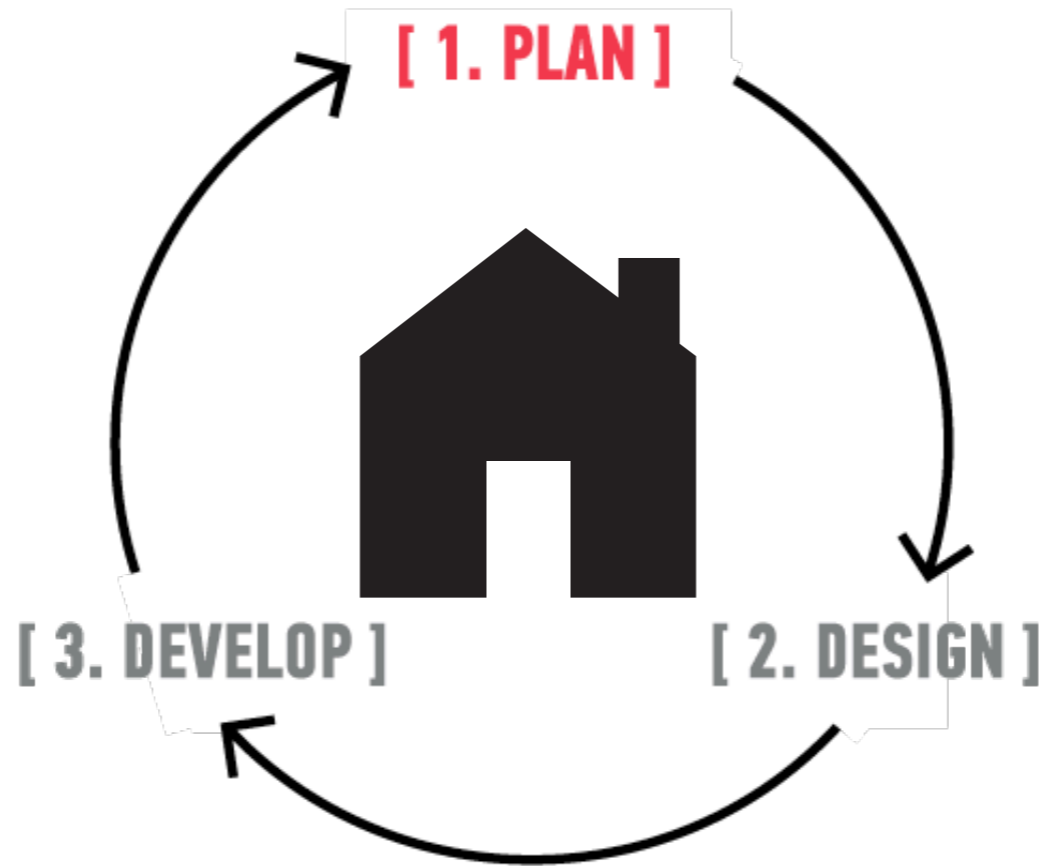
---



---

# PROGRAMMING FOR NON-PROGRAMMERS

---



**WATERFALL**

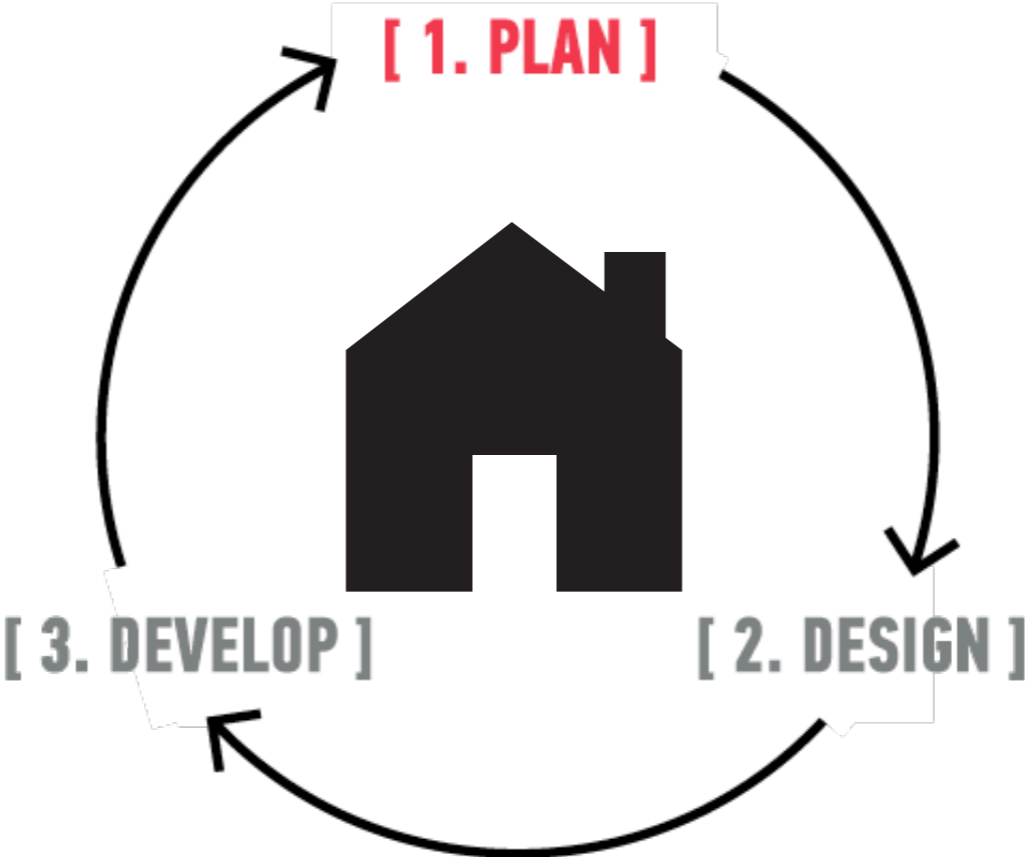
---

# PROGRAMMING FOR NON-PROGRAMMERS

---

**AGILE**

**WATERFALL**



# II. WHICH LANGUAGE?

Understand the Tools

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

PHP Perl .NET Java ADA  
Lisp R  
COBOL ABC C Objective C  
Ruby Logo  
Smalltalk ASP Clu  
Ruby Visual Basic  
Python C++ ActionScript



---

# PROGRAMMING FOR NON-PROGRAMMERS

---

PHP

Perl

.NET

Java

ADA

Lisp

R

C

Objective C

**COBOL**

ABC

Ruby

Logo

ASP

Clu

Smalltalk

Ruby

Visual Basic

Python

C++

ActionScript

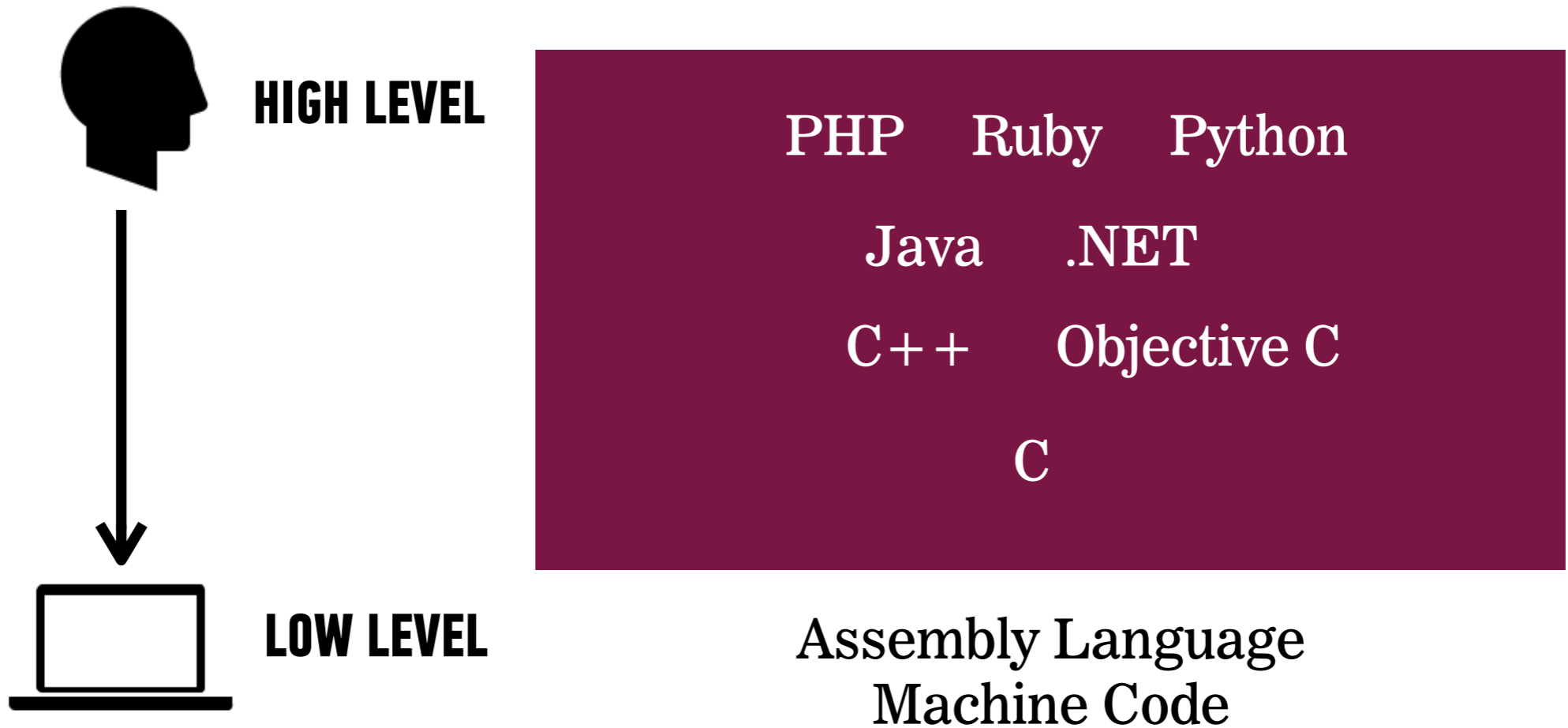
---

# PROGRAMMING FOR NON-PROGRAMMERS

---

PHP Perl .NET Java ADA  
Lisp R  
COBOL ABC C Objective C  
Ruby Logo  
Smalltalk ASP Clu  
Ruby Visual Basic  
Python C++ ActionScript

## HIGH TO LOW LANGUAGES



## HIGH TO LOW LANGUAGES



### Machine Code

```
1000 CLC
1001 LDA $80
1003 ADC $4009
1006 STA $80
1008 LDA $81
100A ADC $400A
100D STA $81
```



### jQuery

```
$("#submit-button").click(function(){
    $(".ball").animate({"left": "-=50px"}, "slow");
});
```

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## INFLUENCED BY?

### PHP

- C
- PERL
- JAVA
- C++
- TCL

### RUBY

- ADA
- C++
- CLU
- DYLAN
- EIFFEL
- LISP
- PERL
- PYTHON

### JAVA

- ADA 83
- MESA
- C++
- EIFFEL
- SmallTalk

# **THE MOTHER OF ALL LANGUAGES**

**C**



---

# PROGRAMMING FOR NON-PROGRAMMERS

---



## THE WEB

WEB SITES  
WEB APPS  
MOBILE WEB

*In a browser*

- ▶ CHROME
- ▶ SAFARI
- ▶ FIREFOX
- ▶ OPERA
- ▶ INTERNET EXPLORER

# WHAT TO LOOK FOR WHEN CHOOSING A LANGUAGE:

- Difficulty level



## WHAT TO LOOK FOR WHEN CHOOSING A LANGUAGE:

- Difficulty level
- Community

# WHAT TO LOOK FOR WHEN CHOOSING A LANGUAGE:

- Difficulty level
- Community
- Development time to build an app

## WEB PROGRAMMING LANGUAGES

### PHP



Wikipedia



Vimeo



Facebook

### RUBY



Twitter



Hulu+



Groupon

### PYTHON



Youtube



Google

## PHP vs. Ruby

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

**PHP**

**EASIER TO  
GET  
STARTED  
WITH**

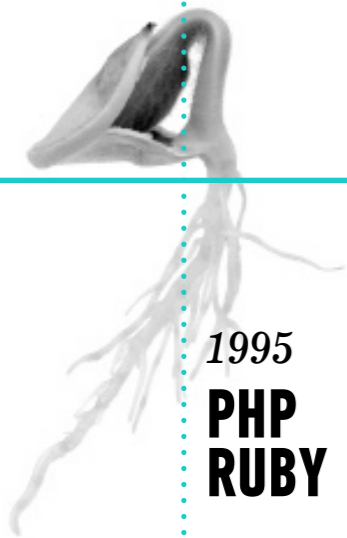
**RUBY**

**STEEPER  
LEARNING  
CURVE**

---

# PROGRAMMING FOR NON-PROGRAMMERS

---



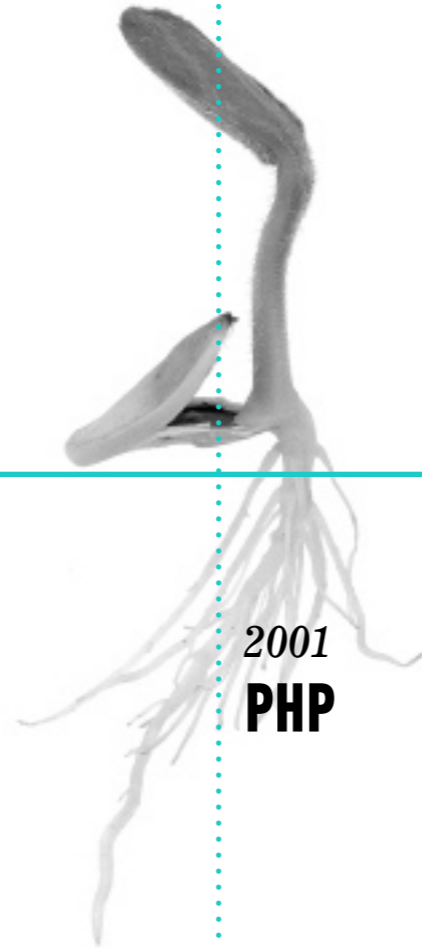
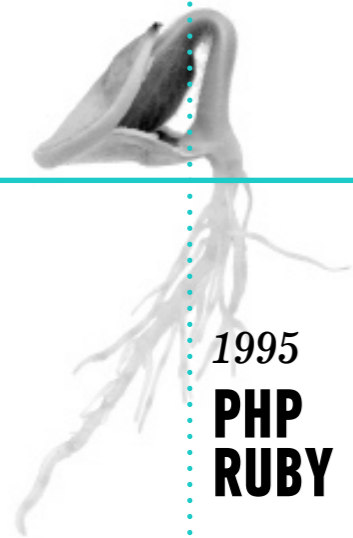
1995

