GENERAL ASSEMBLY

PROGRAMMING FOR NON-PROGRAMMERS

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Autodesk / Sr Software Engineer

WELCOME TO GENERAL ASSEMBLY.

INSTRUCTOR INTRODUCTION

Vocabulary:

- What is programming?
- What can I build?
- What is Web Development?
- Stages of Design/Development/Test
- Planning a project

The Basics of Code:

- HTML/CSS & JavaScript
- Code together!

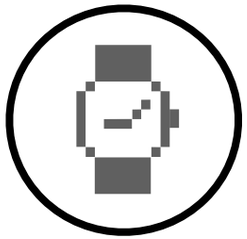
WHAT DO YOU WANT TO GET OUT OF THIS EXPERIENCE?

LEARN TO CODE. HTML/CSS. LEARN TECHNICAL VOCABULARY. TRANSLATE IDEAS TO CODE. CREATE A WEBSITE. BE MORE TECH SAVVY. BECOME A PROGRAMMER. BECOME A WEB DEVELOPER. CREATE A WEB APPLICATION. KNOW THE DIFFERENCE BETWEEN PROGRAMMING LANGUAGES, KNOW WHAT LANGUAGE TO USE. KNOW THE DIFFERENCE BETWEEN FRONT-END AND BACK-END. BECOME A CODE MONKEY

INTRODUCTIONS

STRUCTURE

PAIRS



INTROS: 5 MIN
SHARING: 15 MIN

OBJECTIVES

1. Take 5 minutes to get to know your neighbor by finding out:
    a. Their name
    b. Where they're from
    c. What they do (or what they're looking to do)
2. Once you've gotten to know each other, we'll take about 15 minutes to go around the class in order for you to introduce your partner.

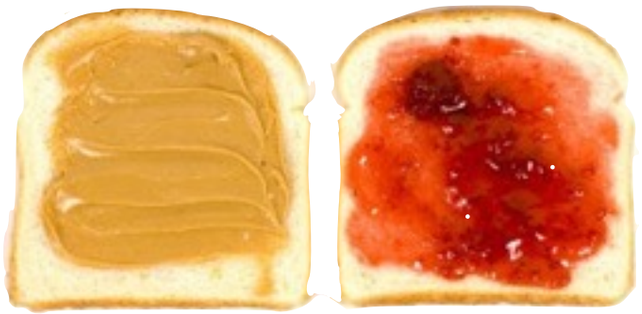
WHAT IS PROGRAMMING?

A SET OF INSTRUCTIONS.
USED TO SOLVE A PROBLEM.

A RECIPE.
A STEP BY STEP PROCESS.

1. FIND 2 SLICES OF BREAD
2. SPREAD PEANUT BUTTER ON ONE SIDE OF ONE SLICE OF BREAD
3. SPREAD JELLY ON ONE SIDE OF THE OTHER SLICE OF BREAD
4. PUT THE TWO SLICES OF BREAD TOGETHER, PEANUT BUTTER FACING JELLY

PROBLEM SOLVED!



THE QUESTION

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

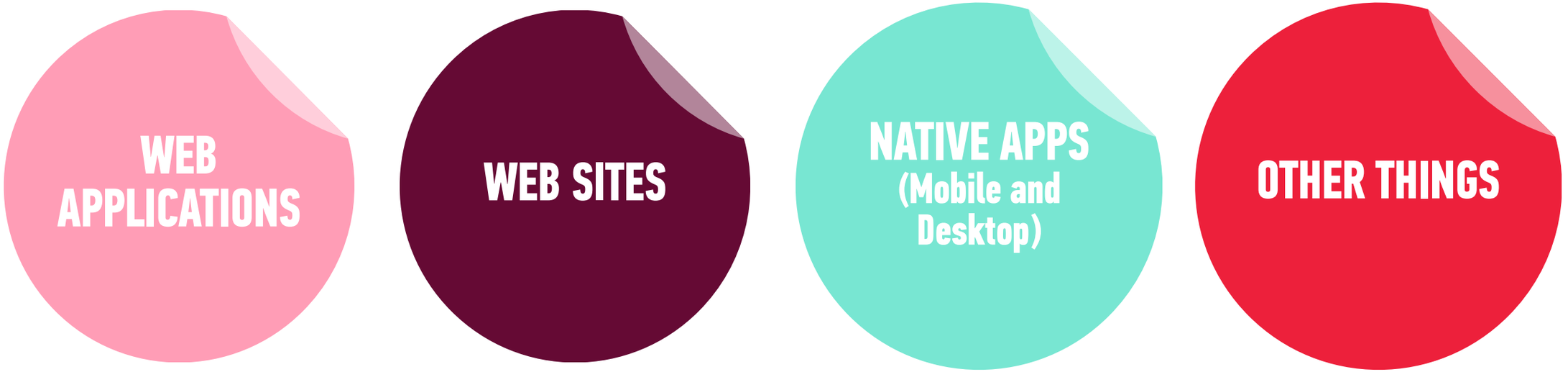
EXERCISE:

TELL YOUR NEIGHBOR HOW TO DRAW A HOUSE.

PROGRAMMING LANGUAGES

RUBY RUBY ON RAILS PHP JAVA JAVASCRIPT HTML
CSS C++ C# OBJECTIVE C PYTHON C JQUERY NODE
BACKBONE ANGULAR EMBER R DJANGO SINATRA
PADRINO SCALA ERLANG HASKELL ASSEMBLY PERL S
FORTRAN PASCAL PROCESSING SCRATCH HEROKU
MONGO-DB MYSQL SMALLTALK LISP J2EE XSLT OCTA

WHAT CAN I BUILD?

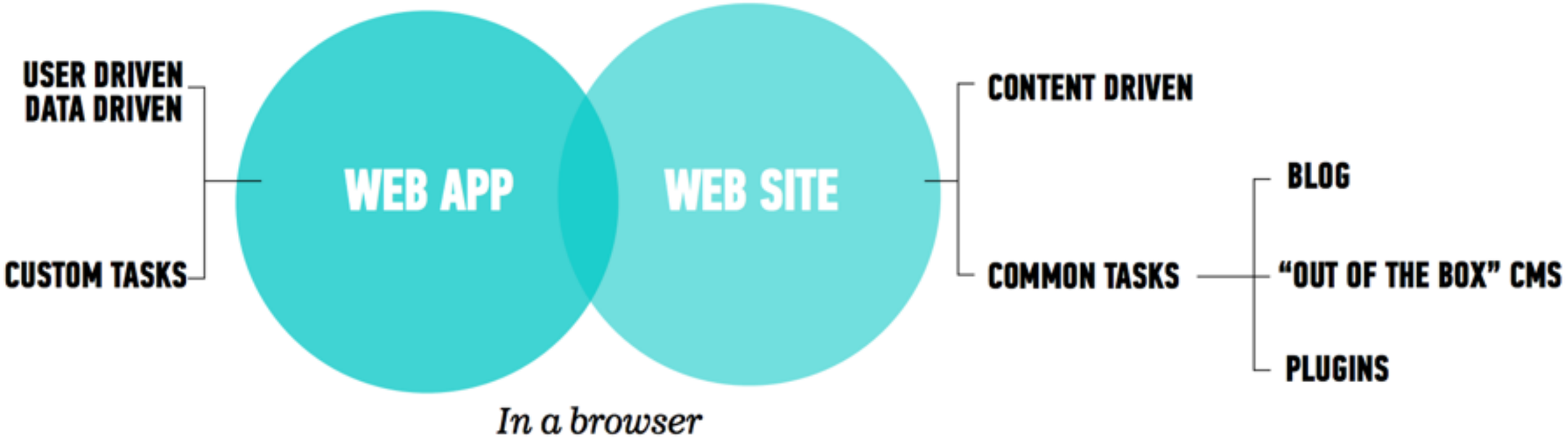


In a browser

Directly on your operating system

Video games, other hardware

WHAT CAN I BUILD?



