
Network ID: GA-Guest

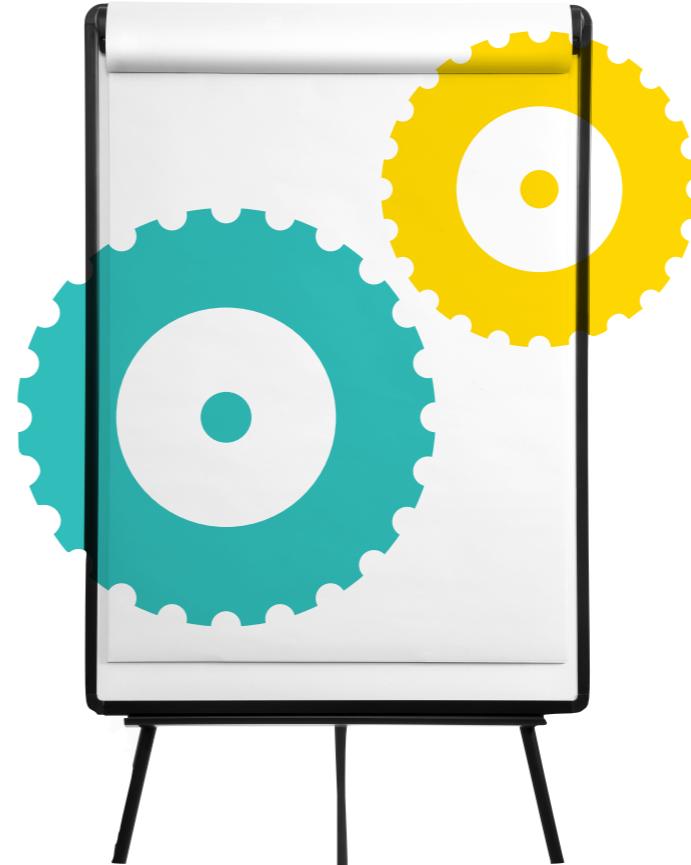


Password: yellowpencil

WELCOME TO JAVASCRIPT DEVELOPMENT!

ORIENTATION AGENDA

- My Role
- General Course Info
- GA Mission
- Student Experience
- Course Expectations



WELCOME!

MEET YOUR COURSE PRODUCER

**EVAN PONCHICK
EDUCATION PROGRAMS PRODUCER
evan@google.com**



JSD5

- October 27th - January 17th
- Tuesdays and Thursdays, 6:30pm - 9:30pm
- Except: Nov 24, Dec 22, Dec 27, Dec 29
- Classroom 7



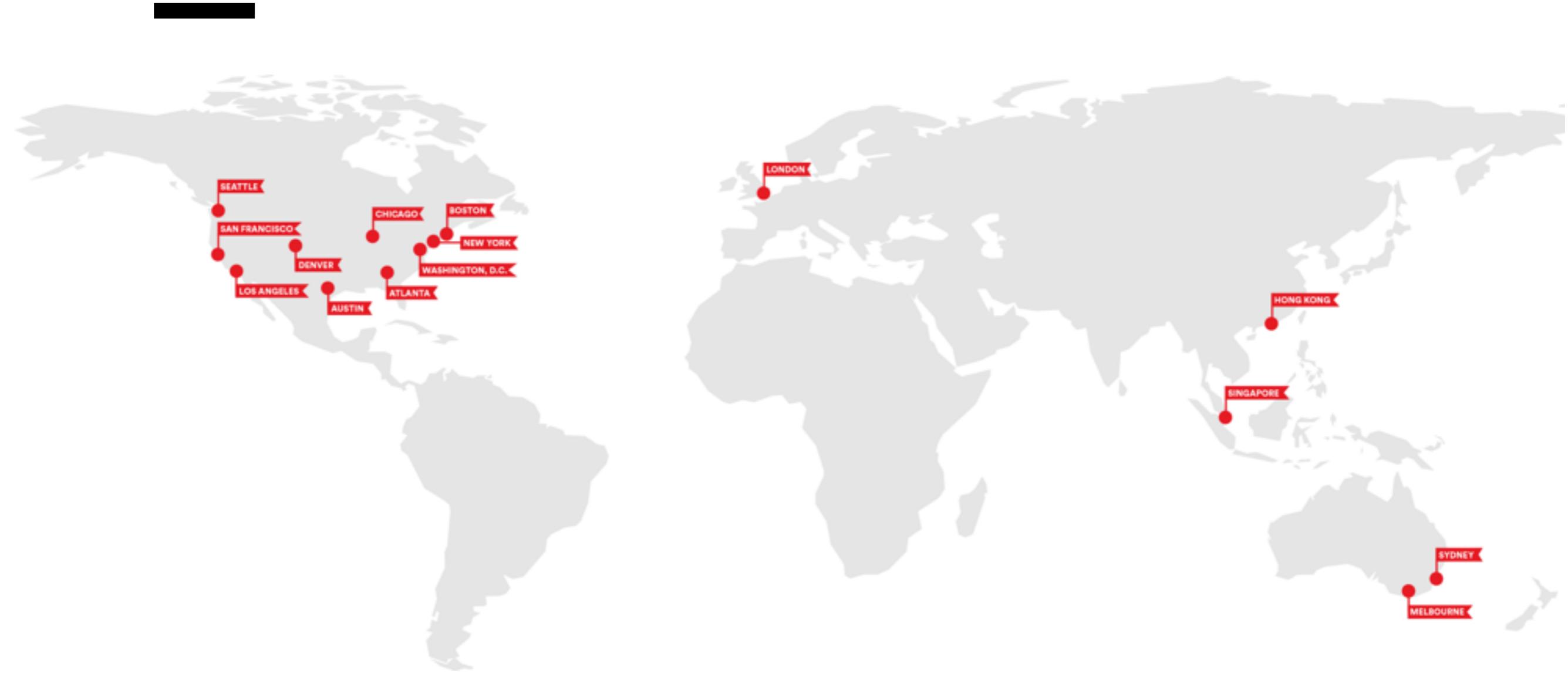
ABOUT GENERAL ASSEMBLY



**GENERAL ASSEMBLY IS A GLOBAL
COMMUNITY OF INDIVIDUALS
EMPOWERED TO PURSUE THE
WORK WE LOVE.**

—

GENERAL ASSEMBLY'S MISSION IS
TO BUILD OUR COMMUNITY BY
TRANSFORMING MILLIONS OF
THINKERS INTO CREATORS.