**PHP**  
**RUBY**

---

# PROGRAMMING FOR NON-PROGRAMMERS

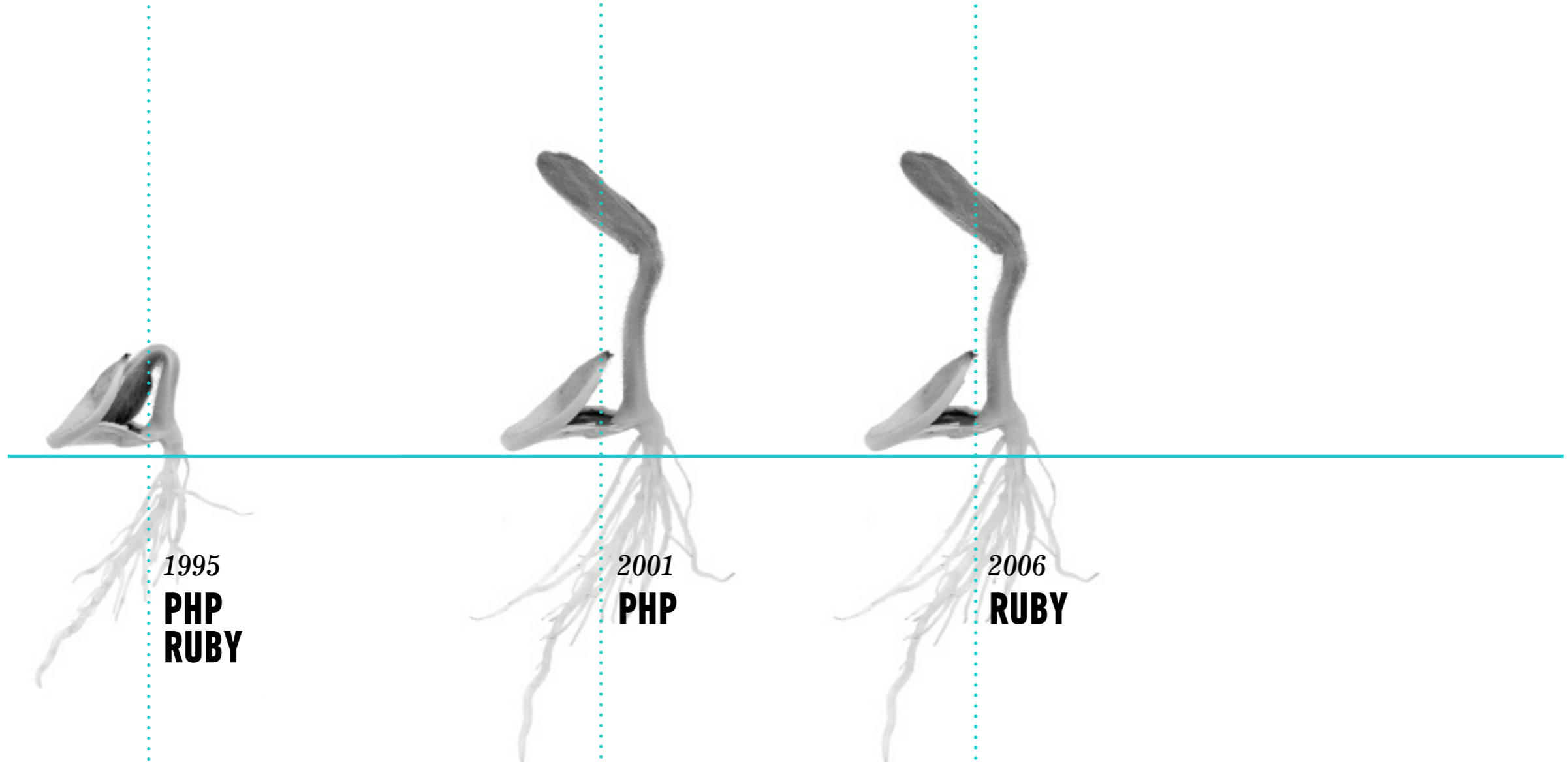
---



---

# PROGRAMMING FOR NON-PROGRAMMERS

---

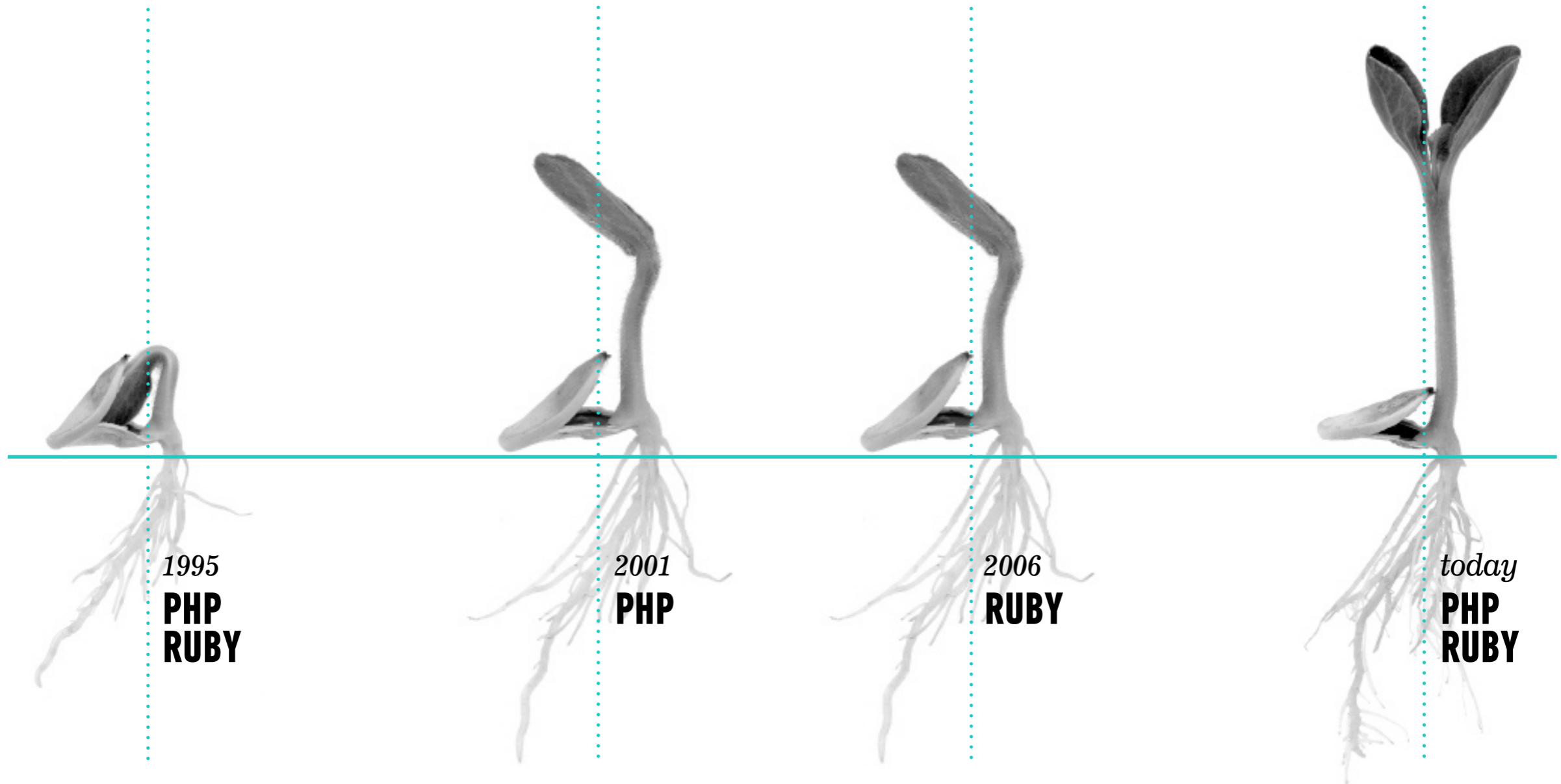




---

# PROGRAMMING FOR NON-PROGRAMMERS

---



---

# PROGRAMMING FOR NON-PROGRAMMERS

---



## THE WEB

WEB SITES  
WEB APPS  
MOBILE WEB

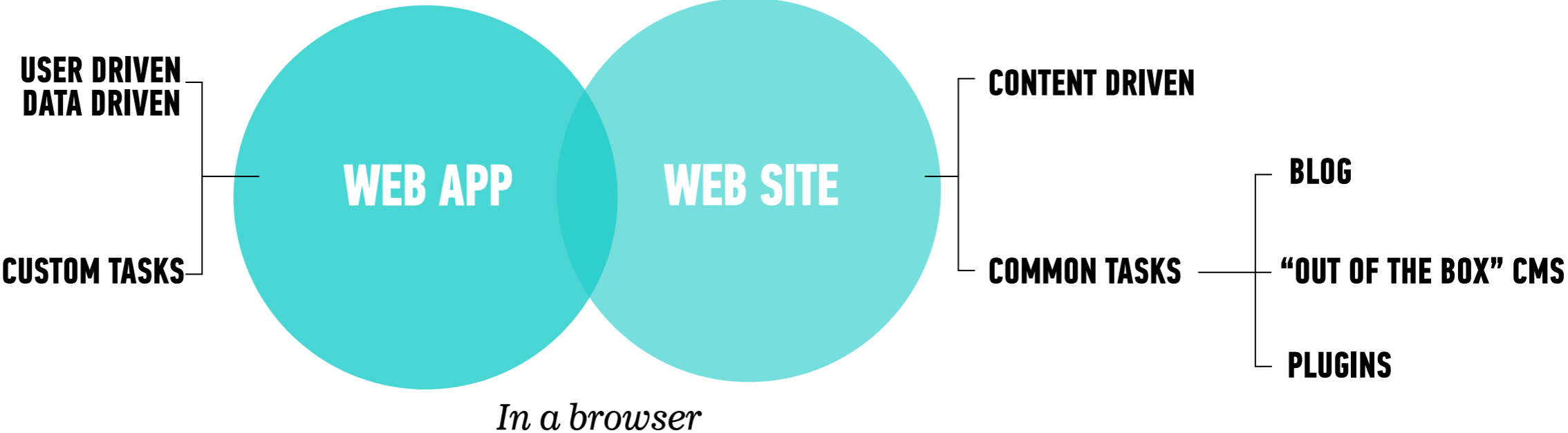
*In a browser*

- ▶ CHROME
- ▶ SAFARI
- ▶ FIREFOX
- ▶ OPERA
- ▶ INTERNET EXPLORER

---

# PROGRAMMING FOR NON-PROGRAMMERS

---



---

# PROGRAMMING FOR NON-PROGRAMMERS

---

**RUBY**

**WEB APP**

**PHP**

**WEB SITE**

# Pop Quiz: Review!

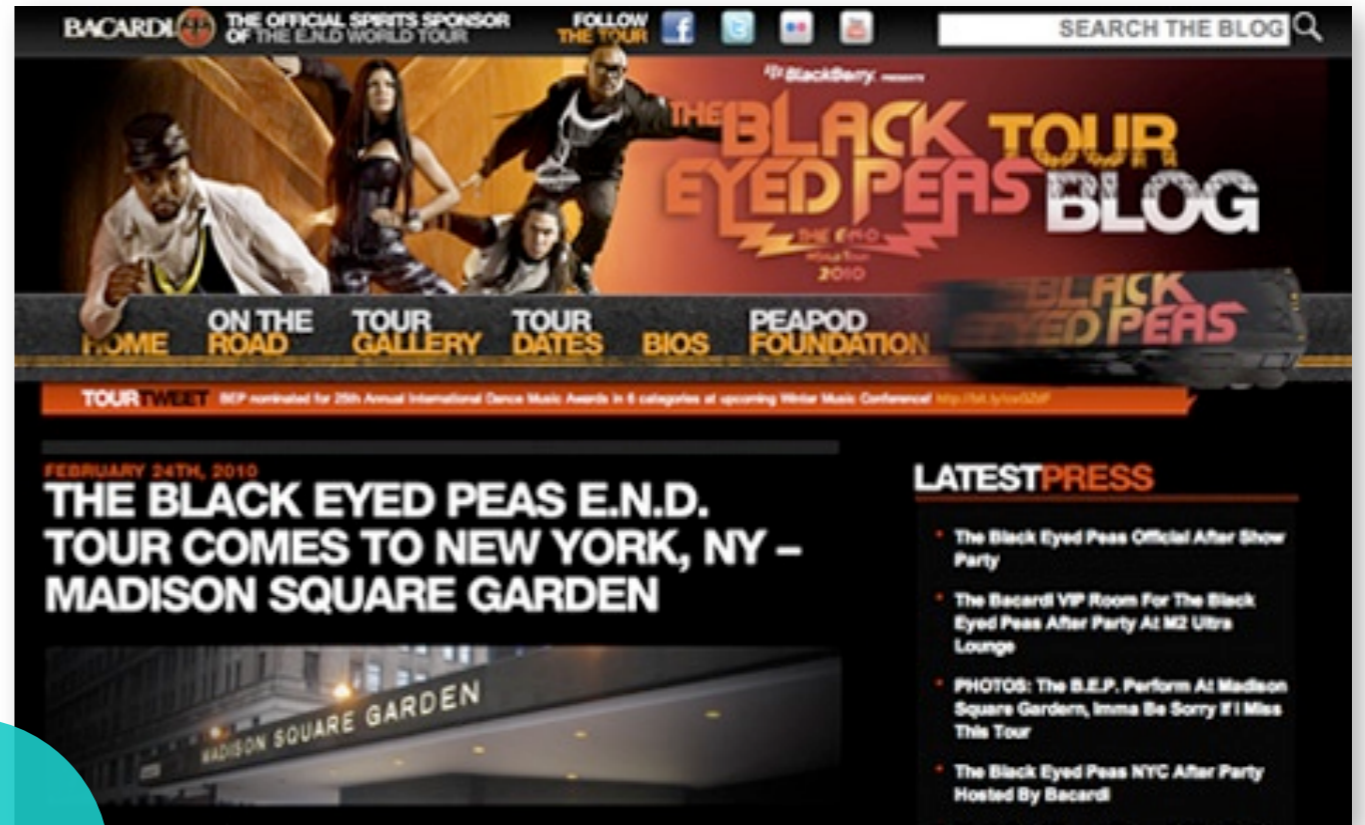
---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## TIMELINE: THE BLACK EYED PEAS

