



## WELCOME TO JAVASCRIPT DEVELOPMENT

Please write your name on your  
whiteboard and say hello  
to your new classmates.

Wi-fi: GA-Guest  
pw: yellowpencil

# YOUR INSTRUCTIONAL TEAM



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# SASHA



# Student Services



Patricia Anderson

Email: [studentservicesSF@gacollege.com](mailto:studentservicesSF@gacollege.com)  
Slack: Student Services SF

## Course logistics

- Access to tools
- Feedback about the course
- Enrollment and finances
- Graduation certificates

## Campus questions

- GA Facilities
- GA events outside of class
- Discounts for other courses

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## Others you may see



**RAY HSIA**

Instructor Manager



**NIÑA PINEDA**

Front Lines Lead



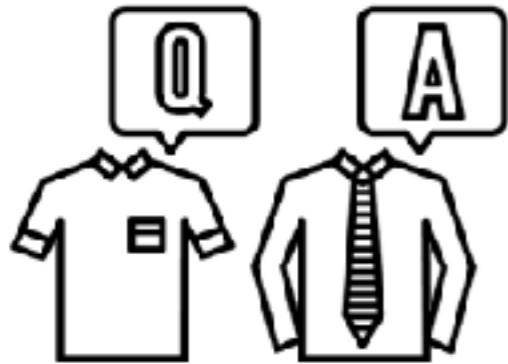
**VANESSA OHTA**

Instruction Manager

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# Let's get to know each other

## STRUCTURE



**PAIRS**

**INTROS: 5 MIN  
SHARING: 10 MIN**



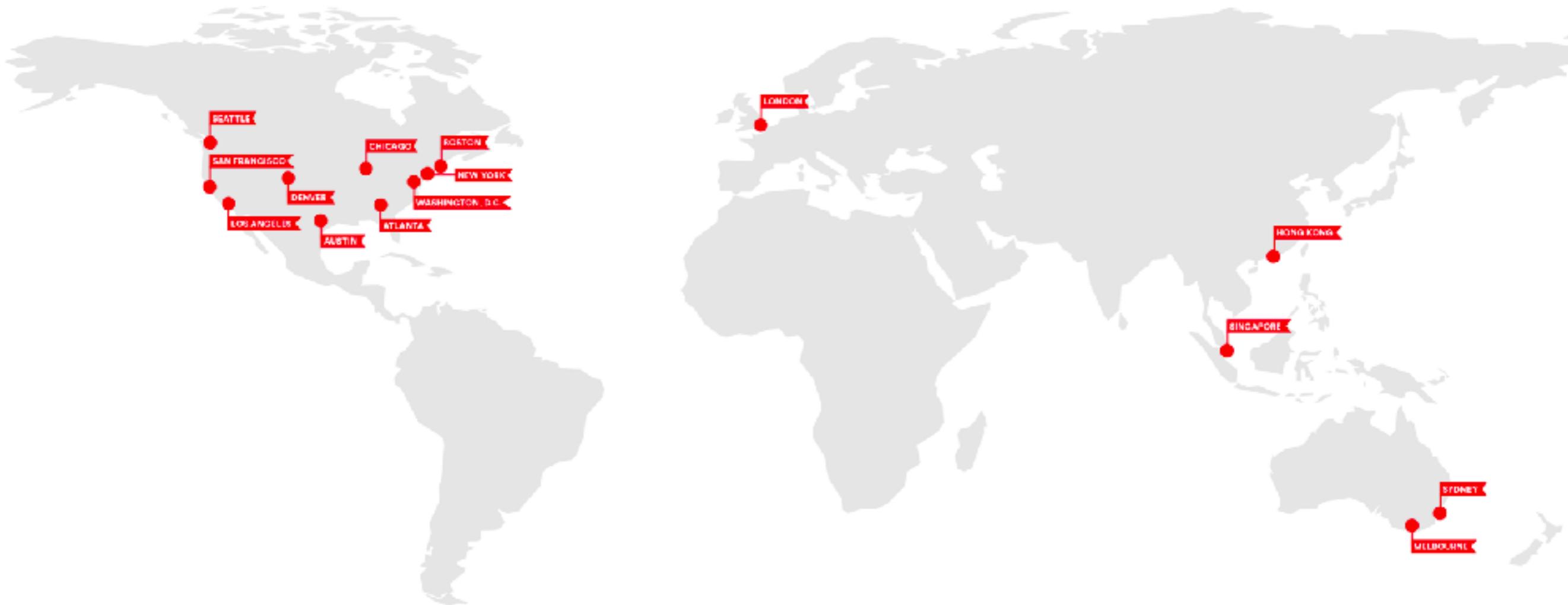
## OBJECTIVES

1. Take 5 minutes to get to know your neighbor by finding out:
  - a. Their name
  - b. Why they are taking this course
  - c. A guilty pleasure
  