Front End Web Development

All Cities

trendy

TABBOULEH NYC

by Jack Breslauer

FEWD

Svadhishtana | Sacral
Muladhara | Root

Sahasrara | Crown

/thought/

creativity, beauty, wisdom, generosity,
knowledge, spiritual connection

Sahasrara or crown chakra is generally
considered to be the state of pure
consciousness within which there is

CHAKRA COLOR SF

by Rita Troyer



OCEAN FACTS DC

by Colleen O'Reilly

FEWD

gogobones

Roll About



Roll

Specify the number of die and select the die type. Include a second die set or modifier to create advanced rolls.

Setup:

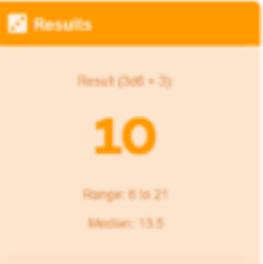
Die Sets: 1 2

Die Set 1:

3 d6

Modifier:

+ 3



GOGOBONES CHI

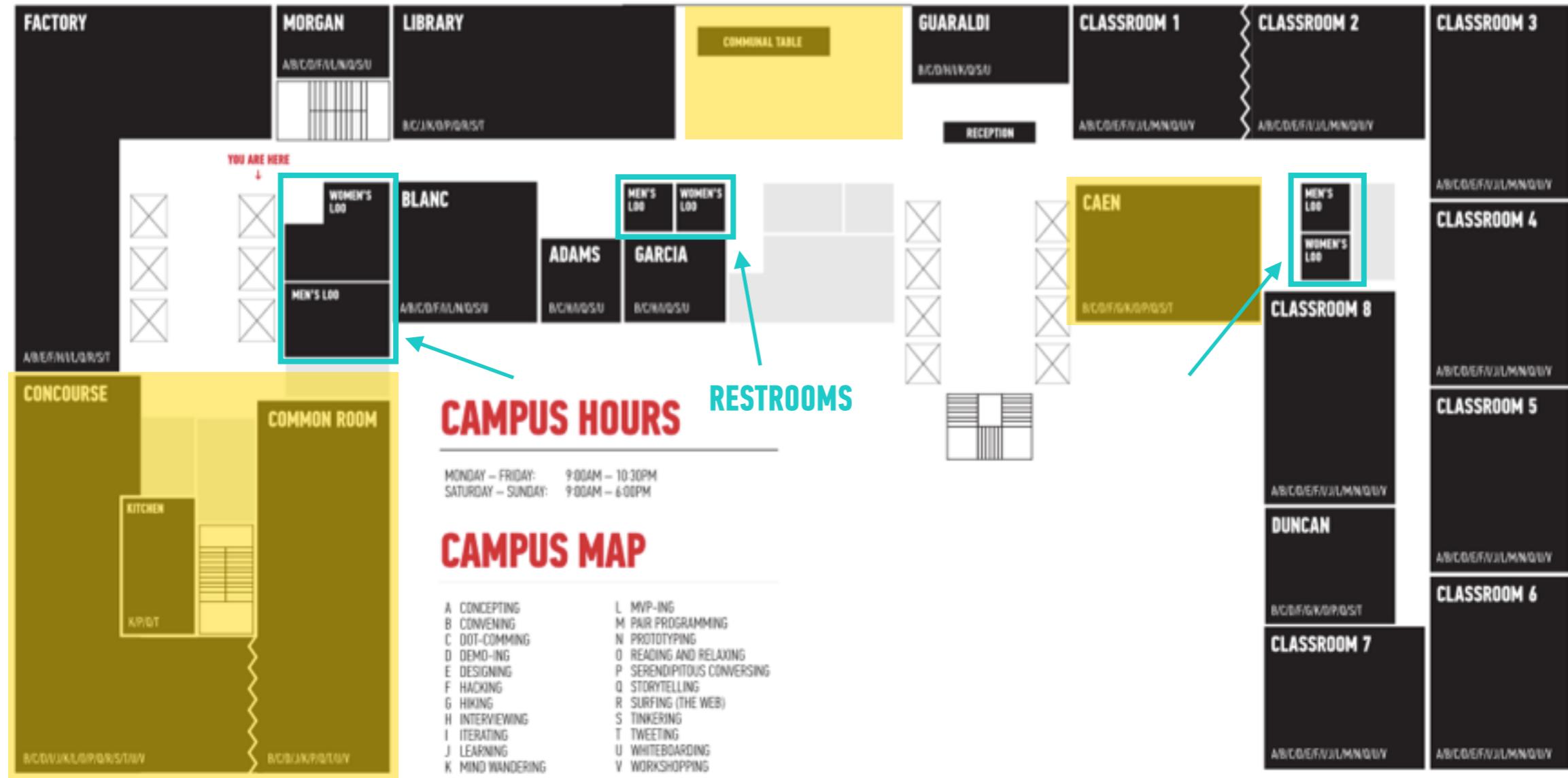
by Christopher Zalek



INSPIRES You?

STUDENT EXPERIENCE





STUDENT SPACE

GA STUDENT EXPERIENCE

COMMUNITY

- Kitchen
- Coffee
- Snacks
- Student Work Spaces



GA STUDENT EXPERIENCE

CLASS/WORKSHOP VOUCHERS

- 15% off all classes and workshops
code: currentstudentdiscount15



COURSE EXPECTATIONS



SUCCESSFUL GRADUATE

HOMEWORK
(COMPLETE 80% OF
HOMEWORK/LABS)

ATTENDANCE
(PRESENT FOR AT
LEAST 18 CLASSES)