- *Main task: blog*
- *Agency project*
- *Large budget*
- *6 page content site*



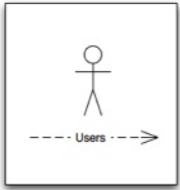
WEB SITE

---

# PROGRAMMING FOR NON-PROGRAMMERS

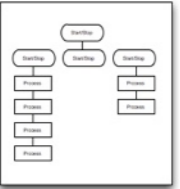
---

*Timeline: The Black Eyed Peas*



**UX**

**30 HOURS**



**IA**

**40 HOURS**



**DESIGN**

**60 HOURS**



**DEVELOPMENT**

**120+ HOURS**



---

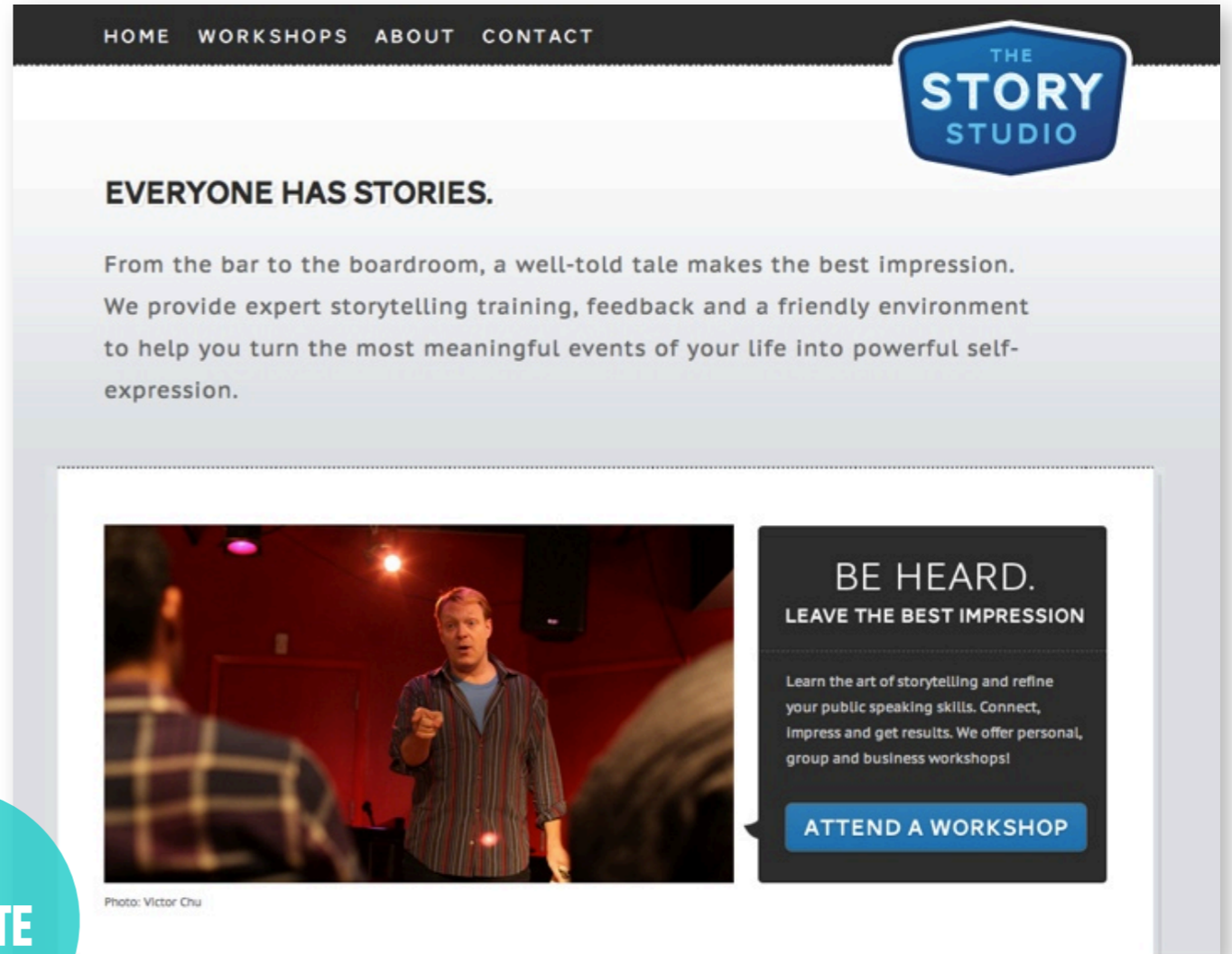
# PROGRAMMING FOR NON-PROGRAMMERS

---

## TIMELINE: THE STORY STUDIO

- *Main task: classes*
- *Consulting*
- *Low budget*
- *4 page navigation site*

WEB SITE



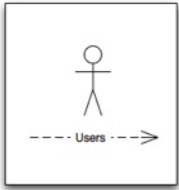


---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## *Timeline: The Story Studio*



**UX**



**IA**

**8-12 HOURS**



**DESIGN**

**10 HOURS**



**DEVELOPMENT**

**35 HOURS**



---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## TIMELINE: DERBY JACKPOT

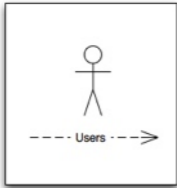
- *Main task: an online horse gambling platform*
- *Start-up Consulting*
- *Decent-sized budget*
- *High risk: APIs*



WEB APP

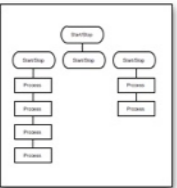
# PROGRAMMING FOR NON-PROGRAMMERS

*Timeline: Derby Jackpot*



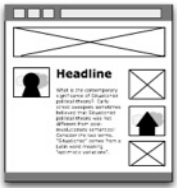
**UX**

**45 HOURS**



**IA**

**45 HOURS**



**DESIGN**

**120 HOURS**



**DEVELOPMENT**

**500+ HOURS**



# PROGRAMMING FOR NON-PROGRAMMERS

## TIMELINE: GENERALASSEMBLY.LY

*Main tasks:*

- *classes*
- *about us*
- *video*
- *social network*
- *custom payment gateway*



# PROGRAMMING FOR NON-PROGRAMMERS

## TIMELINE: GENERALASSEMBLY.LY

*Main tasks:*

- *classes*
- *about us*
- ~~*video*~~
- ~~*social network*~~
- ~~*custom payment gateway*~~

WEB SITE



# Which Language for...? Native Apps

---

# PROGRAMMING FOR NON-PROGRAMMERS

---



## NATIVE APPS

*Directly on your Operating System*

- ▶ **IPHONE**
- ▶ **ANDROID**
- ▶ **OSX**
- ▶ **WINDOWS**

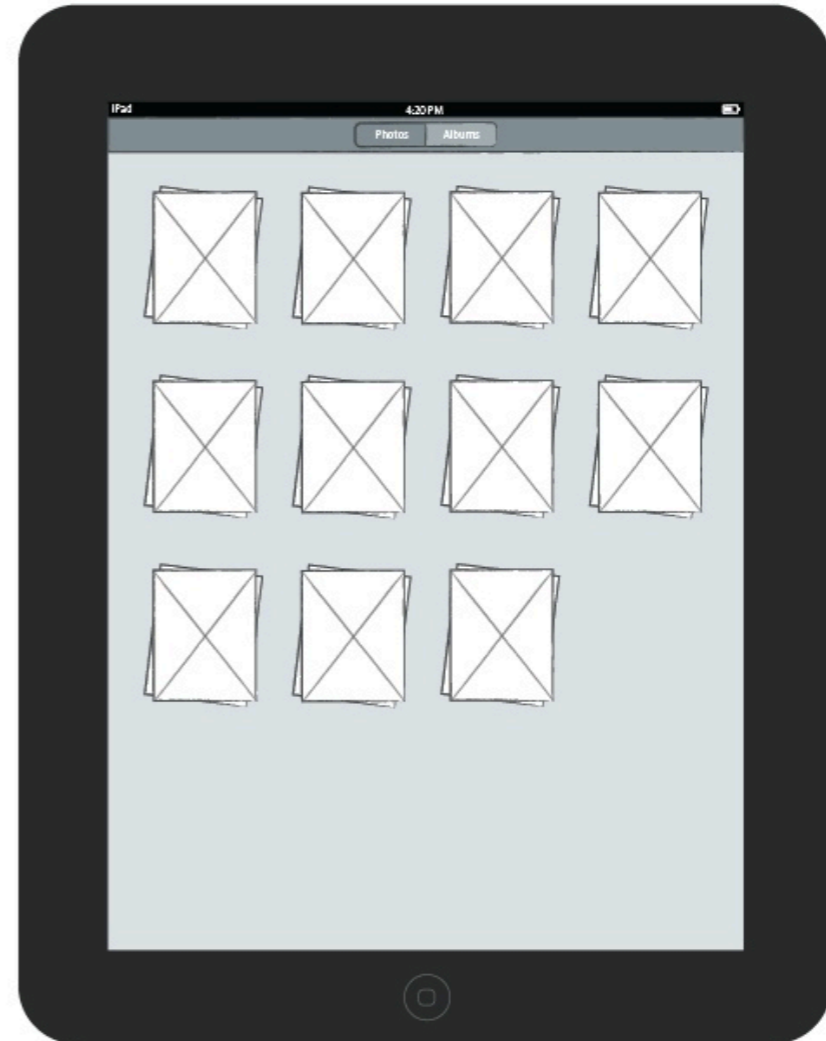
---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## iPHONE, IPAD, MAC OS

- Objective-C





## ANDROID

▸ java

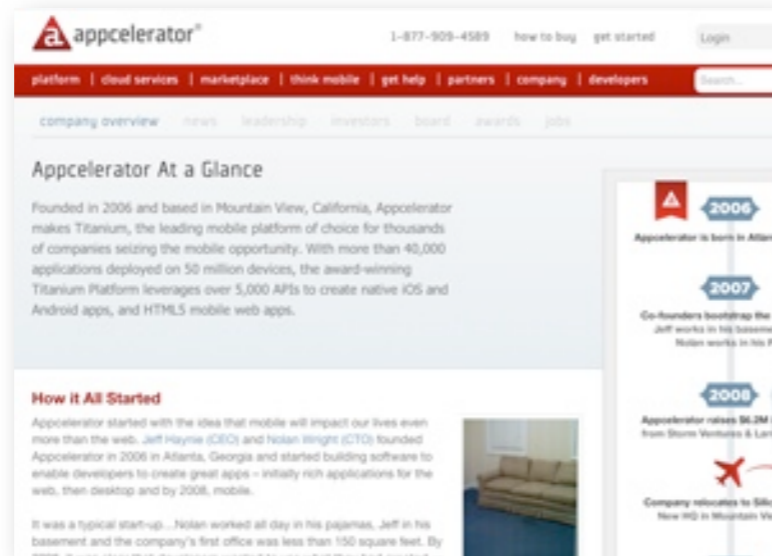


---

# PROGRAMMING FOR NON-PROGRAMMERS

---

# MOBILE DEVELOPMENT FRAMEWORKS: NATIVE



Appcelerator/Titanium  
“cross-compiler”



Phone Gap  
“native wrapper”

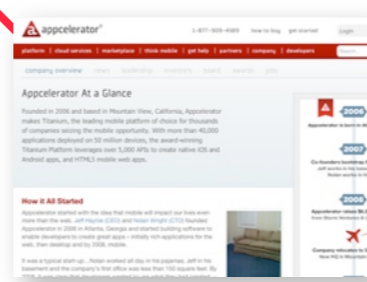
## CROSS COMPILE W/ APPCELERATOR



*Java*



*Objective-C*



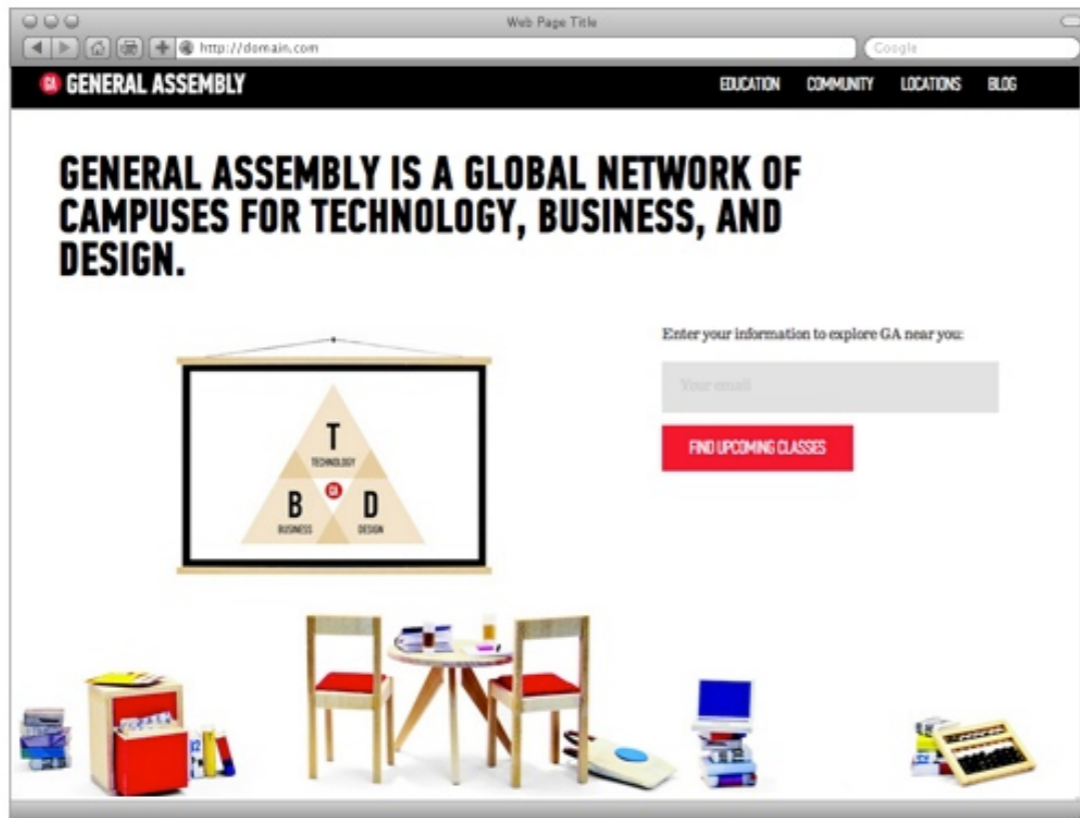
*Javascript-ish*

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## MOBILE WEB / RESPONSIVE DESIGN