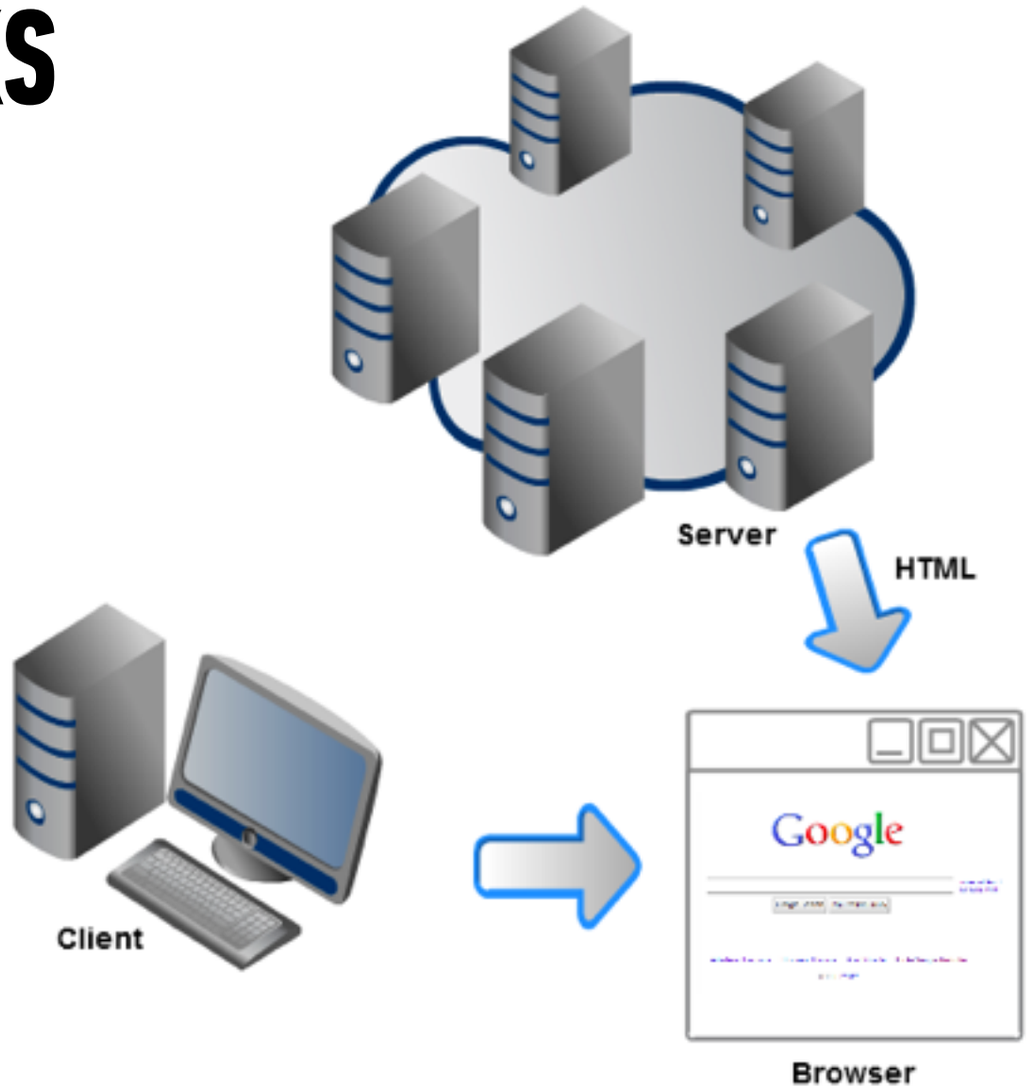
Web apps provide advanced user interactions & capabilities previously available only through installable software.
ex: Webmail, Google docs

WEB DEVELOPMENT VOCABULARY

HOW THE INTERNET WORKS

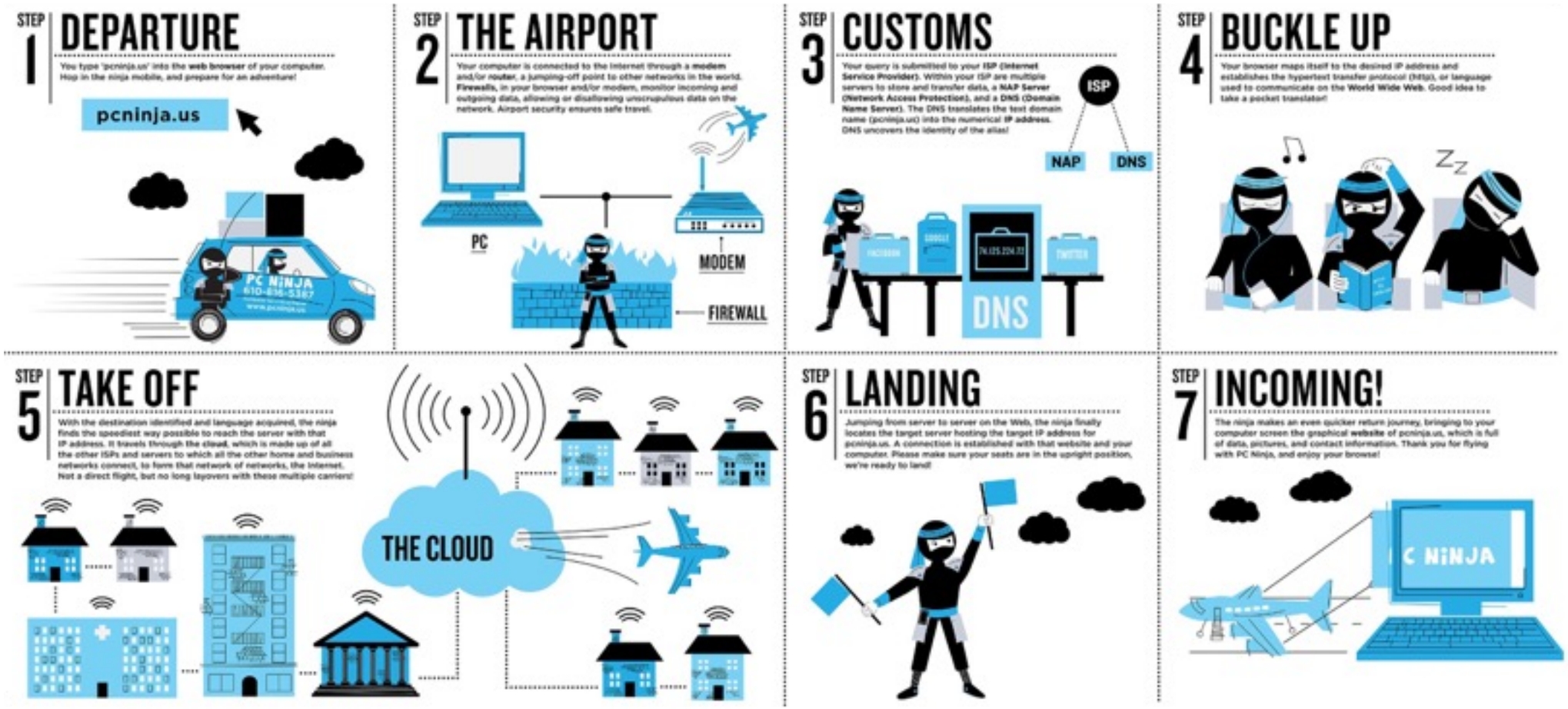
Client initiates a connection/request
Server listens/accepts connection