**FINAL
PROJECT**

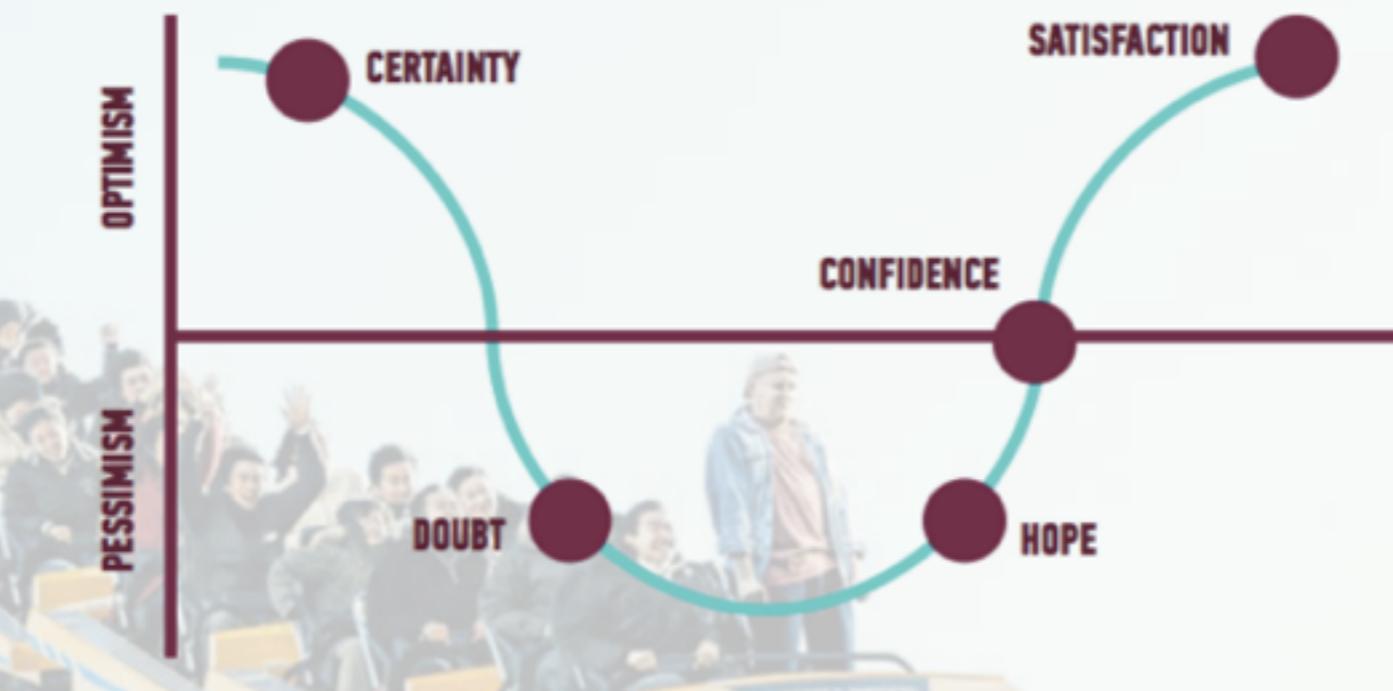
**COMMUNITY
ENGAGEMENT**

COURSE EXPECTATIONS

- › Arrive on time!
- › Turn in your assignments
- › Ask questions
- › Share with peers
- › Complete exit tickets after each lesson
- › Complete mid & end of course surveys
- › Make friends :)



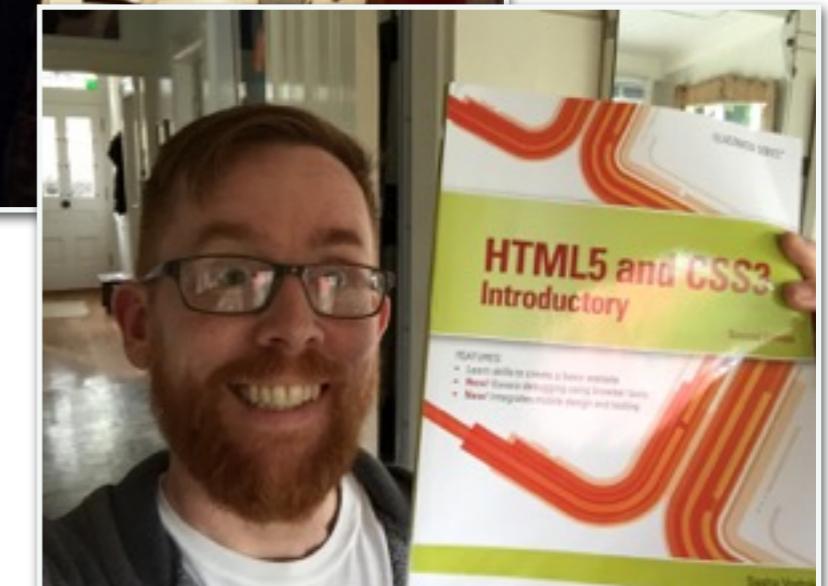
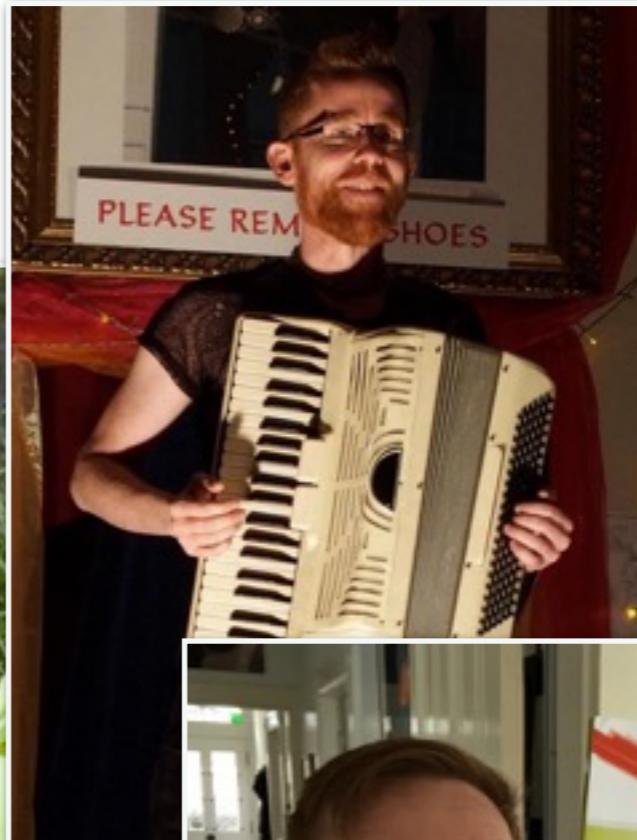
THE LEARNING ROLLERCOASTER