2. Be prepared to introduce your neighbor to the rest of the room

# WHAT IS GENERAL ASSEMBLY?



# 20 campuses around the world

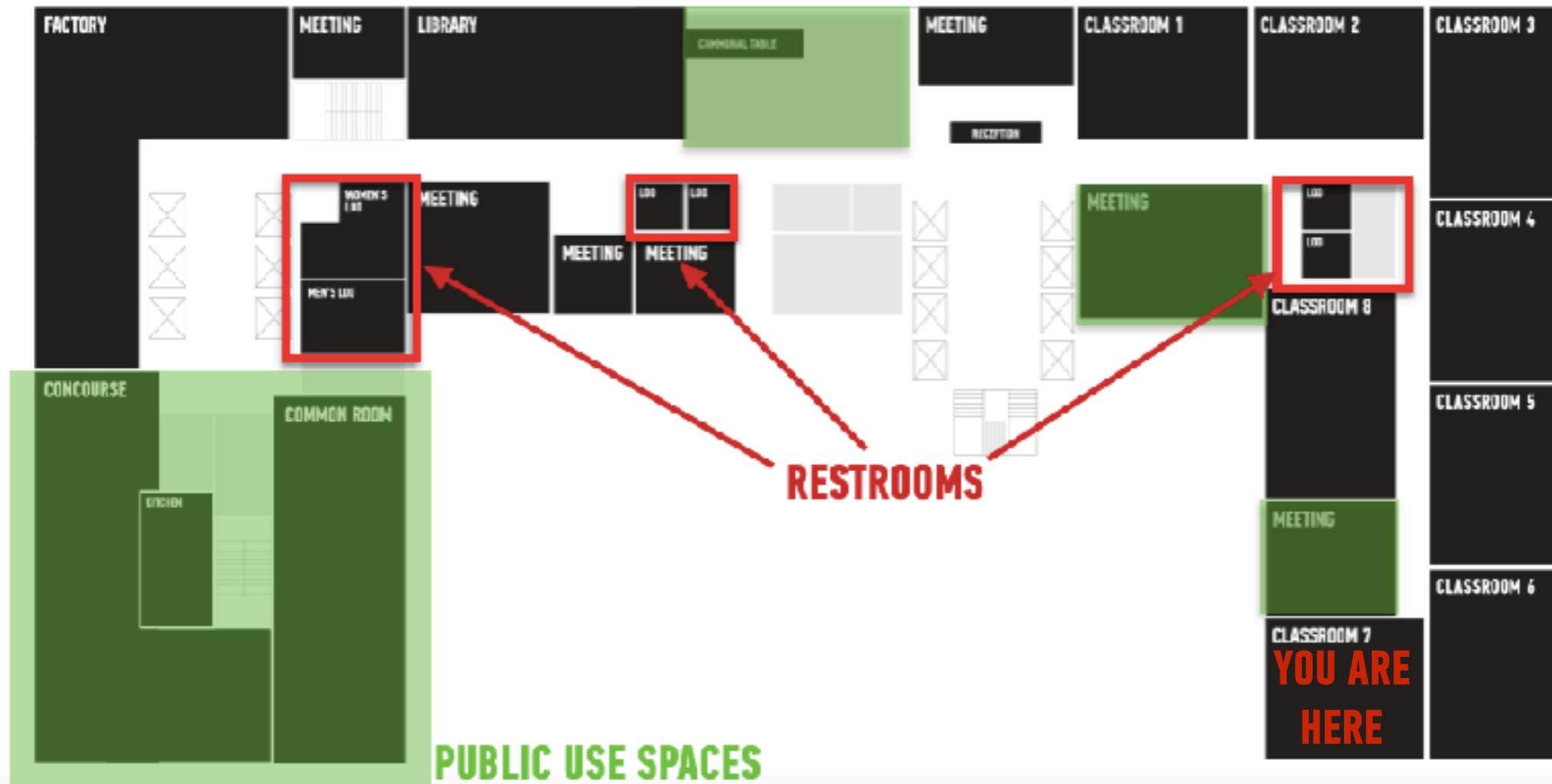




Come work on campus.