 *Desktop Browser*



 *Safari on iPhone*

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## MOBILE WEB: FRAMEWORKS



Sencha  
*Javascript-ish*



jQuery Mobile  
*jQuery-ish*

# Content Management Systems (CMS)

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## CONTENT MANAGEMENT SYSTEMS (CMS)

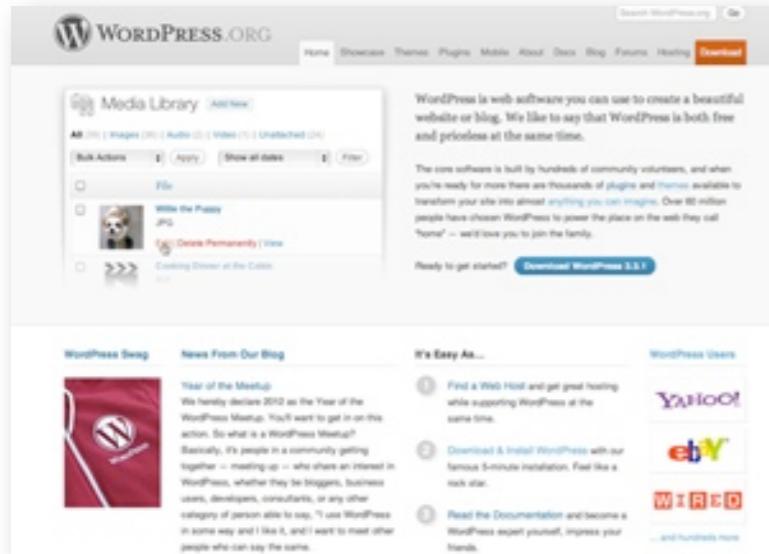
- Wordpress
- Joomla!
- Drupal
- Blogger
- DotNetNuke
- Homestead
- Yahoo Site Builder
- VBulletin
- ExpressionEngine
- Weebly

---

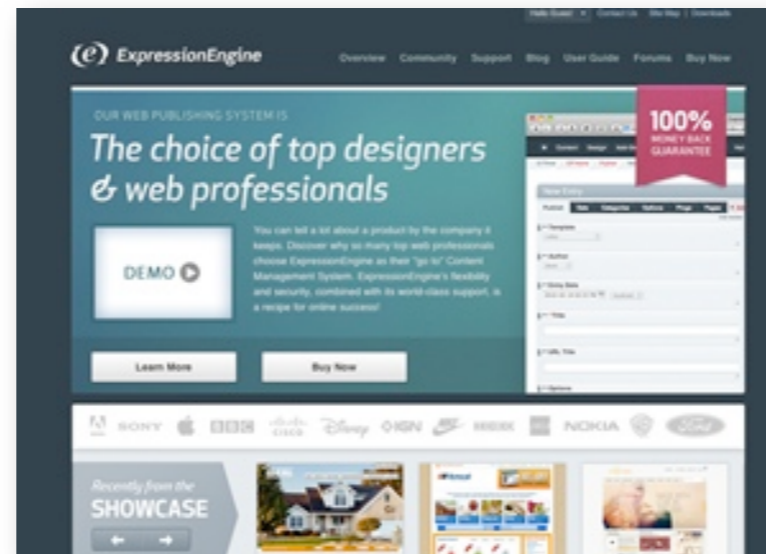
# PROGRAMMING FOR NON-PROGRAMMERS

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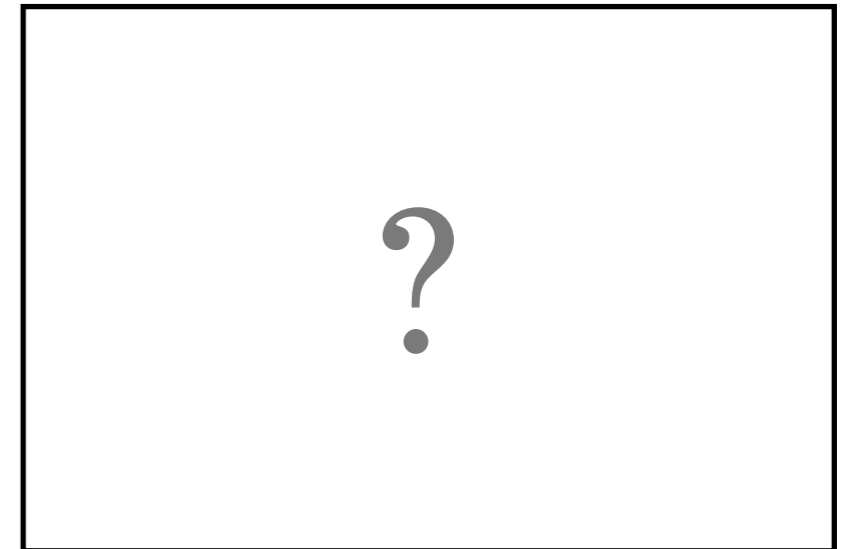
## CONTENT MANAGEMENT SYSTEMS (CMS)



Wordpress



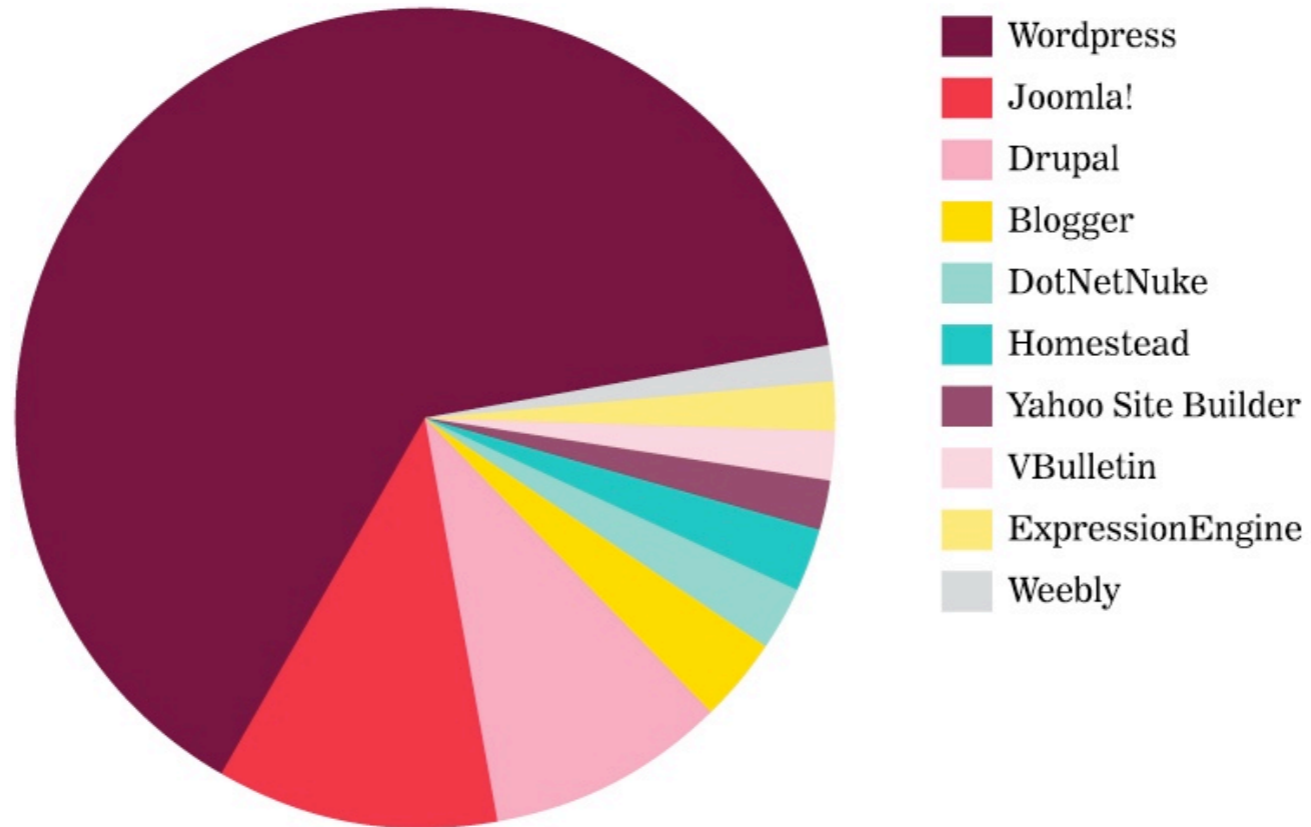
Expression Engine



Custom



## CMS DISTRIBUTION IN TOP MILLION SITES

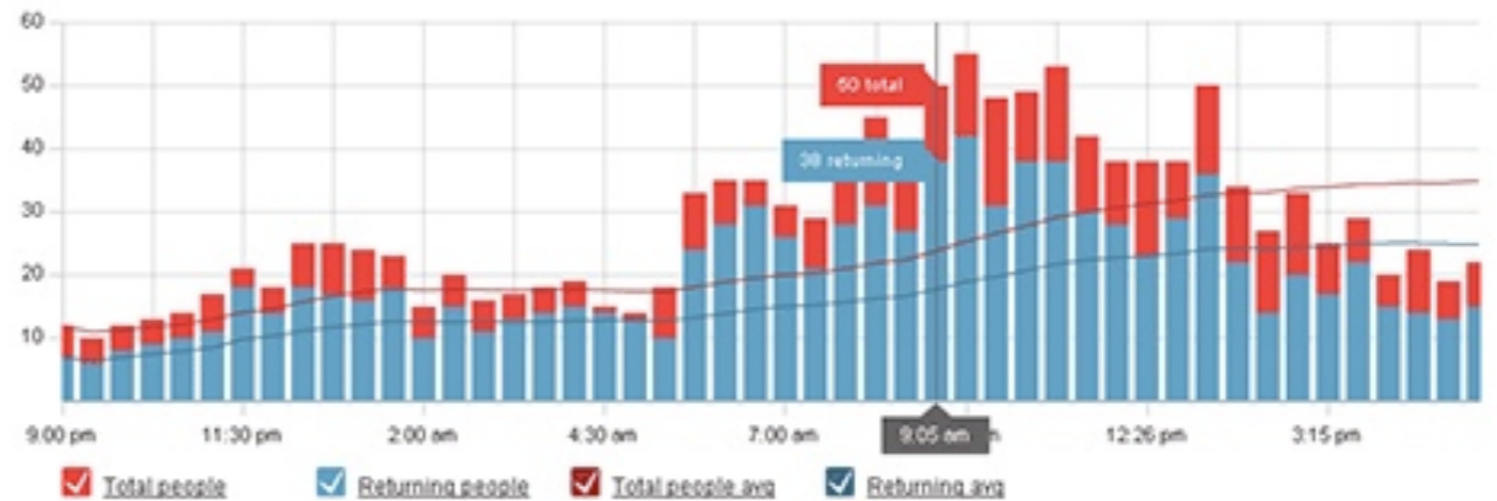


Which languages are left?