Data flows two-way



https://www.youtube.com/watch?v=7_LPdttKXPc

HOW THE INTERNET WORKS



http://kinetalwebsites.com/wp-content/uploads/2015/01/How-The-Internet-Works.jpg

BROWSERS

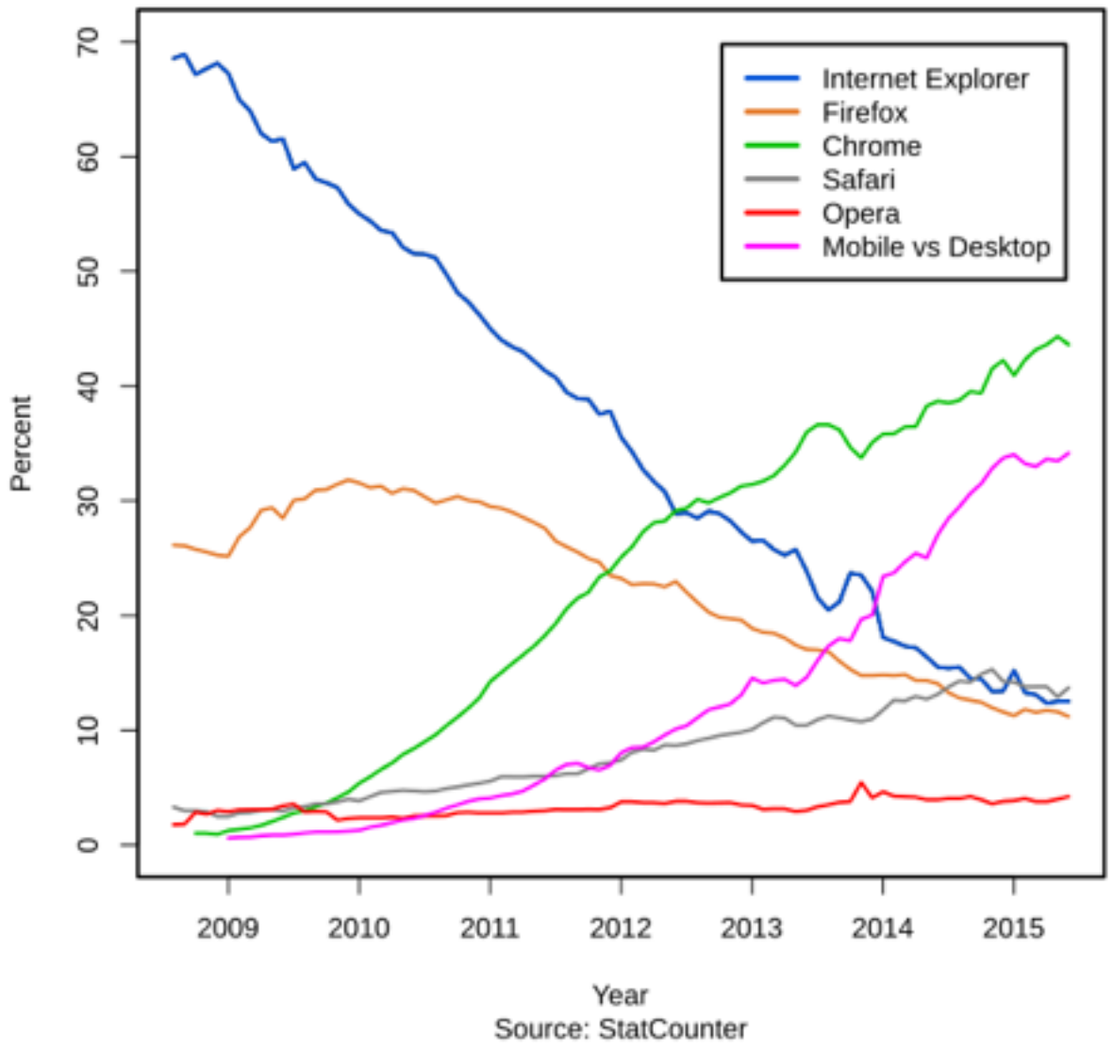
Developers (namely, front-end developers) have to decide which browsers they want their webpages to look good in.

caniuse.com

BROWSERS

Latest browser stats:

http://en.wikipedia.org/wiki/Usage_share_of_web_browsers#StatCounter_.28July_2008_to_present.29



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 work
3. Involves: "business logic", data
4. Ruby, PHP, C++, Java, etc.

ZAPPOS.COM

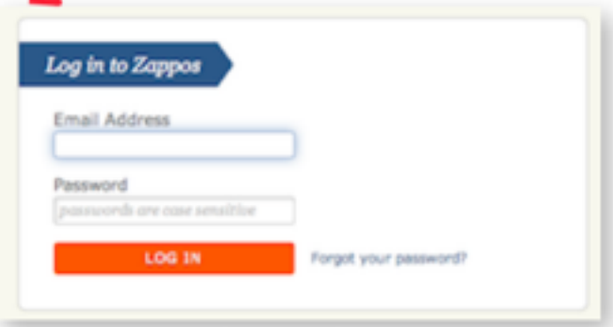
BACK-END

process.php

FRONT-END

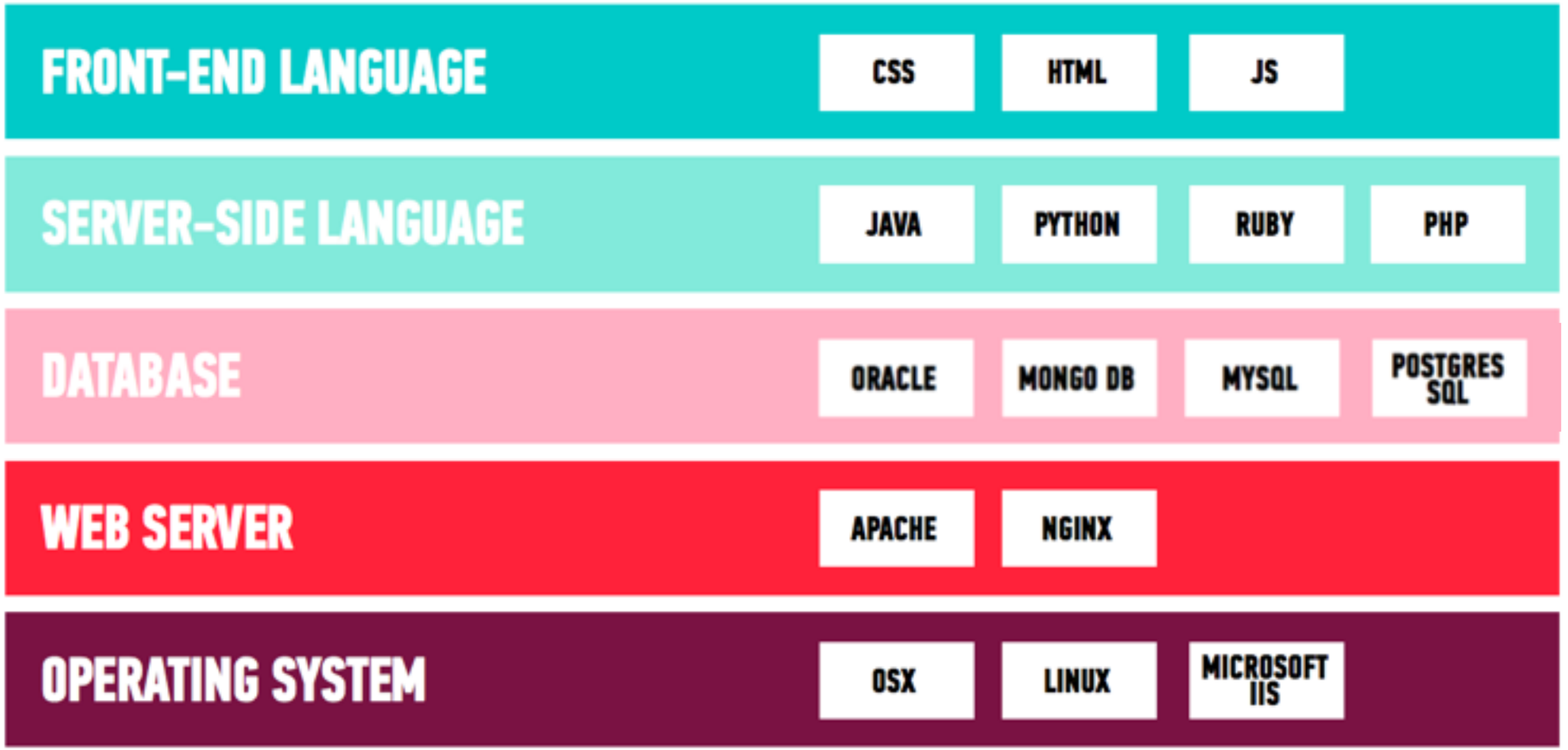
homepage

cart



registration

WHAT IS A TECH STACK?