We're open:  
8am - 10pm, Monday to Friday  
10am - 6pm, Saturday and Sunday

# San Francisco



Have a question about...

- the campus?
- lost and found?
- loaner equipment?
- free coffee and snacks?



Come here to talk to  
Front Lines and they  
will help you out.



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# Course dates

## JavaScript Development 12

Course dates:

- Mondays and Wednesdays, 6:30pm - 9:30pm
- September 10 - November 19

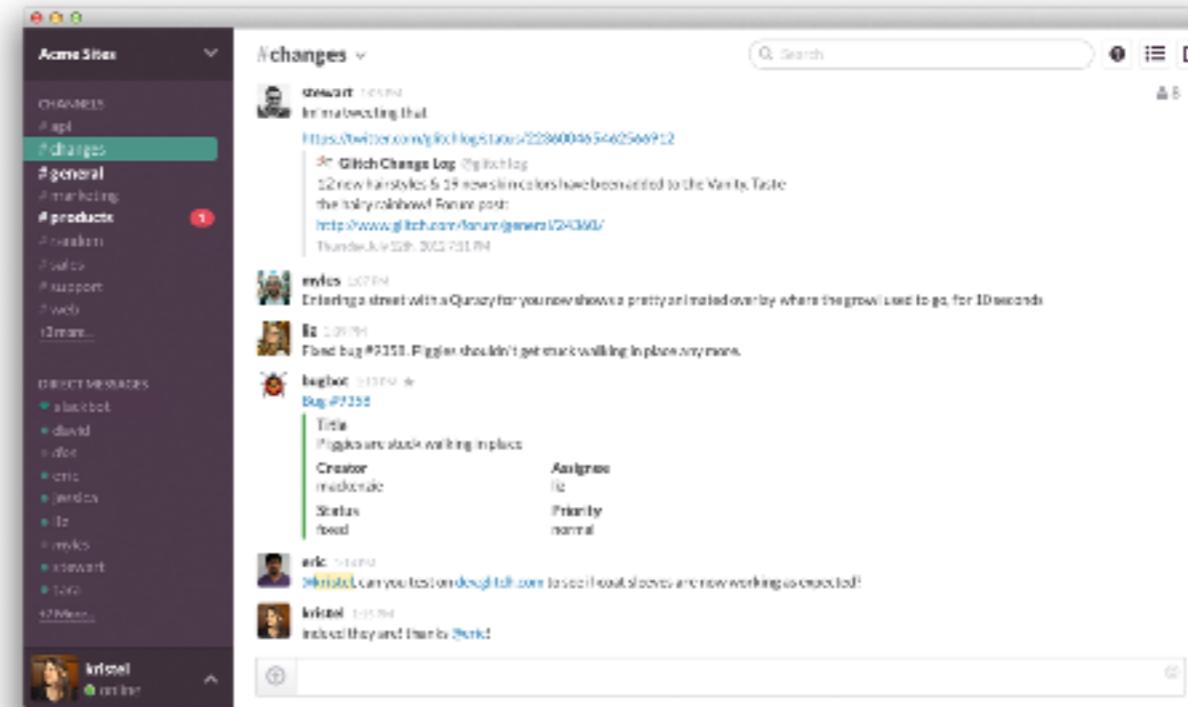
Holiday: November 12





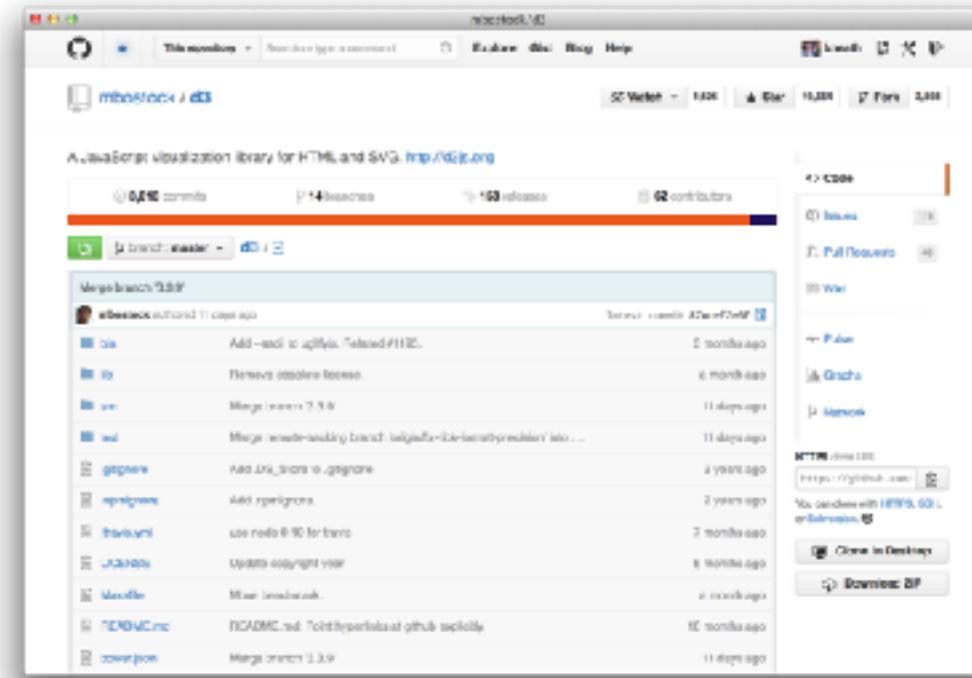
# STUDENT EXPERIENCE

# Slack



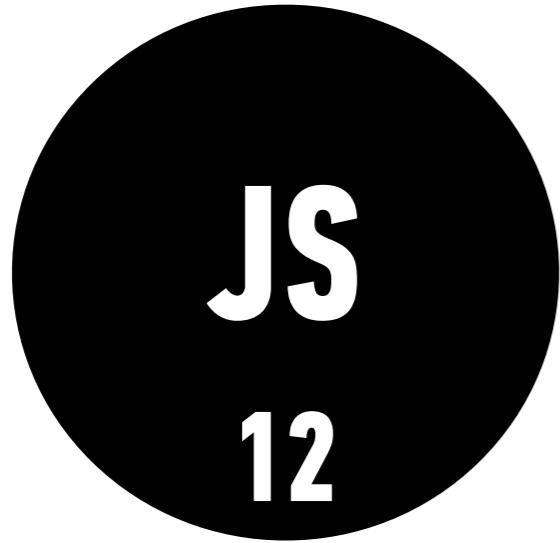
All course communication with each other and instructor will happen here.

# Github Enterprise



Github Enterprise will have starting code for all class activities and assignments.  
You'll also use GitHub Enterprise to submit homework.

# Class website



The screenshot shows a class website for 'JavaScript Development'. The header features a blue background with the title 'JAVASCRIPT DEVELOPMENT' in white. Below the title, a message reads 'Hello! Welcome to the home for General Assembly SF JavaScript Development (JSD) Course 12.' To the right is an illustration of a laptop displaying code. The main content area includes a circular profile picture of a man with glasses and a beard, identified as 'Sasha Vodnik Instructor'. To the right, a sidebar titled 'LOGISTICS' provides details: 'START: Monday, 05/10/2018', 'END: Monday, 11/19/2018', 'MEETS: Monday and Wednesday', '6:30pm - 8:30pm'. It also lists the 'LOCATION: 225 Bush St, 5th Fl, Classroom B' with a location pin icon, and 'OFFICE HOURS'.

The class website will have slide decks and handouts for each class, as well as details on assignments and projects.