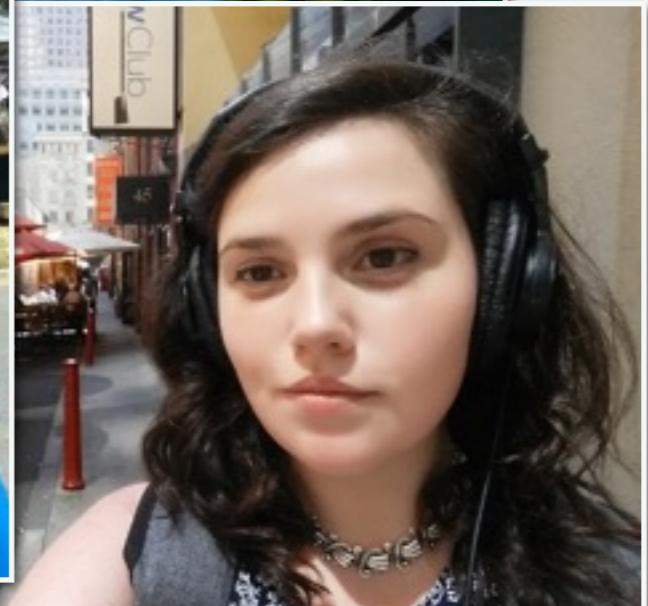
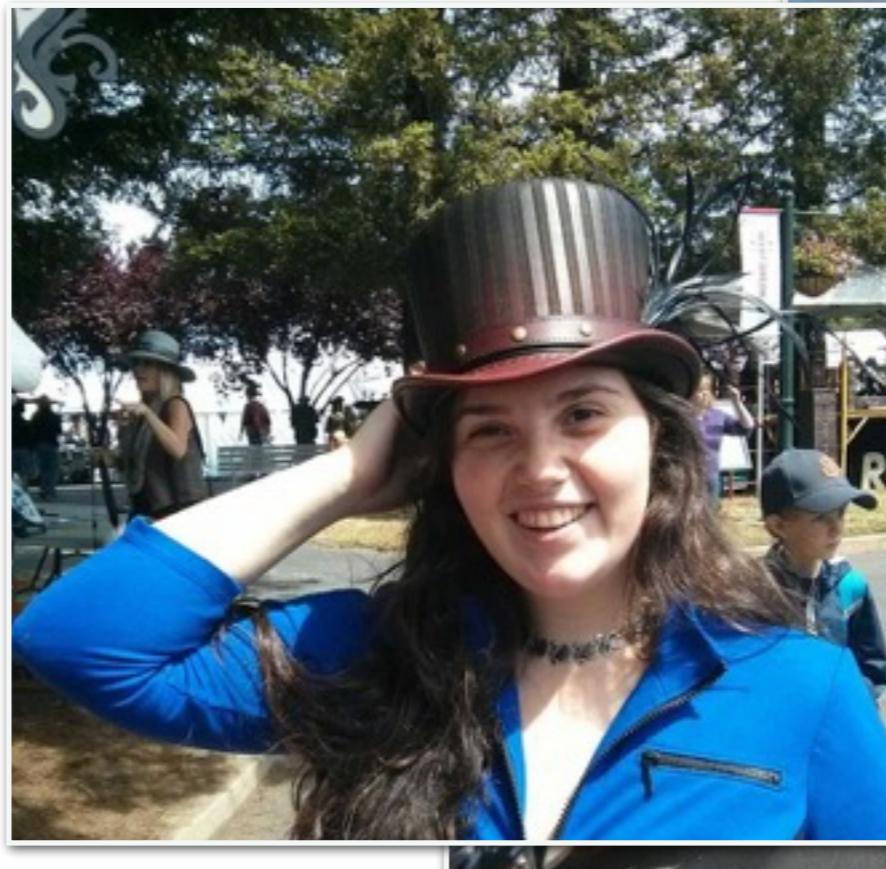
evan@google.com

evan@google.com

SASHA



NICOLE



INTRODUCTIONS

- Why does JavaScript interest you?
- What do you hope to get out of this class?
- What is your experience with web development?

SYLLABUS

Lesson	Title	Lesson	Title
0	Installfest	10	Asynchronous JavaScript & Callbacks
1	JavaScript on the command line	11	Advanced APIs
2	Data Types	12	Project 2 Lab
3	Conditionals & Loops	13	Prototypal Inheritance
4	Functions & Scope	14	this & anonymous functions
5	Project 1 Lab	15	Intro to CRUD & Firebase
6	Objects and JSON	16	Deploying your App
7	Intro to the DOM & jQuery	17	Instructor-Student Choice
8	DOM & jQuery Continued	18	Final Project Lab
9	Ajax & APIs	19	Final Project Presentations

GA GRADUATION REQUIREMENTS

HOMEWORK:

Complete 80% of assignments

ATTENDANCE:

Miss no more than 2 classes

FINAL PROJECT:

Turn it in!

HOMEWORK

OVERVIEW:

- Assigned every Thursday, starting next week
- Due the following class (Tuesday)
- Expect feedback within 5 days

GRADING:

- Complete/Incomplete

LATE ASSIGNMENTS:

- Accepted, but will not receive feedback; schedule office hours

OFFICE HOURS

Programming is tough!

We want you to succeed and we are here for you.

HOW TO REACH US:

- › Hit us up on Slack
- › Come to regular office hours Tues & Thurs 5:30-6:30pm
- › Schedule other office hours
 - in-person at GA or elsewhere
 - Skype/Hangouts

EXIT TICKETS/FEEDBACK

- GA is REALLY into feedback - and so are we!
- Helps us help you
- Two BIG feedback surveys:
 - ⇒ Midway
 - ⇒ End
- Smaller survey after every class, known as an **exit ticket**

CLASS NORMS

- › Come on time
- › Participate
- › Step up, step back
- › Ask for help when you need it
- › Helping your classmates helps you too



JAVASCRIPT DEVELOPMENT

Sasha Vodnik, Instructor

JAVASCRIPT DEVELOPMENT

INSTALLFEST

LEARNING OBJECTIVES

At the end of this class, you will be able to

- › Differentiate between the Internet and the World Wide Web.
- › Summarize the client-server model & explain how DNS lookup works.
- › Use Node.js, npm, Git, and other command line tools on your computer.
- › Write pseudocode and explain how it relates to programmatic thinking.

AGENDA

Timing	Topic
30 min	Opening & Introductions
20 min	Fundamentals of JavaScript & Web Development, Part 1
5 min	Break
25 min	Fundamentals of JavaScript & Web Development, Part 2
50 min	Set Up Slack, Brew, Git, Node, & Text Editors
5 min	Break
10 min	Set Up GitHub
20 min	Thinking Like a Programmer: Pseudocode
15 min	Review, Final Questions & Exit Tickets

JAVASCRIPT AND WEB TECHNOLOGIES

What is web development?

The process of building sites and applications for the web

JAVASCRIPT AND WEB TECHNOLOGIES

What is front-end development?

The development of client/browser code (HTML, CSS, JS),
i.e., what the user sees and interacts with

JAVASCRIPT AND WEB TECHNOLOGIES

What is back-end development?