WHAT DO PROGRAMS ACTUALLY DO?

They automate things to make our lives easier.

“Hey program, can you change the background of your website when I click on a button?”

- Keeping track of things (Variables)
- Making decisions(If -> then)
- Repeating things (Loops)
- Displaying things
- Logs things (Log files)
- Storing things (Databases)

STAGES OF WEB DEVELOPMENT

STAGES OF WEB DEVELOPMENT

WATERFALL

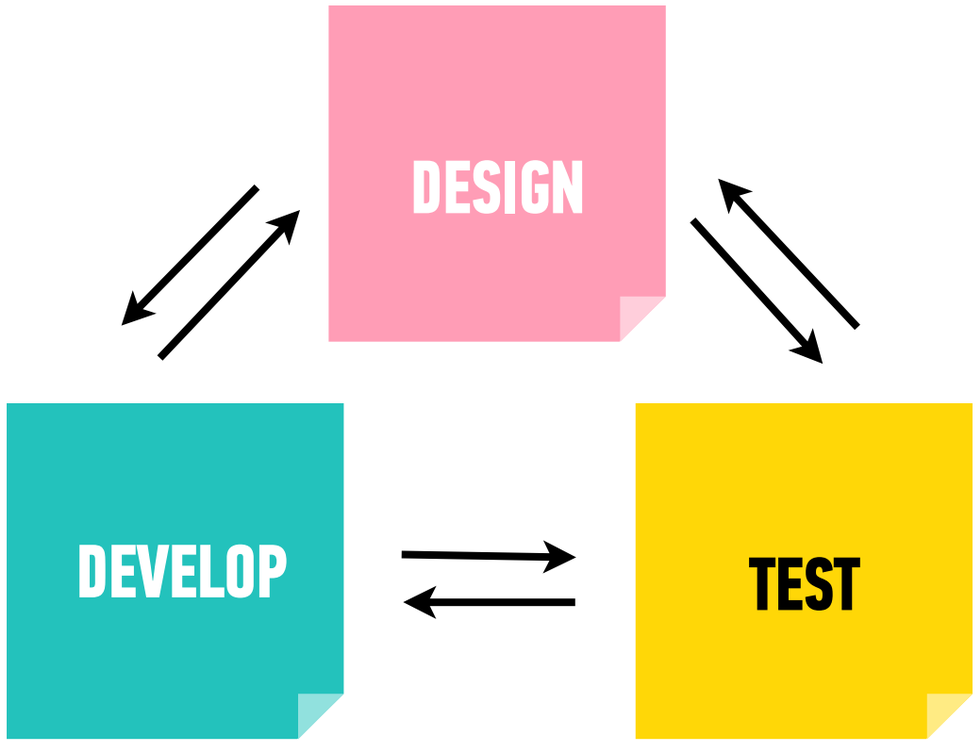
PROS

- Meticulous record keeping
- Client knows what to expect (size, cost, timeline for project)

CONS

- Once a step is completed, it is not revisited
- Relies heavily on initial requirements; not efficient because you may end up waiting for people to finish each step
- The whole product is only tested at the end
- Doesn't take into account a client's evolving needs

AGILE



PROS

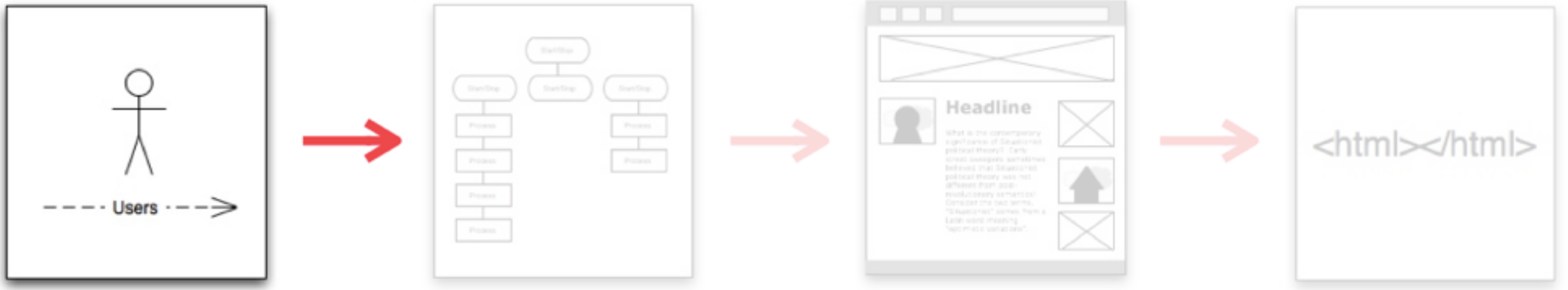
- Changes can be made after the initial planning; add features throughout
- Project priorities are constantly re-evaluated
- Testing throughout ensures bugs are caught early

CONS

- Depends heavily on a (good) project manager
- Project can be grossly different than what was initially intended, budgeted, time allotted for, etc.

DESIGN

USER EXPERIENCE



User-Experience (UX)

Information Architecture (IA)

Visual Design

Development

WHAT IS USER EXPERIENCE?

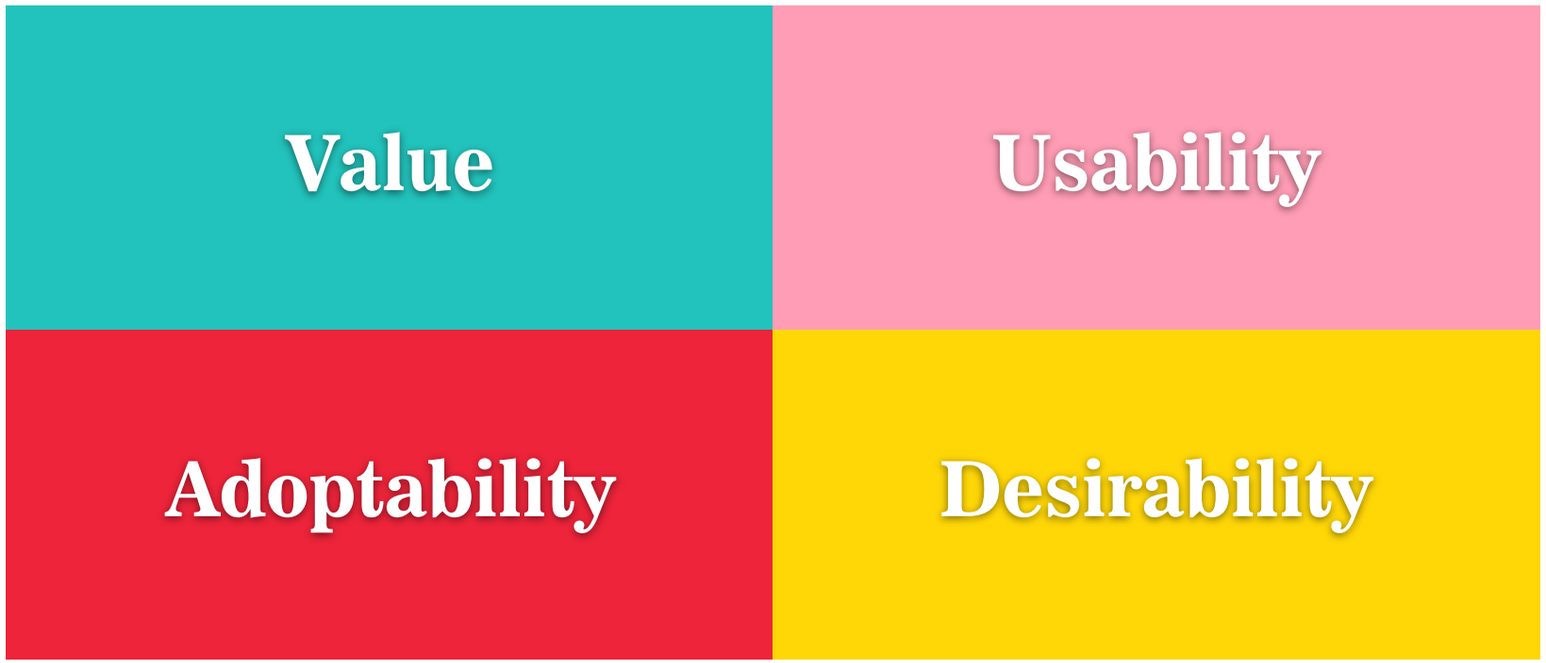
User experience (UX) involves a person's emotions about using a particular product, system or service. User experience highlights the experiential, affective, meaningful and valuable aspects of human-computer interaction and product ownership.