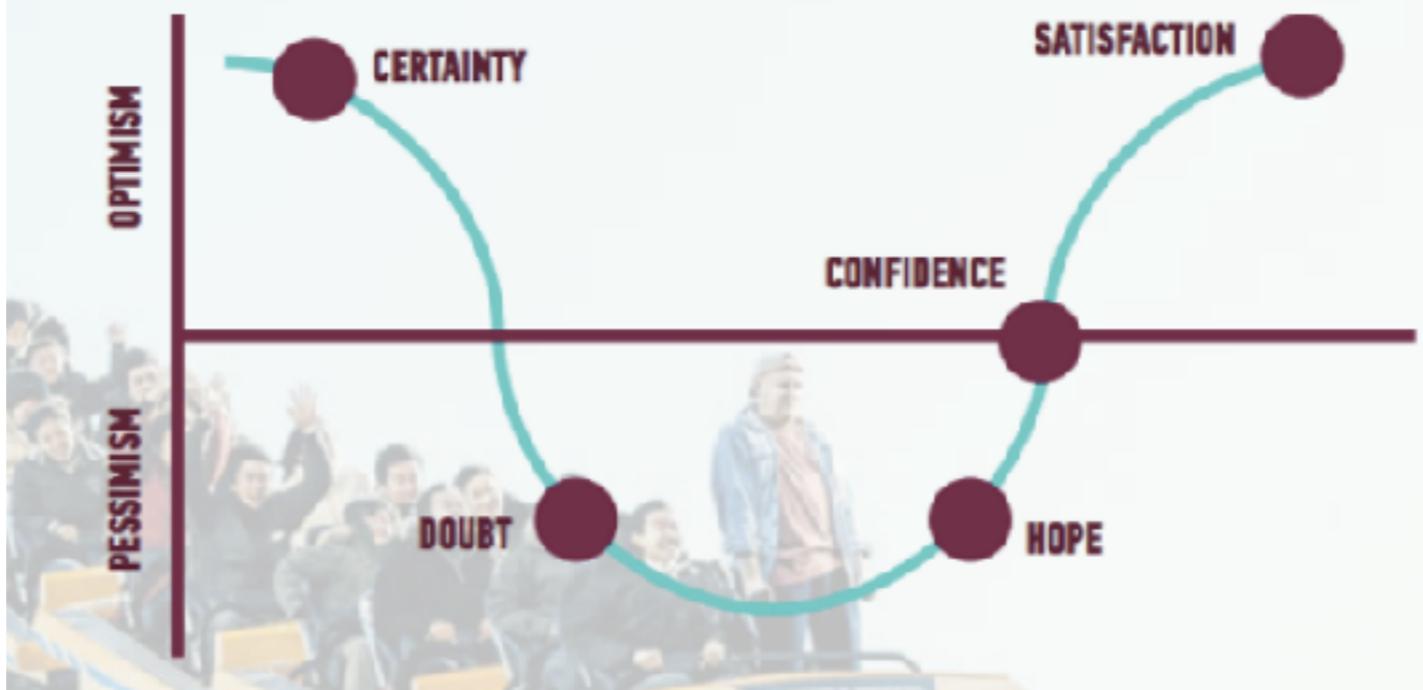
# INSTALLFEST

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# SYLLABUS

Lesson	Title	Lesson	Title
0	Installfest	10	Asynchronous JavaScript & Callbacks
1	Command line & data types	11	Advanced APIs
2	Arrays & Loops	12	Unit 2 Lab - Feedr
3	Conditionals & Functions	13	Prototypal inheritance
4	Scope & Objects	14	Closures & the module pattern
5	Unit 1 Lab - Slackbot	15	Intro to CRUD & Firebase
6	JSON & Intro to the DOM	16	Deploying your App
7	DOM & jQuery	17	Instructor-Student Choice
8	Events & jQuery	18	Final Project Lab
9	Ajax & APIs	19	Final Project Presentations

# THE LEARNING ROLLERCOASTER



# How to get a certificate



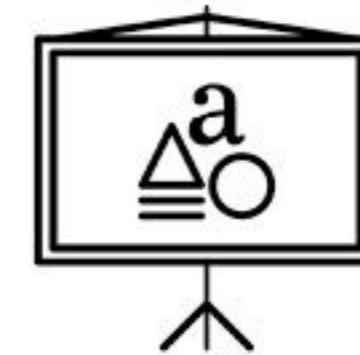
# How to get a certificate



Complete 80% of the homework



Don't miss more than 3 classes



Complete and present a final project



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**INSTALLFEST**

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# **GA VALUES**

- ▶ **GRIT**
- ▶ **TEAMWORK**
- ▶ **CURIOSITY**
- ▶ **RESOURCEFULNESS**
- ▶ **GENEROSITY**

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**INSTALLFEST**

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# **GA VALUES**

- ▶ **GRIT**
- ▶ **TEAMWORK**
- ▶ **CURIOSITY**
- ▶ **RESOURCEFULNESS**
- ▶ **GENEROSITY**



**GRIT**

We keep going when things get tough.