## ANALYTICS, QUICK PROCESSES

▸ C++

Today



Last 7 days



Last 30 days



# “REAL-TIME” IS MOST IMPORTANT

▸ Node.js



---

# PROGRAMMING FOR NON-PROGRAMMERS

---



---

# PROGRAMMING FOR NON-PROGRAMMERS

---

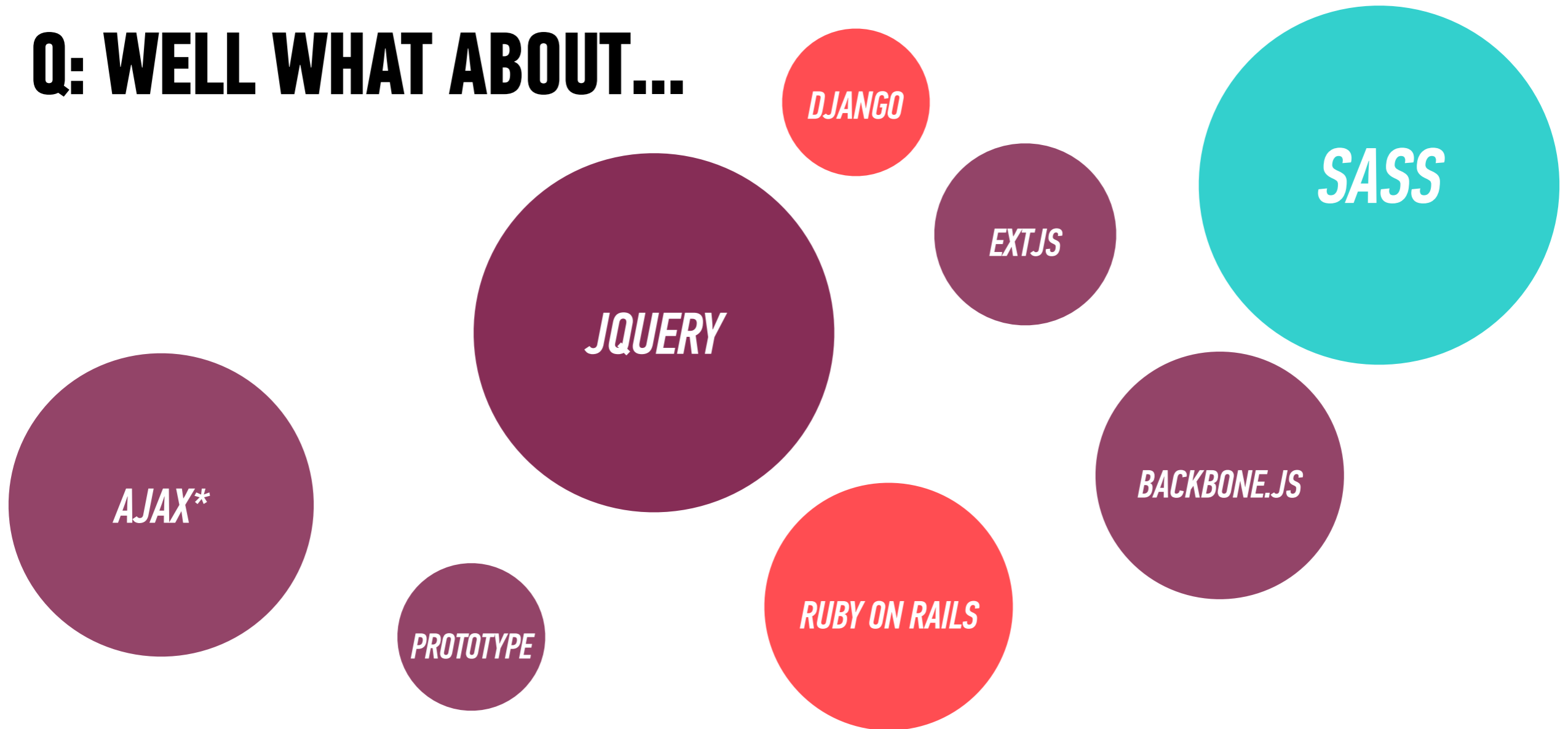
And then you were all like...

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

**Q: WELL WHAT ABOUT...**



\*Ajax is a JavaScript related technique

# Frameworks



**LET'S CODE SOME**

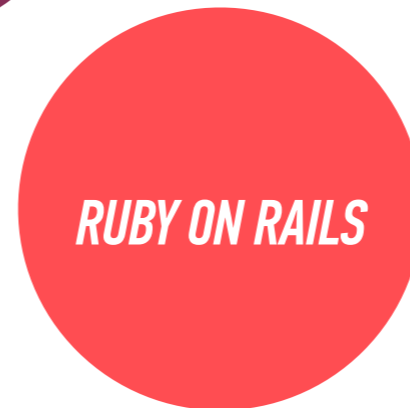
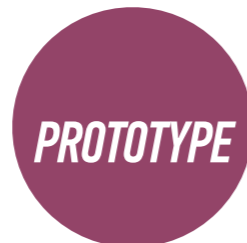
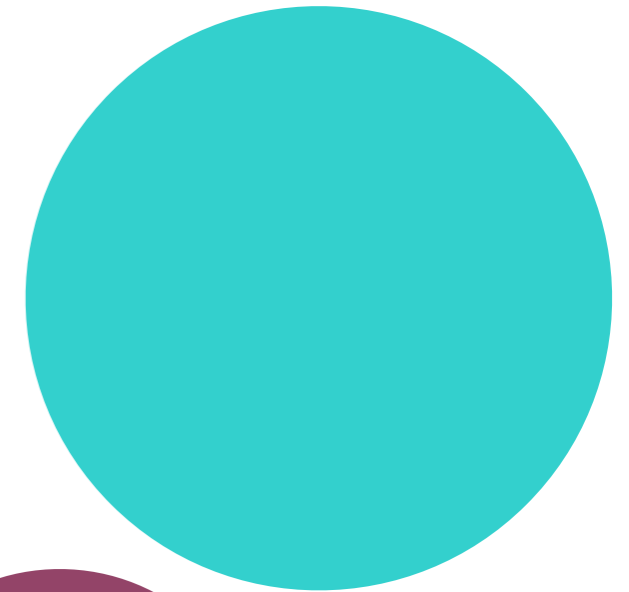
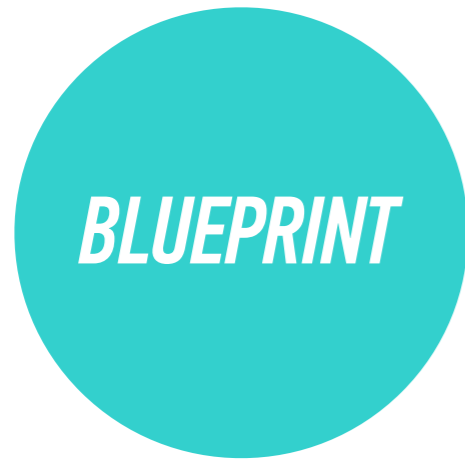
*and come back to frameworks*

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

**Q: WELL WHAT ABOUT...**



**FUNCTION**<sup>\*</sup>  
*defines a block of code*



*\*I'm giving you permission  
to use this in the general sense*

## FRAMEWORK: Login Example

*login()*

```
register_default_headers() array
  "wheel" => array(
    "url" => "/images/headers/wheel.jpg",
    "thumbnail_url" => "/images/headers/wheel-thumbnail.jpg",
    "description" => "Wheel", "twentytwelve" )
  "share" => array(
    "url" => "/images/headers/share.jpg",
    "thumbnail_url" => "/images/headers/share-thumbnail.jpg",
    "description" => "Share", "twentytwelve" )
  "trilley" => array(
    "url" => "/images/headers/trilley.jpg",
    "thumbnail_url" => "/images/headers/trilley-thumbnail.jpg",
    "description" => "Trilley", "twentytwelve" )
  "palm-crew" => array(
    "url" => "/images/headers/palm-crew.jpg",
    "thumbnail_url" => "/images/headers/palm-crew-thumbnail.jpg",
    "description" => "Palm Crew", "twentytwelve" )
  "checkboxes" => array(
    "url" => "/images/headers/checkboxes.jpg",
    "thumbnail_url" => "/images/headers/checkboxes-thumbnail.jpg",
    "description" => "Checkboxes", "twentytwelve" )
  "lambert" => array(
    "url" => "/images/headers/lambert.jpg",
    "thumbnail_url" => "/images/headers/lambert-thumbnail.jpg",
    "description" => "Lambert", "twentytwelve" )
  "all" => array(
    "url" => "/images/headers/all.jpg",
    "thumbnail_url" => "/images/headers/all-thumbnail.jpg",
    "description" => "All", "twentytwelve" )
```

Log in to Zappos

Email Address

Password

passwords are case sensitive

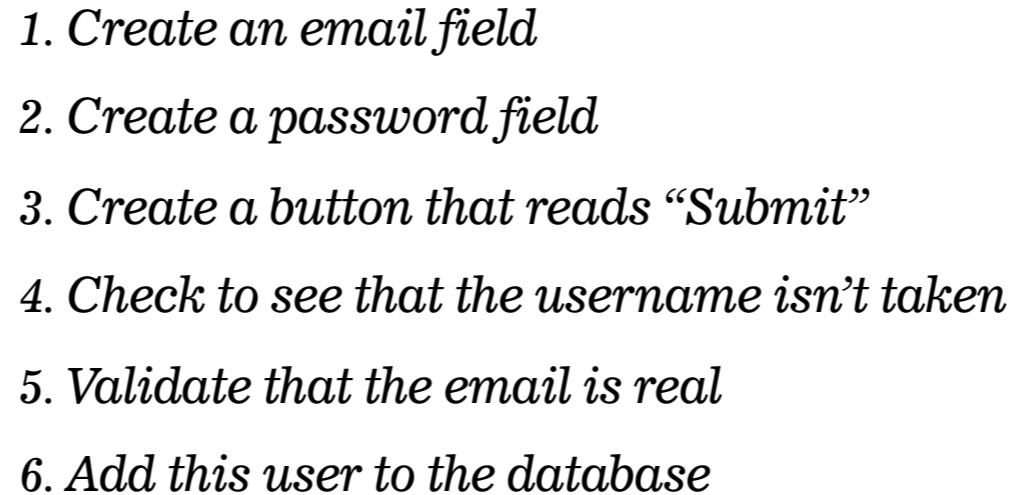
LOG IN

[Forgot your password?](#)

*The “perfect registration form”*

## FRAMEWORK: Login Example

*login()*

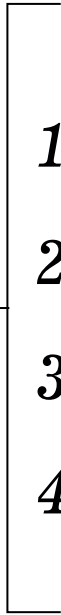
- 
- 1. Create an email field*
  - 2. Create a password field*
  - 3. Create a button that reads "Submit"*
  - 4. Check to see that the username isn't taken*
  - 5. Validate that the email is real*
  - 6. Add this user to the database*

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

*walk()*

- 
- 1. Advance right leg forward 0.5697 feet*
  - 2. Shift weight to right foot*
  - 3. Advance left leg forward 0.5697 feet*
  - 4. Shift weight to left foot*

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

**WALK() {**

- 1. Advance right leg forward 0.5697 feet*
- 2. Shift weight to right foot*
- 3. Advance left leg forward 0.5697 feet*
- 4. Shift weight to left foot*