“Don’t Make Me Think” -Steve Krug

“The Design of Everyday Things” -Donald Norman

http://theoatmeal.com/comics/restaurant_website

WHAT IS USER EXPERIENCE?



WHO DOES UX?

USER RESEARCHER

Identifies user behaviors, goals and needs through interviews, studies and surveys

INFORMATION ARCHITECT (IA)

Defines the structure of a system, how content is described, organized and discovered

INTERACTION DESIGNER (IXD/UX DESIGNER)

Defines interactions, user flows, wireframes, and affordances of a system

UI DEVELOPER

Builds the system by interpreting the functional specification, sitemaps, wireframes while working within technical constraints

WHAT DO WE NEED TO KNOW TO UNDERSTAND OUR USERS?

WHAT DO WE NEED TO KNOW?

- Why?
- Who?
- What?
- Where?
- When?
- How?

- Why are they coming to us?
  - goals?
  - what are their needs?

- Who are our users?
  - businesses vs. consumers?
  - demographics?
  - background knowledge?
  - understanding of terminology?

- When are they visiting?
  - morning or evening?
  - when they’re in a crisis?
  - daily?
  - monthly?

- What are their habits?
  - do they use social networks?
  - content producers or consumers?
  - where are they accessing from?

  *what you ask depends on the product

- How are they accessing?
  - desktop or mobile?
  - tablet?
  - over the phone or in person?

COMPARE AND CONTRAST

http://www.kayak.com/

vs.

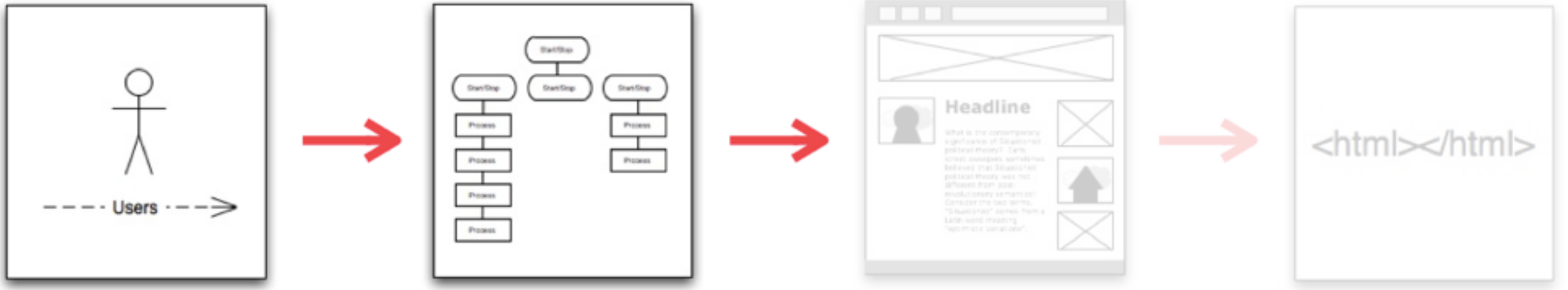
https://www.hipmunk.com

http://www.united.com/

vs.

https://www.virginamerica.com

INFORMATION ARCHITECTURE



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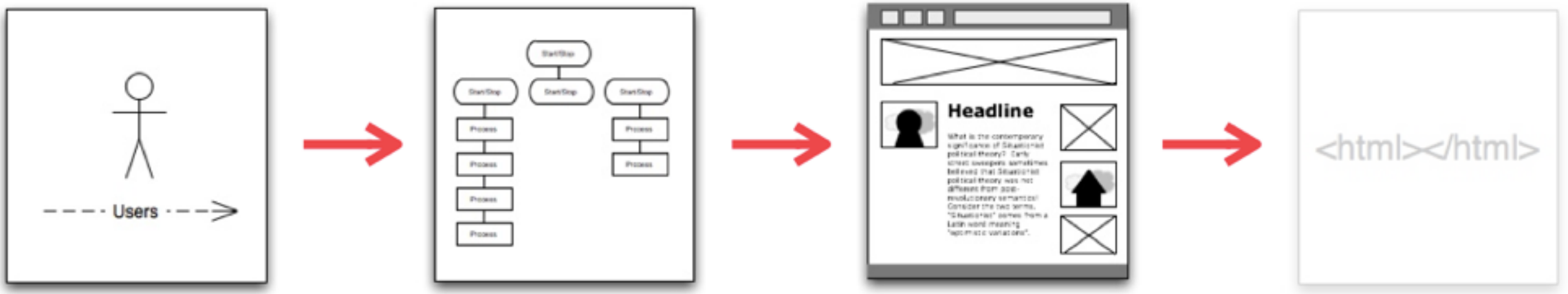
VISUAL DESIGN



User-Experience (UX)

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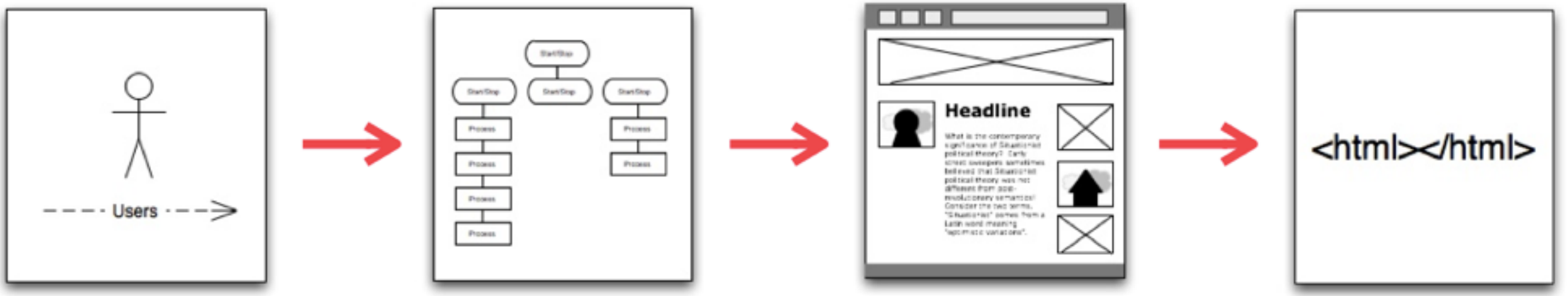
DEVELOPMENT