The development of server-side code that handles such functions as routing, data handling, and databases (Ruby, Python, Java, JavaScript), i.e., the “stuff behind the scenes that makes web applications work

JAVASCRIPT AND WEB TECHNOLOGIES

How do these fit together?

web development

front-end development

back-end development

JAVASCRIPT AND WEB TECHNOLOGIES

- Websites are really just collections of files:
 - » .html
 - » .css
 - » .js
- Hosted on specialized computers ⇒ servers
- Goals for JSD:
 1. Create these files
 2. Organize these files
 3. Host (serve) these files

WHAT IS JAVASCRIPT?

- The language of the browser - aka the frontend; aka the client-side
- JavaScript ≠ Java
- One of the most popular programming languages
- [githut.info](#)
- [Stack Overflow - popular technologies](#)
- [Stack Overflow - top tech stacks](#)
- [Quora](#)

HOW IS JAVASCRIPT USED?

- JavaScript is (almost) universal (write once, run everywhere)
- Frontend (client-side):
 - ⇒ Used in the browser (alongside HTML and CSS)
 - ⇒ Included in, or referenced by, an HTML document
 - ⇒ Designed to make web pages dynamic (vs. static)
- Backend (server-side):
 - ⇒ Increasingly popular
 - ⇒ See NodeJS

INTERNET VS WORLD WIDE WEB

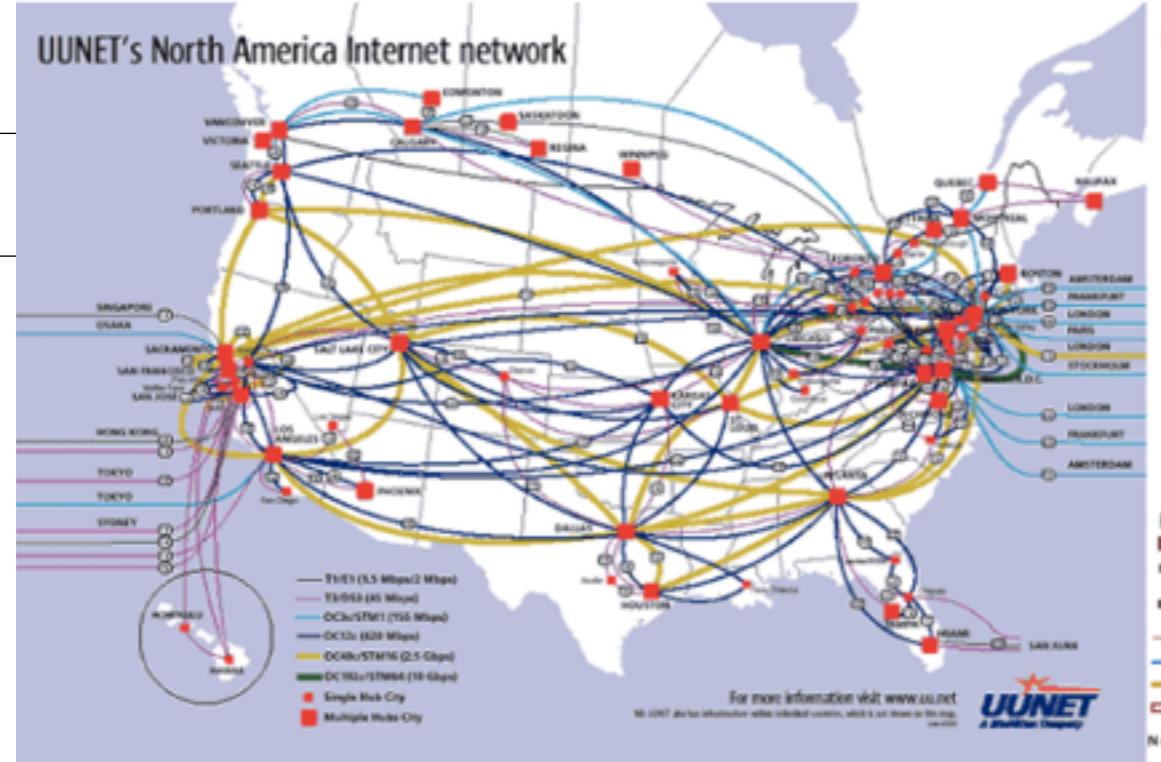
What is the Internet?

- ▶ A set of interconnected computer networks
- ▶ The infrastructure to connect computers around the world
- ▶ Communication can use any agreed upon protocol

A SERVER FARM



UUNET's North America Internet network



AT&T IP BACKBONE NETWORK



The internet's undersea world

The vast majority of the world's communications are not carried by satellites but an altogether older technology: cables under the earth's oceans. As a ship accidentally wipes out Asia's net access, this map shows how we rely on collections of wires of less than 1mm diameter to link us all together.

Fibre-optic submarine cable systems

In-service

Planned

Damaged

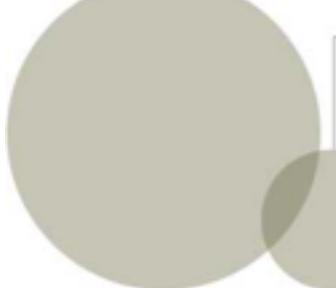
Cables with a minimum capacity of 1 Gbps or more in at least one direction in 2007



Internet users affected by the Alexandria accident

The main countries affected in Wednesday's event

60m



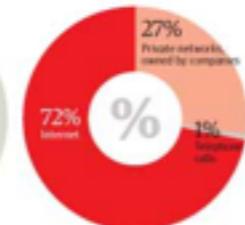
World cable capacity

Submarine cable operators light (burn off) capacity on their systems to sell bandwidth to other carriers. Carriers buy extra capacity, mainly to hold in reserve. On the trans-Atlantic route 90% of the bandwidth is purchased, but only 20% is used.

Capacity in terabytes a second



What makes up "used capacity"?



The longest submarine cables

The Seabolt-2 system from Norden in Germany to Keosu, South Korea connects 32 different countries with 39 landing points.