**}**



# Frameworks

# FRAMEWORKS

*a collection of pre-baked code*

*...mostly “functions”, and other great stuff*

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## FRAMEWORKS

*BLUEPRINT*

*PROTOTYPE*

*JQUERY*

*RUBY ON RAILS*

*DJANGO*

*EXTJS*

*BACKBONE.JS*

*TWITTER  
BOOTSTRAP*

# WHAT IS TWITTER BOOTSTRAP?



<http://twitter.github.com/>

# WHAT IS TWITTER BOOTSTRAP?

*A: Pre-baked...*

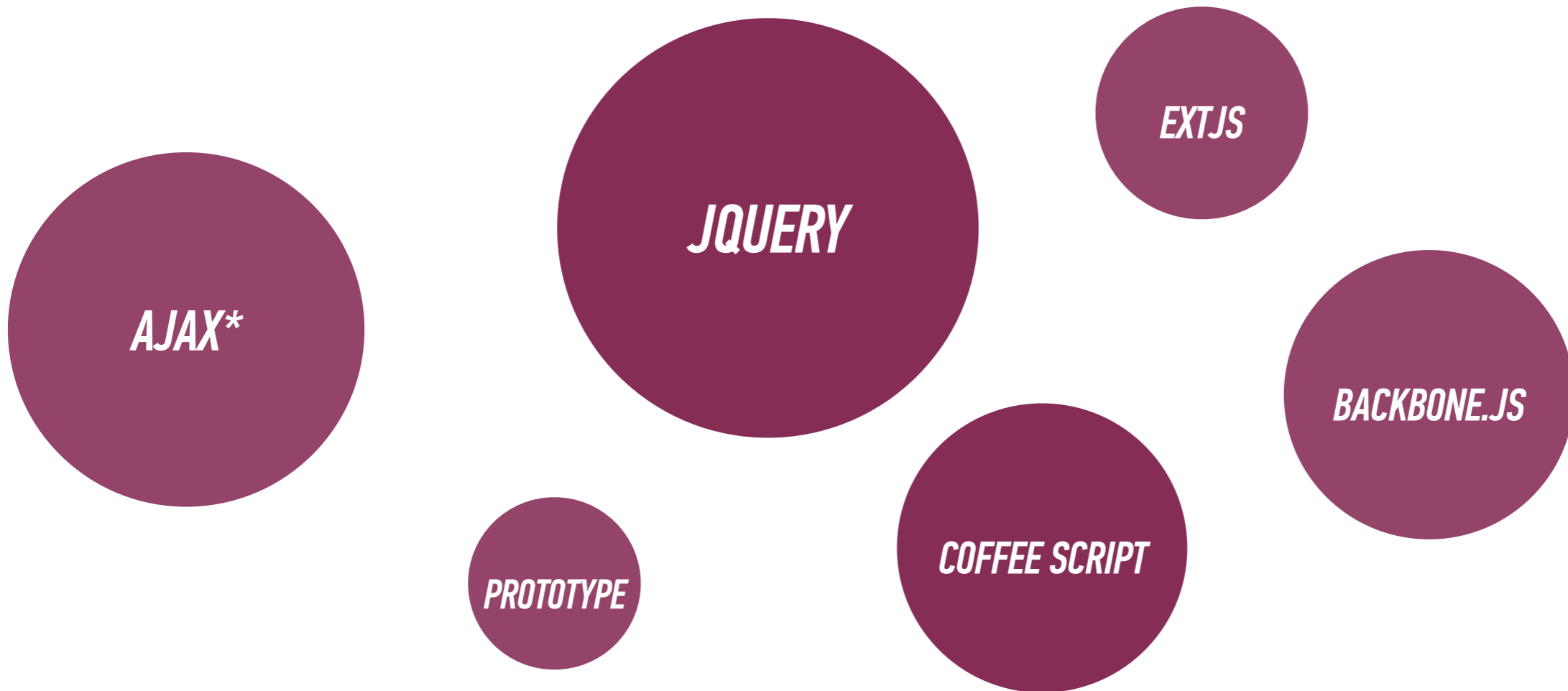
CSS

JS

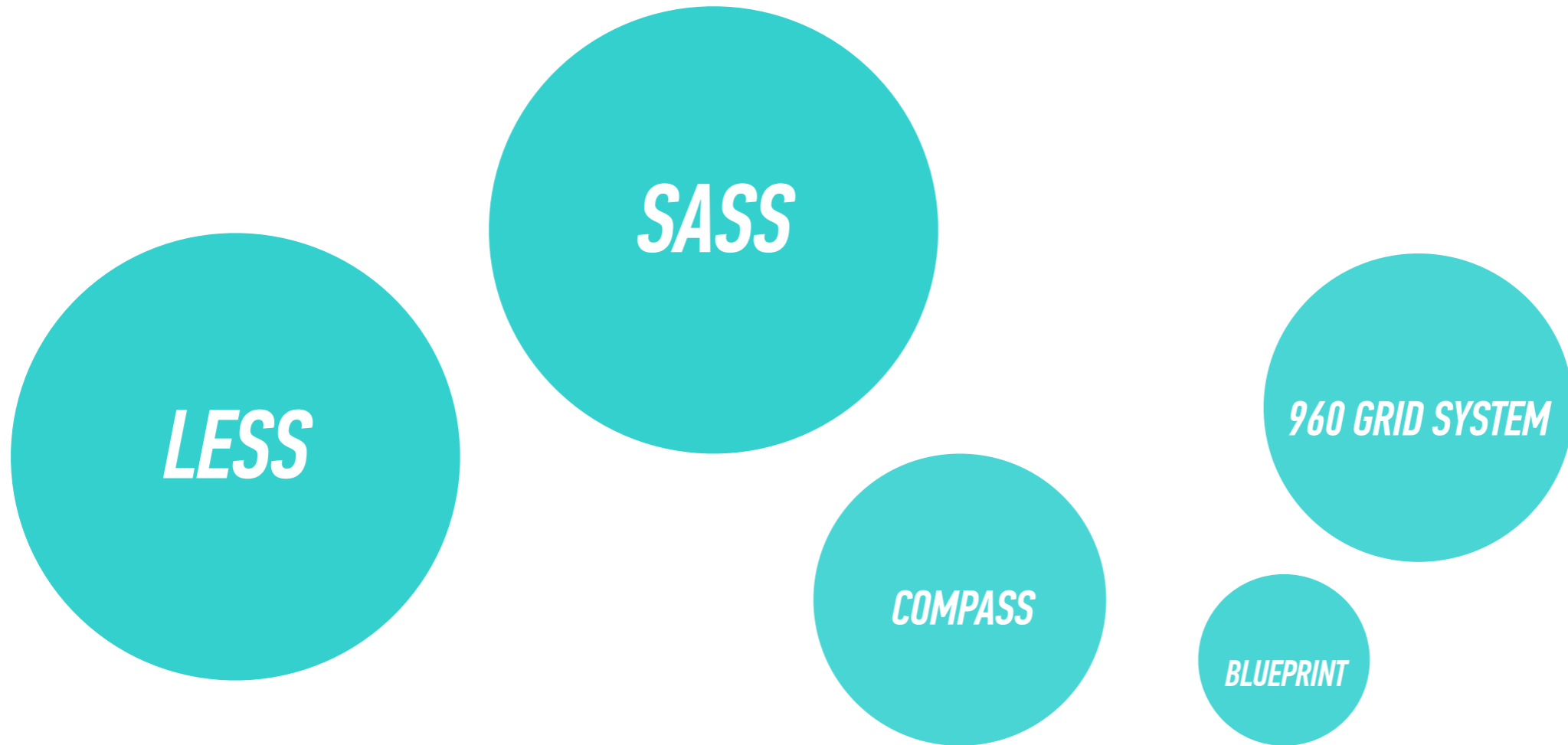
```
746 }
747
748 h1 {
749   font-size: 38.5px;
750 }
751
752 h2 {
753   font-size: 31.5px;
754 }
755
756 h3 {
757   font-size: 24.5px;
758 }
759
760 h4 {
761   font-size: 17.5px;
762 }
763
764 h5 {
765   font-size: 14px;
766 }
767
768 h6 {
769   font-size: 11.9px;
```

# Frameworks

## A: JAVASCRIPT FRAMEWORKS & HELPERS



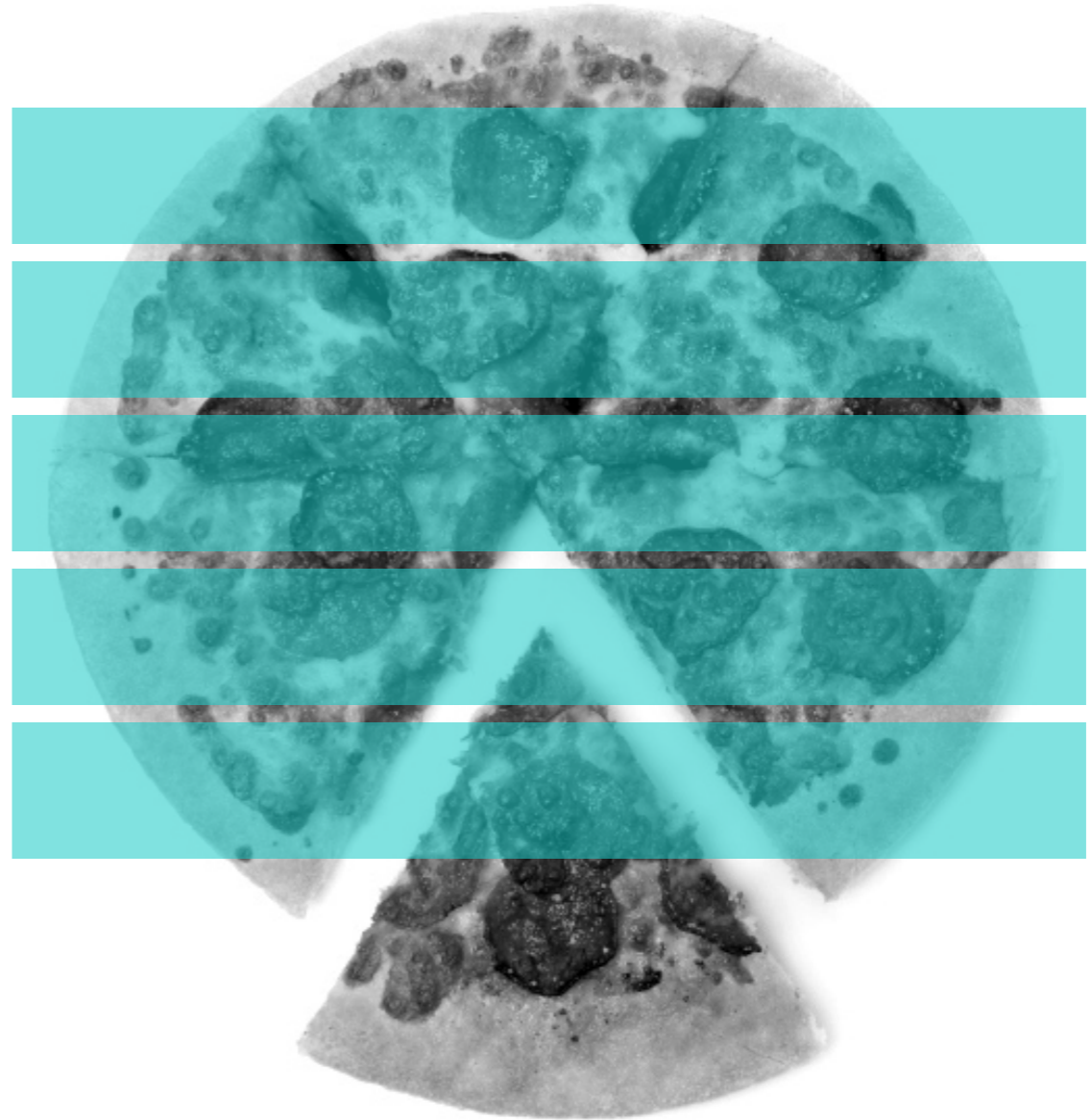
## A: CSS FRAMEWORKS & HELPERS



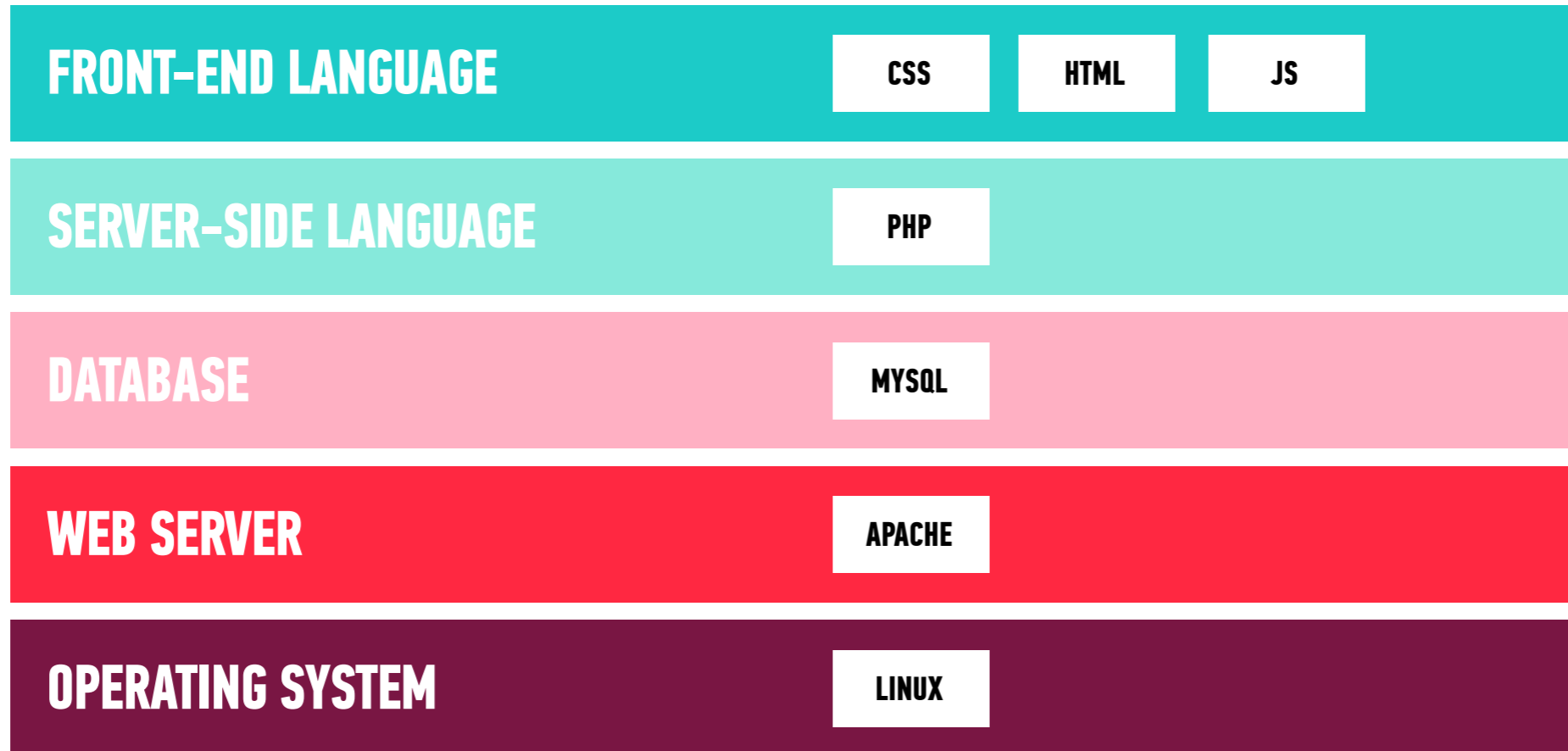


# Tech Stack

## WHAT IS A TECH STACK?



## WHAT IS A TECH STACK?



# III. CODE!

Use the Tools

**HTML** - *structure*

**CSS** - *style*

**JS** - *behavior*

**HTML** (*noun*)

**CSS** (*adjective*)

**JS** (*verb*)

**HEY CHRIS, CAN YOU...**

make the logo bigger?

## HEY CHRIS, CAN YOU...

HTML

make the logo bigger?

CSS



---

## PROGRAMMING FOR NON-PROGRAMMERS

---

**HEY CHRIS, CAN YOU...**

make that grey heading fade in?

## HEY CHRIS, CAN YOU...

make that **grey** heading **fadein**?

HTML

CSS

JAVASCRIPT

# 7 CONCEPTS

*...that are the same in every  
programming language*

# **1. EVENTS**

# **2. COMMENTS**

# **3. PRINT**

# **4. VARIABLES**

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## POP QUIZ!

$$a = 1$$

$$b = 2$$

$$c = a + b$$

$$c = ?$$



---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## POP QUIZ!