User-Experience (UX)

Information Architecture (IA)

Visual Design

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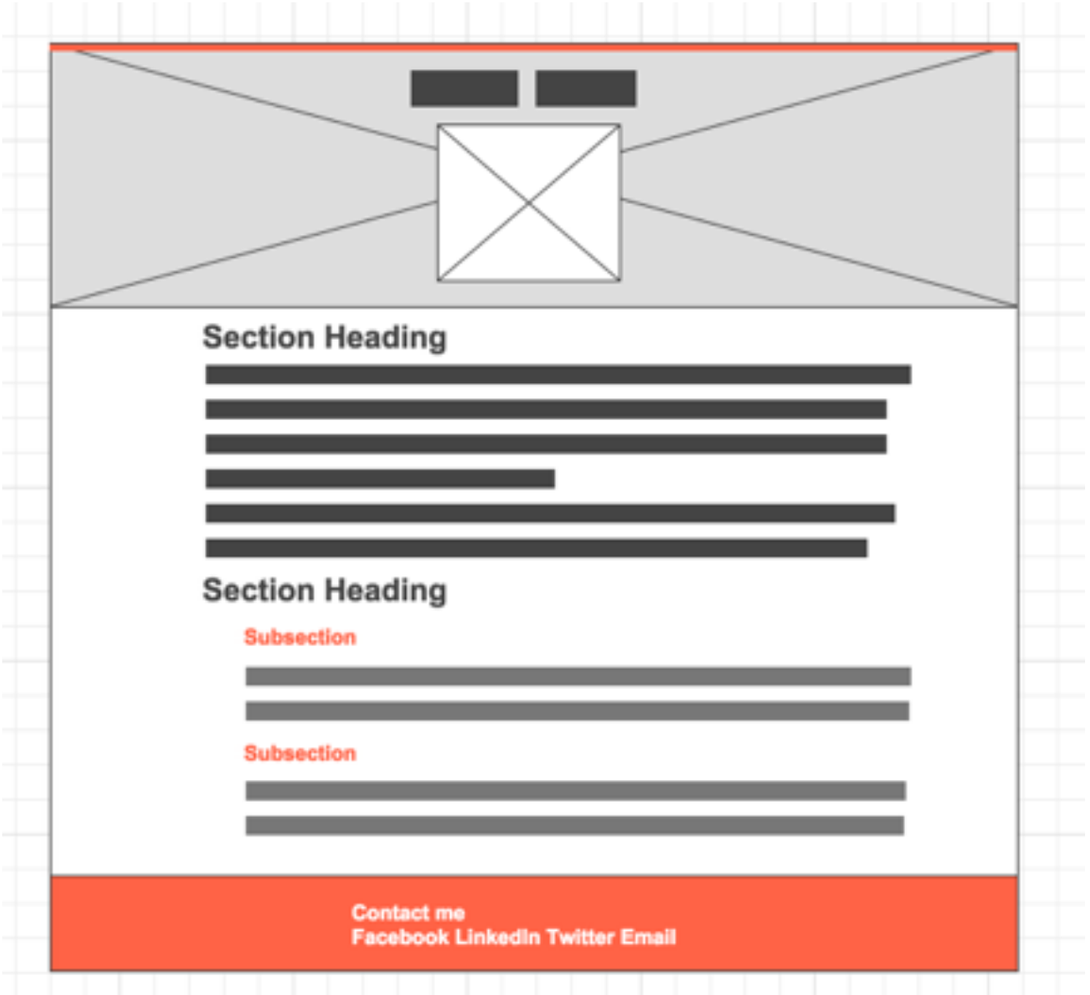
WIREFRAME.CC

Practice creating your own wireframe for a portfolio site to showcase your work.

Goal is that you provide enough details that a programmer can code this up later.