Seabolt-2	39,000 km
Southern Cross	30,500 km
Ozera-15	30,475 km
FLAG-Europe-Asia	25,000 km
South America-2	25,000 km

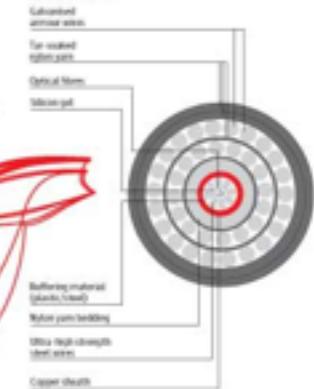
The world's cables in bandwidth

The first intercontinental telephony submarine cable system, TAT-1, connected North America to Europe in 1958 and had an initial capacity of 640,000 bytes per second. Since then, total trans-Atlantic cable capacity has soared to over 2 trillion bps.

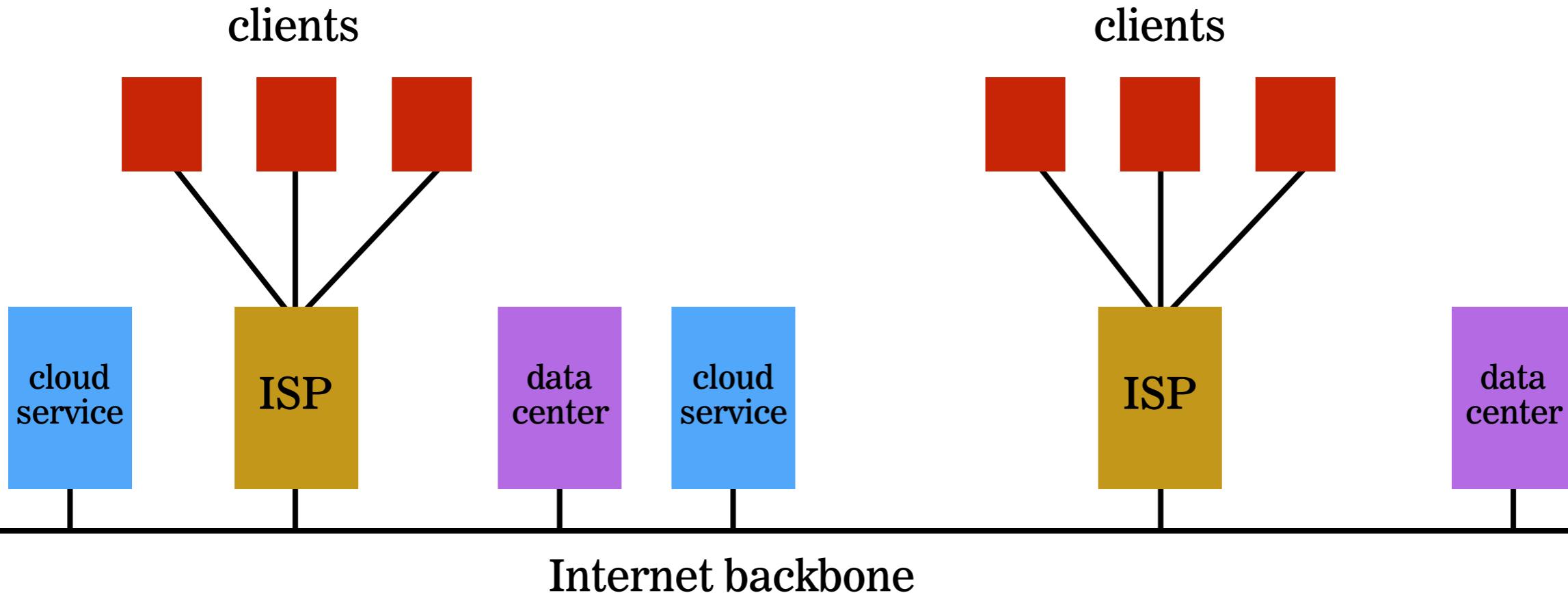


Cross-section of a cable

Cables of this strength are typically 60 mm in diameter and weigh over 10,000 kilograms a kilometer. In deeper waters, lighter and less insulated cables are used.



EXCHANGING INFORMATION OVER THE INTERNET



INTERNET VS WORLD WIDE WEB

What is the World Wide Web?

- ▶ A massive collection of HTML documents
- ▶ Accessed over the Internet
- ▶ Communication is based on Hypertext Transfer Protocol (HTTP)

THE FIRST EVER WEB PAGE

World Wide Web

The WorldWideWeb (W3) is a wide-area [hypermedia](#) information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an [executive summary](#) of the project, [Mailing lists](#),
[Policy](#) , November's [W3 news](#) , [Frequently Asked Questions](#) .

[What's out there?](#)

Pointers to the world's online information, [subjects](#) , [W3 servers](#), etc.

[Help](#)

on the browser you are using

[Software Products](#)

A list of W3 project components and their current state. (e.g. [Line Mode](#) , [X11 Viola](#) , [NeXTStep](#) , [Servers](#) , [Tools](#) , [Mail robot](#) , [Library](#))

[Technical](#)

Details of protocols, formats, program internals etc

[Bibliography](#)

Paper documentation on W3 and references.

[People](#)

A list of some people involved in the project.

[History](#)

A summary of the history of the project.

[How can I help ?](#)

If you would like to support the web..

[Getting code](#)

Getting the code by [anonymous FTP](#) , etc.