$a = 1$

$b = 2$

$c = a + b$

$c = 3$

# **5. DATATYPES**

# **6. CONDITIONALS**

# **7. FUNCTIONS**

## PROGRAMMING CONCEPTS

1. Events
2. Comments
3. Print
4. Variables
5. Datatypes
6. Conditionals
7. Functions

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## JAVASCRIPT

```
document.write("Good morning");
```

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## JAVASCRIPT

```
document.write("Good morning");
```

## PHP

```
echo "Good morning";
```

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## JAVASCRIPT

```
document.write("Good morning");
```

## PHP

```
echo "Good morning";
```

## RUBY

```
print "Good morning"
```



---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## JAVASCRIPT

```
document.write("Good morning");
```

## PHP

```
echo "Good morning";
```

## RUBY

```
print "Good morning"
```

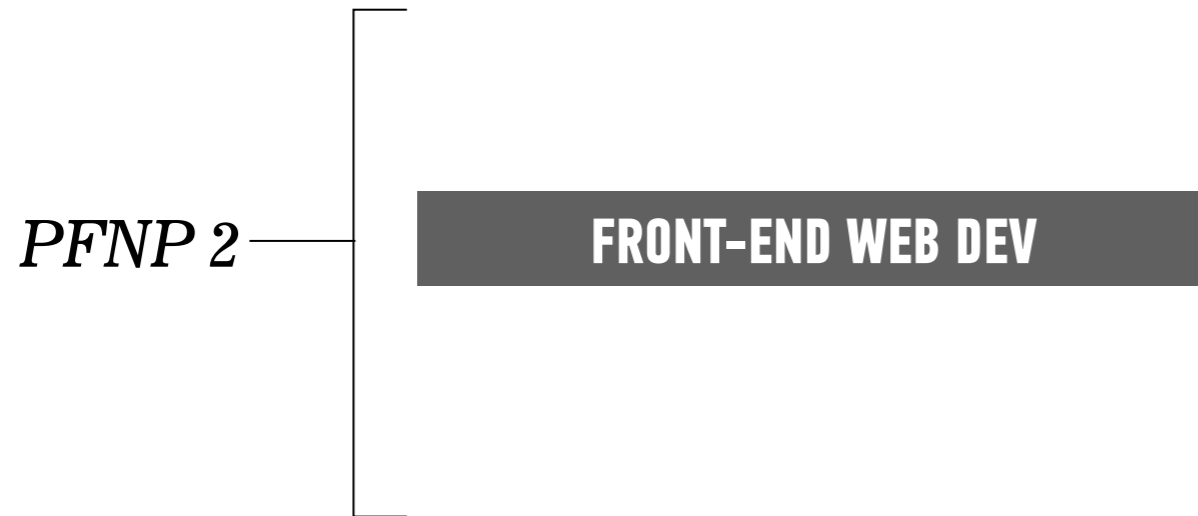
## PERL

```
say "Good morning"
```

---

# PROGRAMMING FOR NON-PROGRAMMERS

---



# FRONT-END

HTML, CSS, JS

---

**PROGRAMMING FOR NON-PROGRAMMERS**

---

# **WHAT IS HTML5?**

# BACK-END

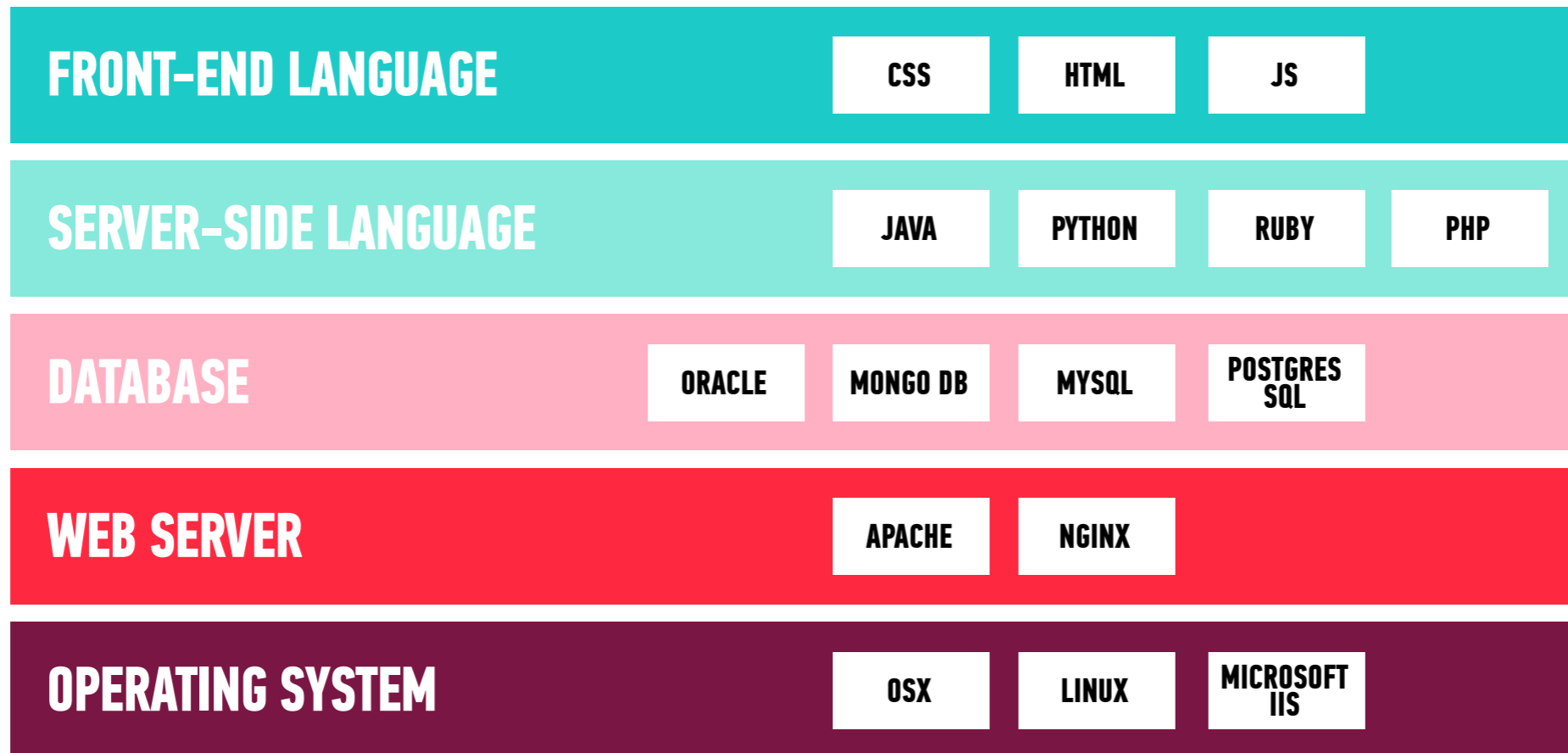
PHP & SQL

---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## WHAT IS A TECH STACK?



*File Under:*

“not a programming language”

---

# **PROGRAMMING FOR NON-PROGRAMMERS**

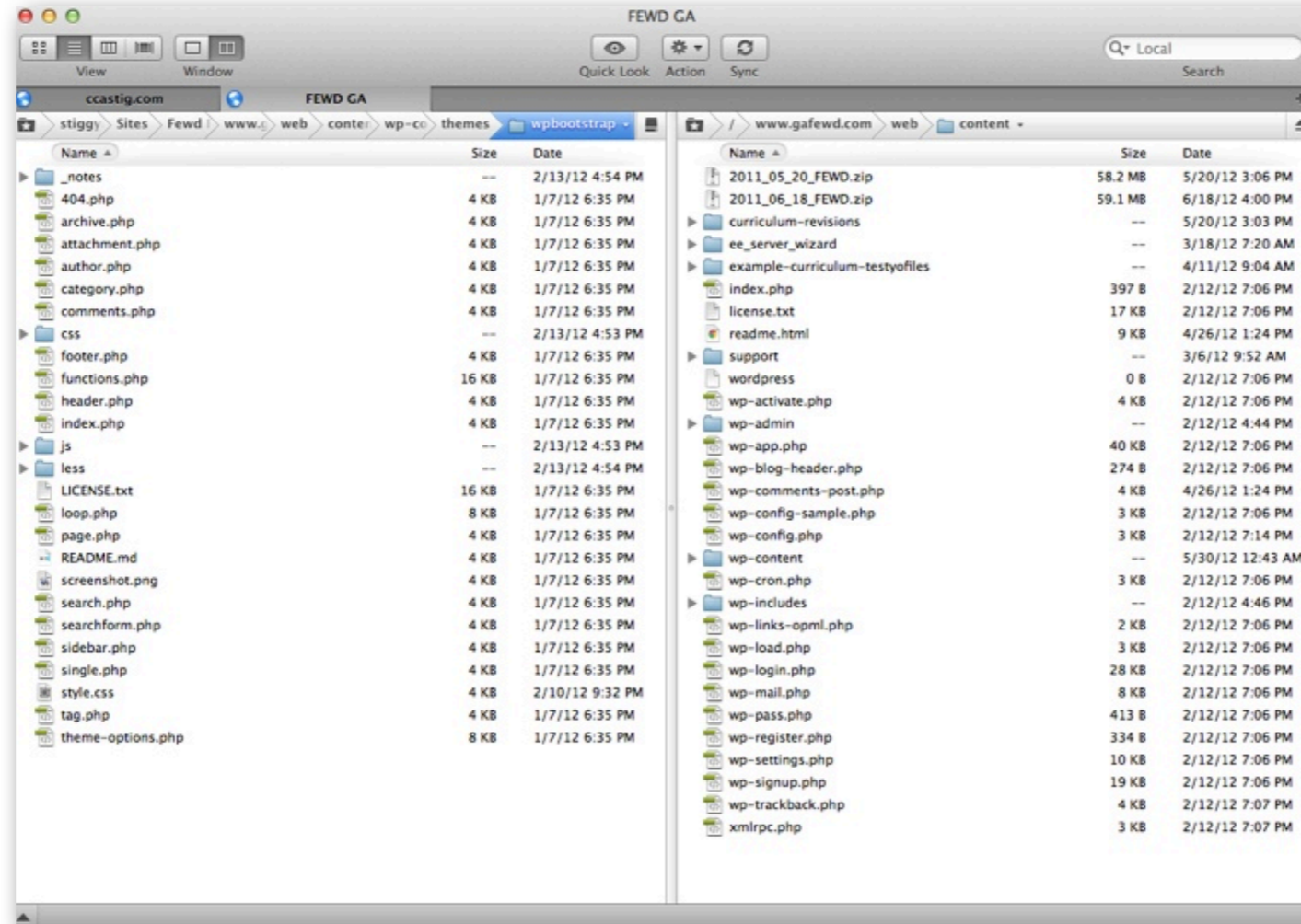
---

## **OPEN SOURCE**



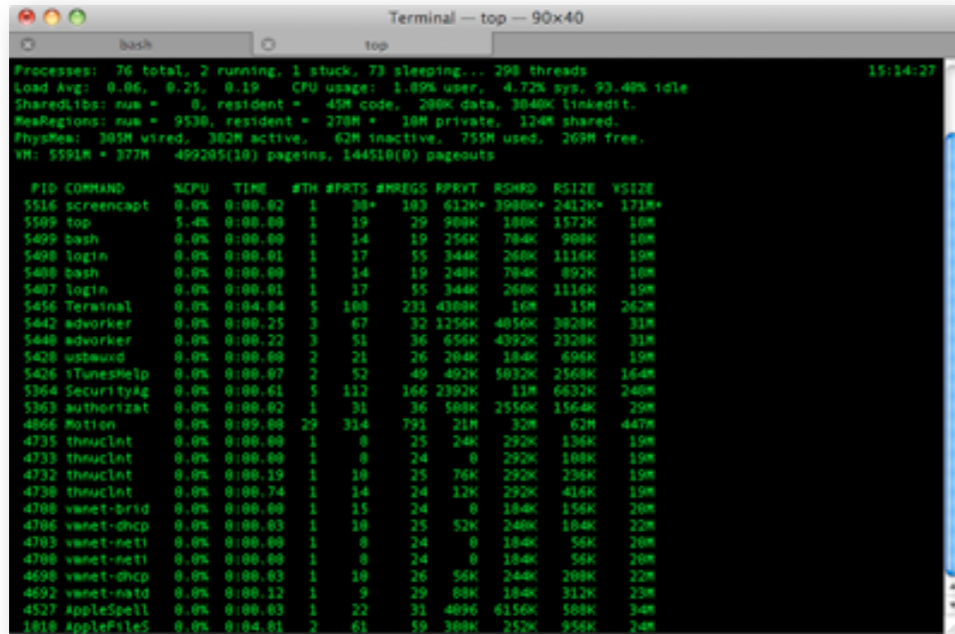
# PROGRAMMING FOR NON-PROGRAMMERS

## FTP



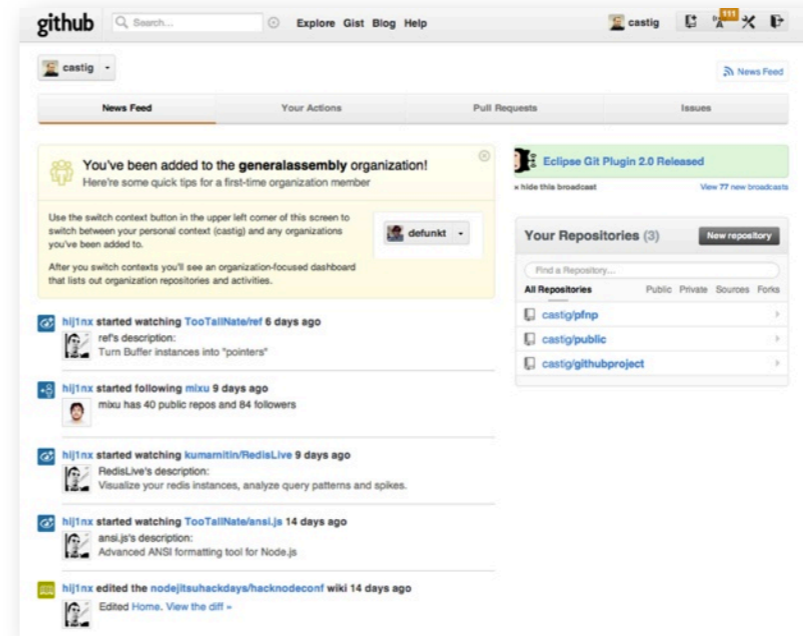
# PROGRAMMING FOR NON-PROGRAMMERS

# GIT



```
Terminal — top — 90x40
bash
top
Processes: 76 total, 2 running, 1 stuck, 73 sleeping... 298 threads
Load Avg: 0.06, 0.25, 0.19 CPU usage: 1.89% user, 4.72% sys, 93.40% idle
SharedLibs: num = 0, resident = 45M code, 200K data, 3040K linkedit.
MemRegions: num = 9530, resident = 270M + 10M private, 124M shared.
PhysMem: 305M wired, 302M active, 62M inactive, 755M used, 269M free.
VM: 5591M + 377M 409205(10) pageins, 144510(0) pageouts

PID COMMAND %CPU TIME #TH #PRTS #PRGGS #PRVT #SHRD #SIZR #VSIZE
5516 screencapt 0.0% 0:00.02 1 30* 103 612K* 3980K* 2412K* 171M*
5509 top 5.4% 0:00.00 1 19 29 908K 180K 1572K 10M
5499 bash 0.0% 0:00.00 1 14 19 256K 704K 908K 10M
5498 login 0.0% 0:00.01 1 17 55 344K 260K 1116K 19M
5488 bash 0.0% 0:00.00 1 14 19 248K 704K 892K 10M
5487 login 0.0% 0:00.01 1 17 55 344K 260K 1116K 19M
5456 Terminal 0.0% 0:04.04 5 100 231 4308K 16M 15M 262M
5442 adworker 0.0% 0:00.25 3 67 32 1256K 4056K 3020K 31M
5440 adworker 0.0% 0:00.22 3 51 36 656K 4392K 2320K 31M
5420 sshd 0.0% 0:00.00 2 21 26 204K 184K 496K 19M
5426 iTunesHelp 0.0% 0:00.07 2 52 49 492K 5032K 2568K 164M
5364 SecurityAg 0.0% 0:00.61 5 112 166 2392K 11M 6632K 240M
5363 authorizat 0.0% 0:00.02 1 31 36 508K 2350K 1564K 29M
4866 Motion 0.0% 0:00.00 29 314 791 21M 32M 62M 447M
4735 thnucInt 0.0% 0:00.00 1 0 25 24K 292K 136K 19M
4733 thnucInt 0.0% 0:00.00 1 0 24 0 292K 108K 19M
4732 thnucInt 0.0% 0:00.19 1 10 25 76K 292K 236K 19M
4730 thnucInt 0.0% 0:00.74 1 14 24 12K 292K 416K 19M
4708 wnet-brid 0.0% 0:00.00 1 15 24 0 184K 156K 20M
4706 wnet-dhcp 0.0% 0:00.03 1 10 25 52K 240K 104K 22M
4703 wnet-net1 0.0% 0:00.00 1 0 24 0 184K 56K 20M
4700 wnet-net1 0.0% 0:00.00 1 0 24 0 184K 56K 20M
4698 wnet-dhcp 0.0% 0:00.03 1 10 26 56K 244K 208K 22M
4692 wnet-netd 0.0% 0:00.12 1 9 29 88K 104K 312K 23M
4527 AppleSpell 0.0% 0:00.03 1 22 31 4096 4156K 588K 34M
1810 AppleFileS 0.0% 0:04.01 2 61 59 304K 252K 956K 24M
```