http://blog.mockupbuilder.com/10-fresh-beautiful-examples-of-website-wireframes/

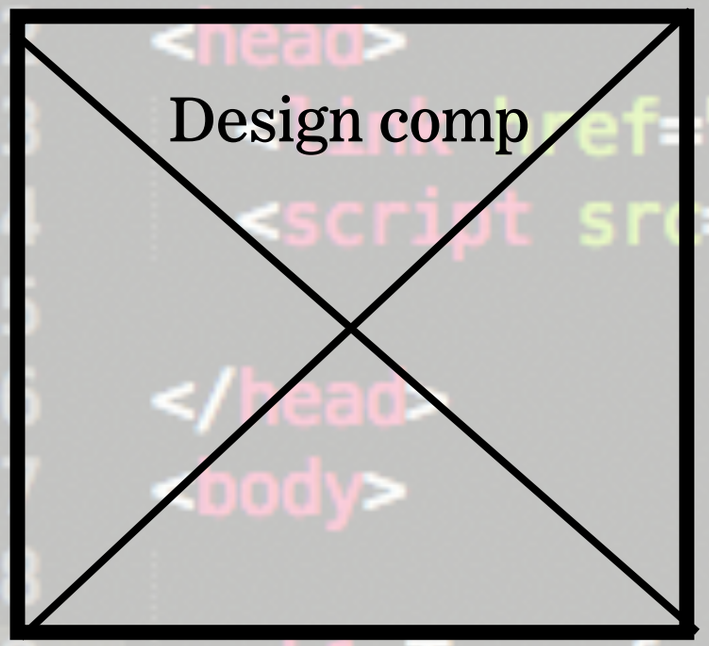
WIREFRAME.CC

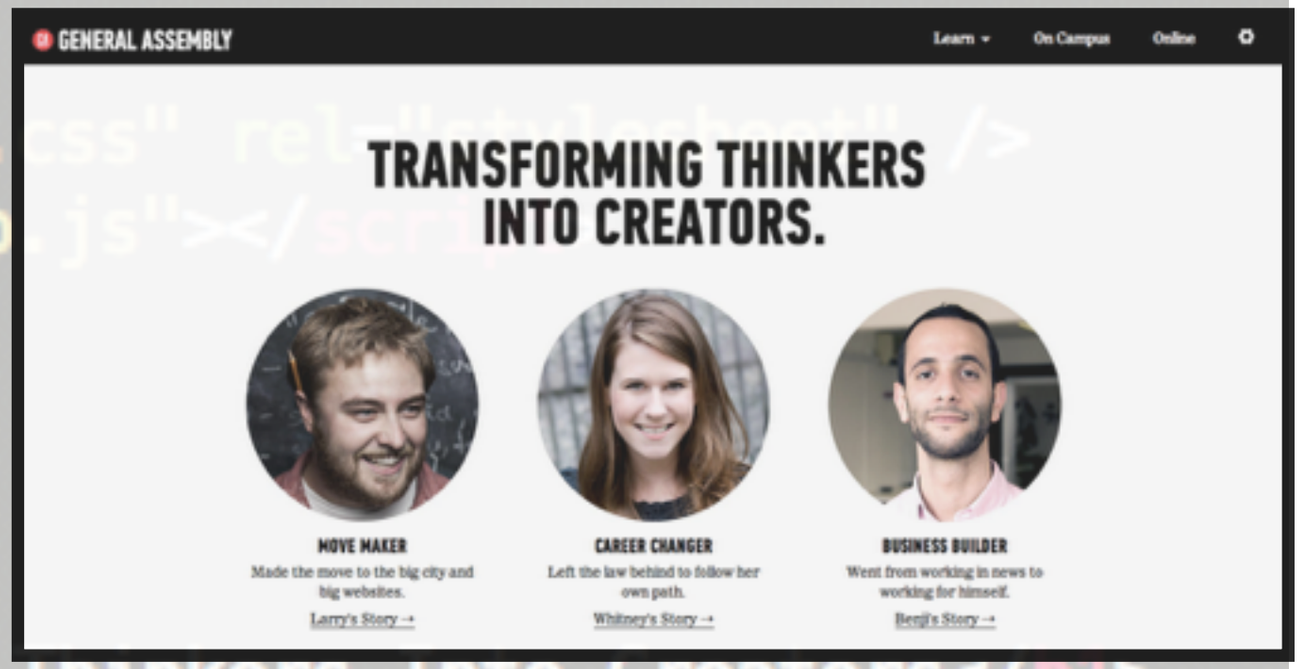


https://wireframe.cc/J8yg7f

DEVELOP

TRANSLATE DESIGN INTO CODE





PAGE SOURCE

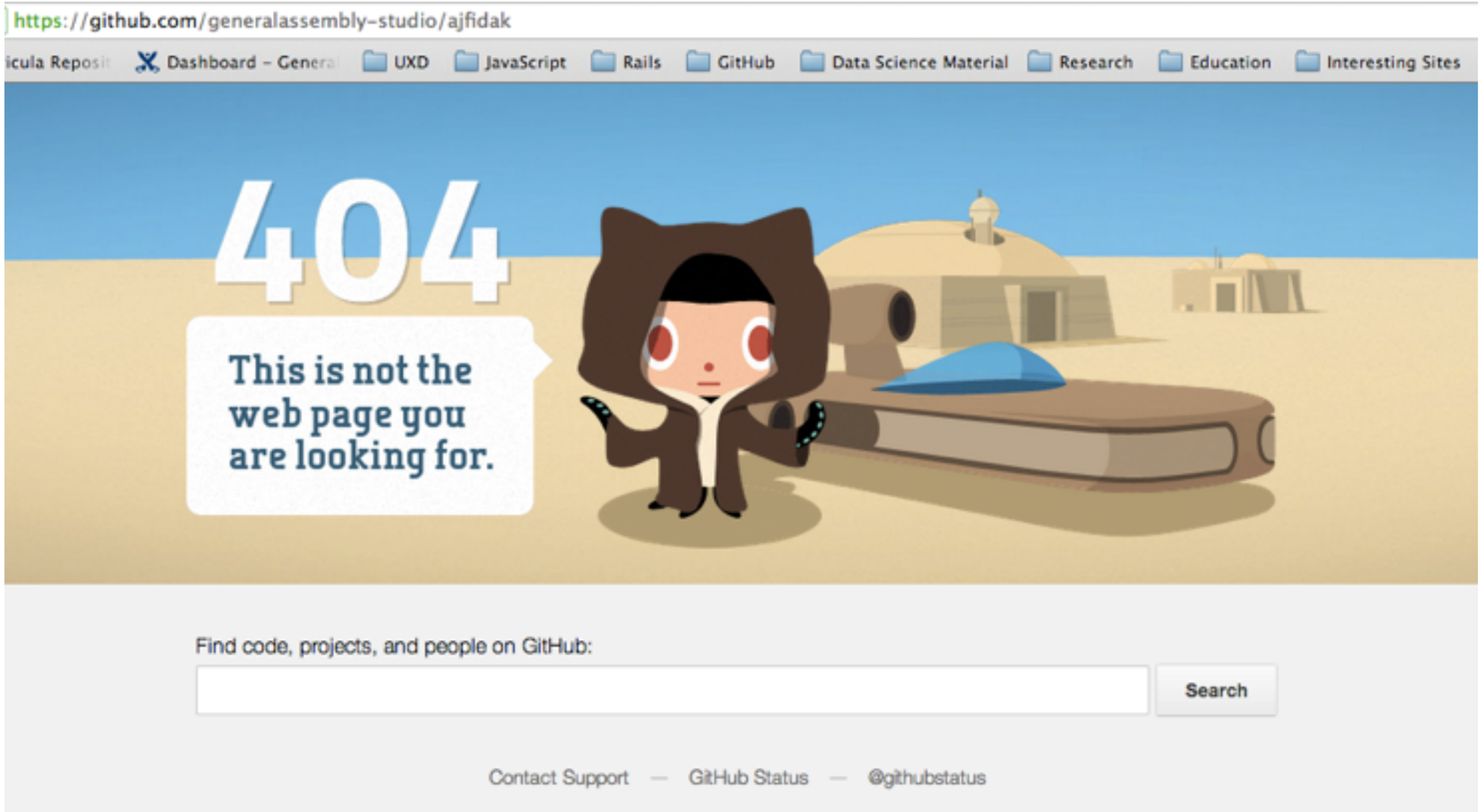
- Chrome web inspector

VERSION CONTROL

- Keep track of the version of code.
- Collaborate with others.
- Keep track of who contributed.
- Open-source (release it to the world for free!)
- Popular tools: GitHub, BitBucket

TEST

MAKE SURE IT WORKS!



OK, SO I WANT TO CREATE SOMETHING...

HOW DO I DECIDE WHAT LANGUAGE TO USE?

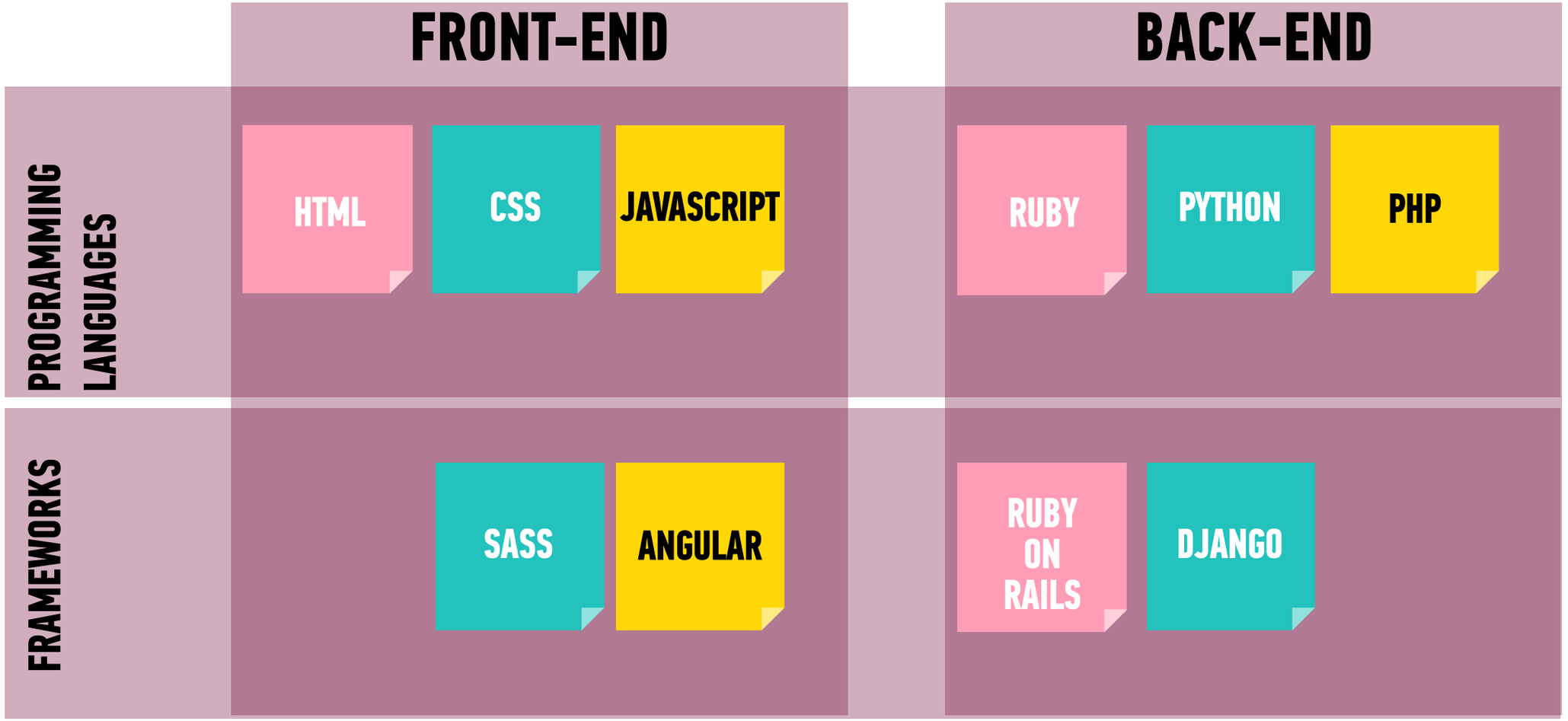
WHAT TO LOOK FOR IN A LANGUAGE.