hypertext



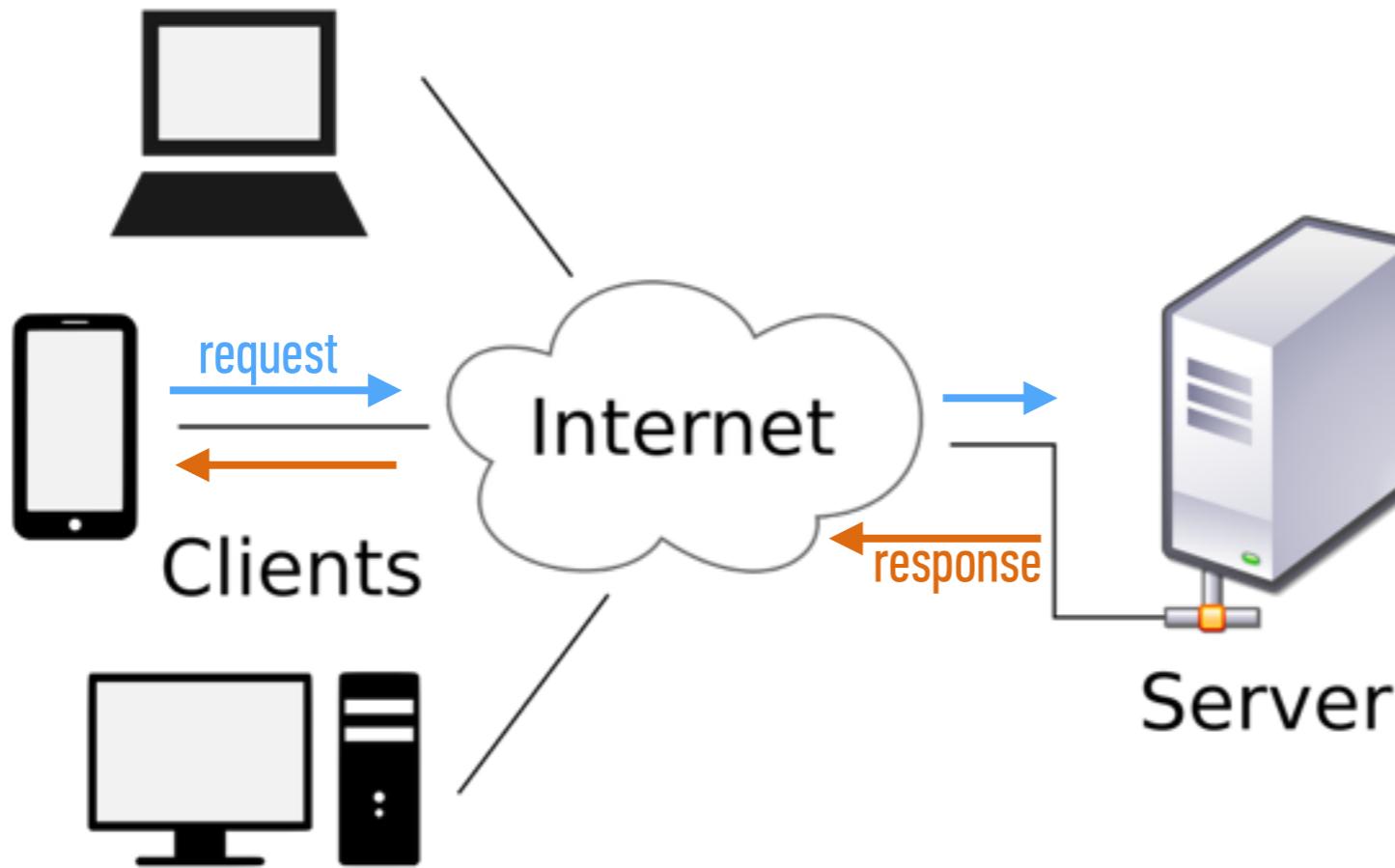
INTERNET VS WORLD WIDE WEB

**Name some things you use the Internet
for that are not part of the web**

- Email
- Skype/GoogleTalk/FaceTime
- Dropbox/iCloud/cloud storage
- Spotify/Pandora/music streaming
- YouTube/Netflix/video streaming

BREAK (5 MINUTES)

THE CLIENT-SERVER MODEL



HOW DO YOU REACH A SPECIFIC SERVER?