The screenshot shows the GitHub profile for user 'castig'. The page includes a search bar, navigation links for 'Explore', 'Gist', 'Blog', and 'Help', and a user profile header with the name 'castig'. Below the header, there are tabs for 'News Feed', 'Your Actions', 'Pull Requests', and 'Issues'. The main content area features a yellow notification box stating 'You've been added to the generalassembly organization!' with quick tips. To the right, there is a green notification for 'Eclipse Git Plugin 2.0 Released'. Below these, the 'Your Repositories (3)' section lists 'castig/pfnp', 'castig/public', and 'castig/githubproject'. The 'News Feed' section shows several activity items, including 'hij1nx started watching TooTallNate/ref 6 days ago', 'hij1nx started following mixu 9 days ago', 'hij1nx started watching kumamitin/RedisLive 9 days ago', 'hij1nx started watching TooTallNate/ansi.js 14 days ago', and 'hij1nx edited the nodejitsu/hackdays/hacknodeconf wiki 14 days ago'.

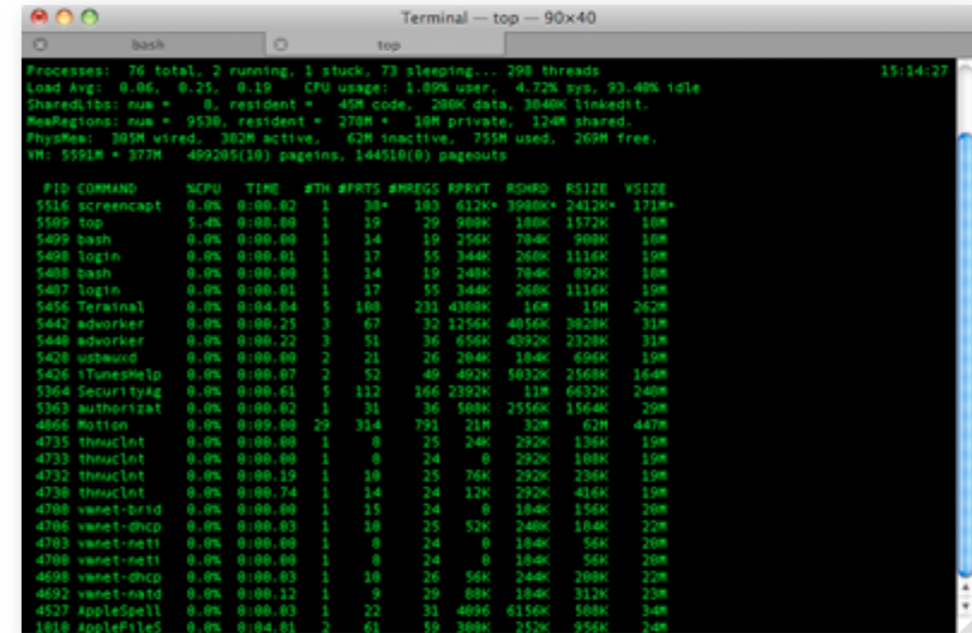
---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## GIT

### ▸ Revisions



```
Terminal — top — 90x40
bash top
Processes: 76 total, 2 running, 1 stuck, 73 sleeping... 298 threads
Load Avg: 0.06, 0.25, 0.19 CPU usage: 1.00% user, 4.72% sys, 93.48% idle
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MemRegions: num = 9538, resident = 378M + 18M private, 124M shared.
PhysMem: 385M wired, 382M active, 62M inactive, 755M used, 269M free.
IN: 5591M + 377M 499289(18) pageins, 144518(0) pageouts
15:14:27

PID COMMAND %CPU TIME #TH #PRTS #MREGS PPRVT RSHRD PSIZE VSIZE
5516 screencapt 0.0% 0:00.02 1 30* 103 612K* 3980K* 2412K* 171M*
5509 top 5.4% 0:00.00 1 19 29 908K 180K 1572K 18M
5499 bash 0.0% 0:00.00 1 14 19 256K 784K 908K 18M
5498 login 0.0% 0:00.01 1 17 55 344K 268K 1116K 19M
5488 bash 0.0% 0:00.00 1 14 19 248K 784K 892K 18M
5487 login 0.0% 0:00.01 1 17 55 344K 268K 1116K 19M
5456 Terminal 0.0% 0:04.84 5 100 231 4388K 16M 15M 262M
5442 advorker 0.0% 0:00.25 3 67 32 1256K 4856K 3828K 31M
5440 advorker 0.0% 0:00.22 3 51 36 656K 4992K 2328K 31M
5428 usbmuxd 0.0% 0:00.00 2 21 26 284K 184K 696K 19M
5426 iTunesMelp 0.0% 0:00.07 2 52 49 482K 5832K 2568K 164M
5364 SecurityAg 0.0% 0:00.61 5 112 166 2392K 11M 6632K 248M
5363 authorizat 0.0% 0:00.02 1 31 36 588K 2556K 1564K 79M
4866 Motion 0.0% 0:09.00 29 314 791 21M 32M 62M 447M
4735 thnucInt 0.0% 0:00.00 1 0 25 24K 292K 136K 19M
4733 thnucInt 0.0% 0:00.00 1 0 24 0 292K 108K 19M
4732 thnucInt 0.0% 0:00.19 1 10 25 76K 292K 236K 19M
4730 thnucInt 0.0% 0:00.74 1 14 24 12K 292K 416K 19M
4708 vnet-brid 0.0% 0:00.00 1 15 24 0 184K 156K 20M
4706 vnet-dhcp 0.0% 0:00.03 1 10 25 52K 248K 104K 22M
4703 vnet-net1 0.0% 0:00.00 1 0 24 0 184K 56K 20M
4700 vnet-net1 0.0% 0:00.00 1 0 24 0 184K 56K 20M
4698 vnet-dhcp 0.0% 0:00.03 1 10 26 56K 244K 208K 22M
4692 vnet-natd 0.0% 0:00.12 1 9 29 88K 184K 312K 23M
4527 AppleSpell 0.0% 0:00.03 1 22 31 4896 6156K 588K 34M
1818 AppleFileS 0.0% 0:04.01 2 61 59 368K 252K 956K 24M
```

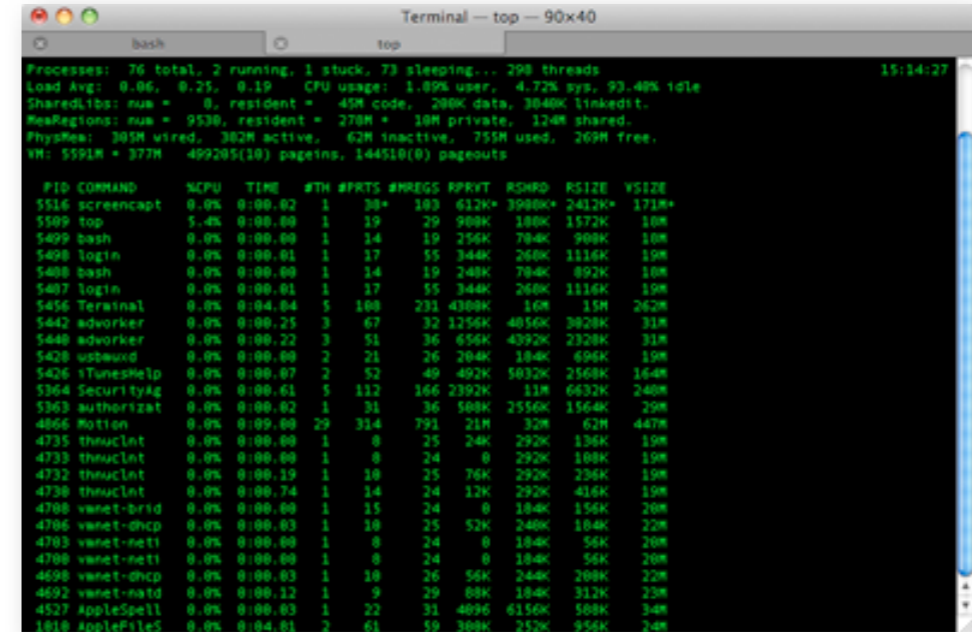
---

# PROGRAMMING FOR NON-PROGRAMMERS

---

## GIT

- ▶ Revisions
- ▶ Collaboration



```
Terminal — top — 90x40
bash top
Processes: 76 total, 2 running, 1 stuck, 73 sleeping... 298 threads
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MemRegions: num = 9530, resident = 378M + 18M private, 124M shared.
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IN: 5591M + 377M 499209(10) pageins, 144510(0) pageouts
15:14:27

PID COMMAND %CPU TIME #TH #PRTS #MREGS PPRVT RSHPD RSIZE VSIZE
5516 screencapt 0.0% 0:00.02 1 30* 103 612K* 3980K* 2412K* 171M*
5509 top 5.4% 0:00.00 1 19 29 908K 180K 1572K 10M
5499 bash 0.0% 0:00.00 1 14 19 256K 704K 908K 10M
5498 login 0.0% 0:00.01 1 17 55 344K 268K 1116K 10M
5488 bash 0.0% 0:00.00 1 14 19 248K 704K 892K 10M
5487 login 0.0% 0:00.01 1 17 55 344K 268K 1116K 10M
5456 Terminal 0.0% 0:04.04 5 100 231 4388K 16M 15M 262M
5442 advorker 0.0% 0:00.25 3 67 32 1256K 4056K 3828K 31M
5440 advorker 0.0% 0:00.22 3 51 36 656K 4992K 2328K 31M
5428 usbmuxd 0.0% 0:00.00 2 21 26 204K 184K 696K 19M
5426 iTunesHelp 0.0% 0:00.07 2 52 49 492K 5832K 2568K 164M
5364 SecurityAg 0.0% 0:00.61 5 112 166 2392K 11M 6632K 248M
5363 authorizat 0.0% 0:00.02 1 31 36 588K 2556K 1564K 79M
4866 Motion 0.0% 0:09.00 29 314 791 21M 32M 62M 447M
4735 thnucInt 0.0% 0:00.00 1 0 25 24K 292K 136K 19M
4733 thnucInt 0.0% 0:00.00 1 0 24 0 292K 108K 19M
4732 thnucInt 0.0% 0:00.19 1 10 25 76K 292K 236K 19M
4730 thnucInt 0.0% 0:00.74 1 14 24 12K 292K 416K 19M
4708 vnet-brid 0.0% 0:00.00 1 15 24 0 184K 156K 20M
4706 vnet-dhcp 0.0% 0:00.03 1 10 25 52K 248K 104K 22M
4703 vnet-net1 0.0% 0:00.00 1 0 24 0 184K 56K 20M
4700 vnet-net1 0.0% 0:00.00 1 0 24 0 184K 56K 20M
4698 vnet-dhcp 0.0% 0:00.03 1 10 26 56K 244K 208K 22M
4692 vnet-natd 0.0% 0:00.12 1 9 29 88K 184K 312K 23M
4527 AppleSpell 0.0% 0:00.03 1 22 31 4096 6156K 588K 34M
1818 AppleFileS 0.0% 0:04.01 2 61 59 368K 252K 956K 24M
```

## DATABASES (YOU CHOOSE ONE)

- MySQL (“My Sequel”)
- PostgreSQL
- ORACLE
- Mongo DB
- Reddis



ID	post_author	post_date	post_title	post_date_gmt	post_content
25	1	2011-05-31 22:24:39	Shop	2011-05-31 22:24:39	
26	1	2011-05-31 22:24:39	Classes	2011-05-31 22:24:39	
32	1	2011-06-05 21:42:22	Podcast	2011-06-05 21:42:22	
90	4	2011-05-04 21:57:01	Breaking the Rules	2011-05-04 21:57:01	<h4>Storytel
48	1	2011-06-06 05:21:51	Joy	2011-06-06 05:21:51	<h4>Storytel
88	4	2011-05-17 21:47:58	Surprise!	2011-05-17 21:47:58	<h4>Storytel
281	1	2011-07-23 21:47:40	Barry Rothbart & Mike...	2011-07-23 21:47:40	<h3>Radio S
264	1	2011-07-15 19:28:06	A Slippery Slope	2011-07-15 19:28:06	
308	1	2011-08-04 20:50:28	Close to the Edge	2011-08-04 20:50:28	<strong>SO

*SELECT post\_title FROM wp\_users WHERE post\_title = “Joy”*