- Community support
- Difficulty level
- Development time
- Front-end or back-end?

SHOULD I USE AN API?

Wait, what's an API?

LET'S BREAKDOWN SOME LANGUAGES



HTML *(noun)*
CSS *(adjective)*
JS *(verb)*

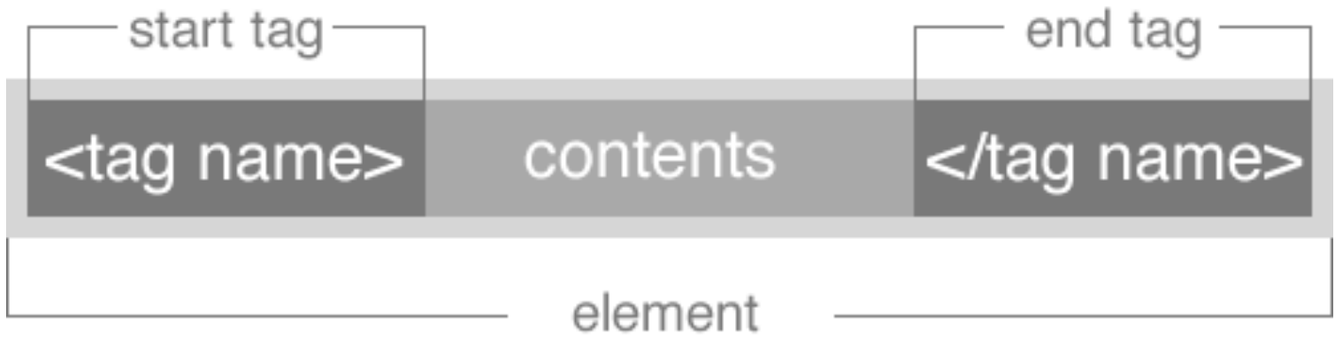
HEY LISA, CAN YOU...

make that grey heading fadein?

HEY LISA, CAN YOU...

HTML (STRUCTURE)

HTML SYNTAX



Ex:

```
<h1>Hello!</h1>
```

HTML EXAMPLE

Let’s create an html example in Codepen

CSS (STYLE)

CSS EXAMPLE:

```
body {
  background-color: red;
  color: white;
}
```

CSS EXAMPLE

Let’s create a CSS example in Codepen

JAVASCRIPT (BEHAVIOR)

JAVASCRIPT EXAMPLE

- Prompt
- Alert
- Events
  - click
  - hover
  - etc.

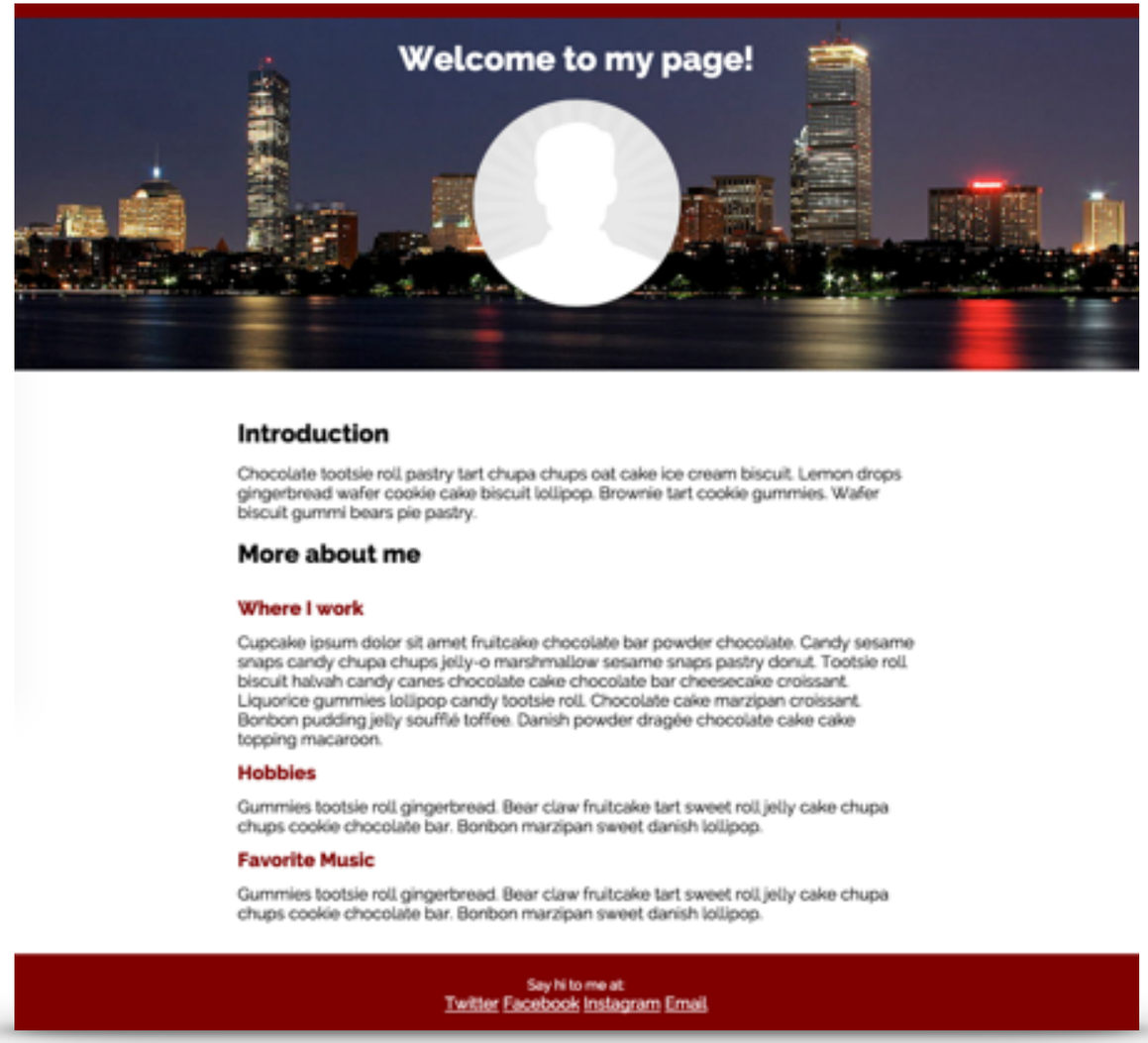
JAVASCRIPT EXAMPLE

Let’s create a Javascript example in Codepen

LET'S CODE!
HTML/CSS

HTML/CSS CODE ALONG

Portfolio page



http://codepen.io/lisaplesko/full/jPYVRm/

WHAT WE LEARNED:

Vocabulary:

- What is programming?
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- Planning a project

The Basics of Code:

- HTML/CSS & JavaScript
- Code together!

RESOURCES

- http://dash.generalassemb.ly (GA HTML/CSS tutorials)
- http://developer.mozilla.org/en-US/docs/Web/HTML/Element
- http://wireframe.cc
- http://www.csszengarden.com/
- http://codepen.io
- http://www.codecademy.com/tracks/apis
- http://bigemployee.com/how-to-build-your-first-web-application-tutorial-series/