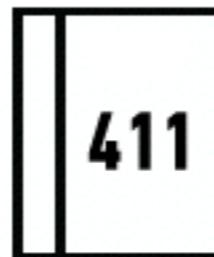
BUSINESS NAME

Joe's Florist



CUSTOMER

DIRECTORY ASSISTANCE



FLOWERS



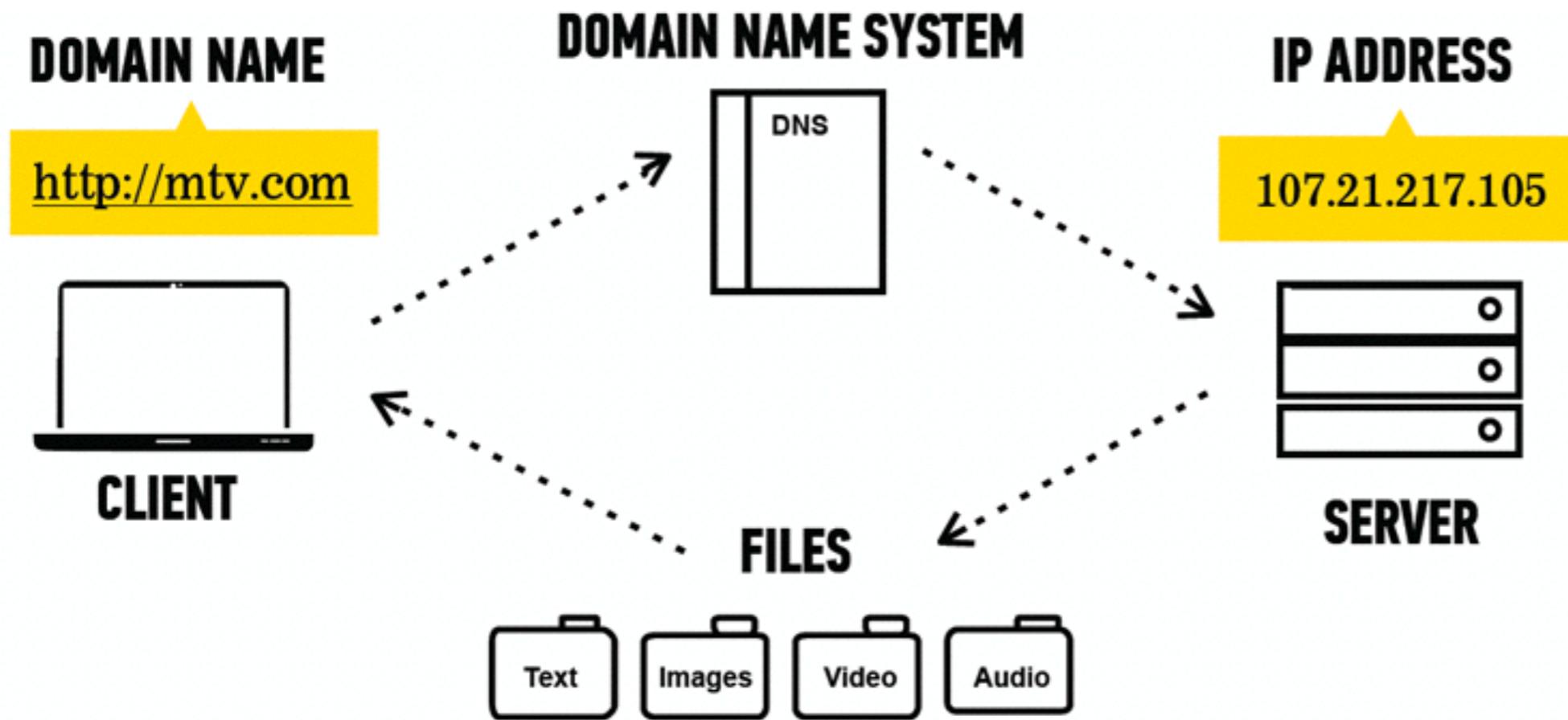
PHONE NUMBER

212-123-4567

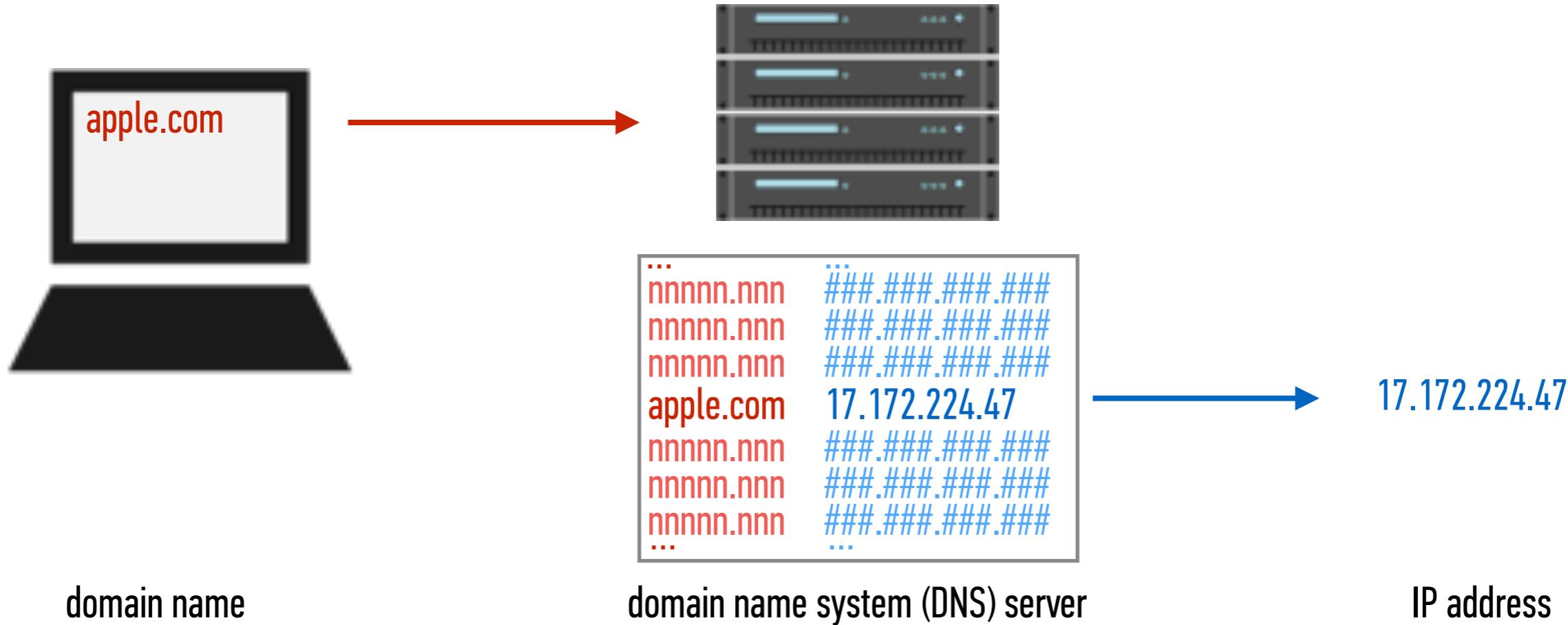


FLORIST

HOW DO YOU REACH A SPECIFIC SERVER?



HOW DO YOU REACH A SPECIFIC SERVER?



EXERCISE: DNS

SET UP SLACK

We'll be using Slack to share resources and to communicate during and outside of class

- Visit slack.com/downloads to download the application
- Sign up using your email and join our class Slack channel: **jsd5**
- Upload a profile picture to Slack

TERMINAL (COMMAND LINE)

- Mac: Open the Terminal app (Applications > Utilities > Terminal)
- Windows: Open Command Prompt (Start Button > type cmd)

HOMEBREW (BREW)

- Package manager (Mac only)
- Software that helps you install other software

GIT & GITHUB

- Code versioning software (git) and online storage (github)
- Collaborate and keep track of code

NODE & NPM

- Node: for running JavaScript from the command line
- npm: package manager for JavaScript

VISUAL STUDIO CODE

- Text editor
- Other options:
 - Sublime Text
 - Atom

INSTRUCTIONS

TAKE A DEEP BREATH: Problems getting your environment configured come with the territory

See Slack for the instructions URL

BREAK (5 MINUTES)

THINKING LIKE A PROGRAMMER

- **What is a program?**
 - A program is a set of instructions that tells a computer how to carry out a task
- **What is programming?**
 - Programming is the task of writing those instructions in a language that a computer can understand
- **What's the first step in becoming a programmer?**
 - Not learning a particular language, but learning how to think like a computer

PSEUDOCODE

- An outline of a program that can be converted into code
- The process of writing pseudocode helps you through a program, step-by-step, without actually writing a line of code
- Allows a programmer to focus on problem solving, not the precise layout of the code and its syntax
- Don't need to know how to code to write pseudocode

PSEUDOCODE EXERCISE

- › Write pseudocode for a program that calculates how many cups of your favorite drink you will consume from now until you turn 60, and displays the result.
- › Take into account
 - › Your favorite drink
 - › Your current age
 - › How many times a day you consume this drink

ANOTHER PSEUDOCODE EXERCISE

- › Write pseudocode for a program that calculates the number of miles a user travels between home and work (or another destination) per year.
- › Take into account
 - › Distance between home and destination
 - › Times per day the user makes that trip (probably 2)
 - › Working days per year

LEARNING OBJECTIVES - REVIEW

- Differentiate between the Internet and the World Wide Web.
- Summarize the client-server model & explain how DNS lookup works.
- Use Node.js, npm, Git, and other command line tools on your computer.
- Write pseudocode and explain how it relates to programmatic thinking.

NEXT CLASS PREVIEW

The Command Line

- Work with files/directories via the terminal window
- Create a Git repository and push/pull changes
- Run basic JavaScript code on the command line

Exit Tickets!

RESOURCES

- [What is the Internet?](#)
- [About the HTTP protocol](#)
- [DNS Explained \(video\)](#)
- [Writing Pseudocode \(video\)](#)

Q&A