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# INSTALLFEST

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## GA VALUES

- ▶ GRIT
- ▶ TEAMWORK
- ▶ CURIOSITY
- ▶ RESOURCEFULNESS
- ▶ GENEROSITY



## TEAMWORK

We work together to meet our goals.

# INSTALLFEST

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## GA VALUES

- ▶ GRIT
- ▶ TEAMWORK
- ▶ CURIOSITY
- ▶ RESOURCEFULNESS
- ▶ GENEROSITY



**CURIOSITY**

We accept feedback with poise and professionalism.

# INSTALLFEST

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## GA VALUES

- ▶ GRIT
- ▶ TEAMWORK
- ▶ CURIOSITY
- ▶ RESOURCEFULNESS
- ▶ GENEROSITY



### RESOURCEFULNESS

We take advantage of the many resources around us and ask for help when we need it.

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# INSTALLFEST

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## GA VALUES

- ▶ GRIT
- ▶ TEAMWORK
- ▶ CURIOSITY
- ▶ RESOURCEFULNESS
- ▶ GENEROSITY



### GENEROSITY

We share our experiences, skills, and gifts to help those around us.

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## **INSTALLFEST**

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# **HOMEWORK**

### **OVERVIEW:**

- Assigned every Wednesday, starting this week
- Due the following Monday
- Expect feedback within 5 days

### **GRADING:**

- Complete/Incomplete

### **LATE ASSIGNMENTS:**

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

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**INSTALLFEST**

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# **OFFICE HOURS**

Programming is tough!

I want you to succeed and I am here for you.

## **HOW TO REACH US:**

- › Hit me up on Slack
- › Come to regular office hours (Mon/Wed, 5:00-6:00pm)
- › Schedule other office hours
  - in-person at GA or elsewhere
  - Skype/FaceTime/Hangouts

# INSTALLFEST

## EXIT TICKETS/FEEDBACK

- GA is REALLY into feedback - and so am I!
- Helps me help you
- Two BIG feedback surveys:
  - » Midway
  - » End
- Smaller survey after every class, known as an **exit ticket**

Please write your full name:  
We want to be able to contact you directly if you indicate that you need support.

Your answer \_\_\_\_\_

Lesson Number \*

Choose ▾

How are you feeling? \*

Choose ▾

I feel this lesson helped me make progress towards my learning goals. \*

1	2	3	4	5		
Strongly Disagree	<input type="radio"/>	Strongly Agree				

I was engaged throughout this entire lesson. \*

1	2	3	4	5		
Strongly Disagree	<input type="radio"/>	Strongly Agree				

I feel prepared to continue practicing this skill outside of class. \*

1	2	3	4	5		
Strongly Disagree	<input type="radio"/>	Strongly Agree				

What questions do you still have after today's lesson? \*

Your answer \_\_\_\_\_

# INSTALLFEST

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## CLASS NORMS

**Let's all agree to:**

- Come on time
- Participate
- Step up, step back
- Ask for help when you need it
- Help each other



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## INSTALLFEST

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### TIPS FOR SUCCESS

- Complete homework before the next class
- Brush up on your CSS selectors — especially type, ID, and class selectors
- Ask questions



# JAVASCRIPT DEVELOPMENT

Sasha Vodnik, Instructor

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JAVASCRIPT DEVELOPMENT

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# 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.
- Run Node.js, npm, Git, and other command line tools on your computer.
- Write pseudocode and explain how it relates to programmatic thinking.

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# INSTALLFEST

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## AGENDA

- JavaScript & web development
- Set up Slack, Brew, Git, Node, and code editors
- Set up GitHub
- Pseudocode

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JAVASCRIPT DEVELOPMENT

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# JAVASCRIPT & WEB DEVELOPMENT

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**INSTALLFEST**

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# **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”

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**INSTALLFEST**

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# **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**

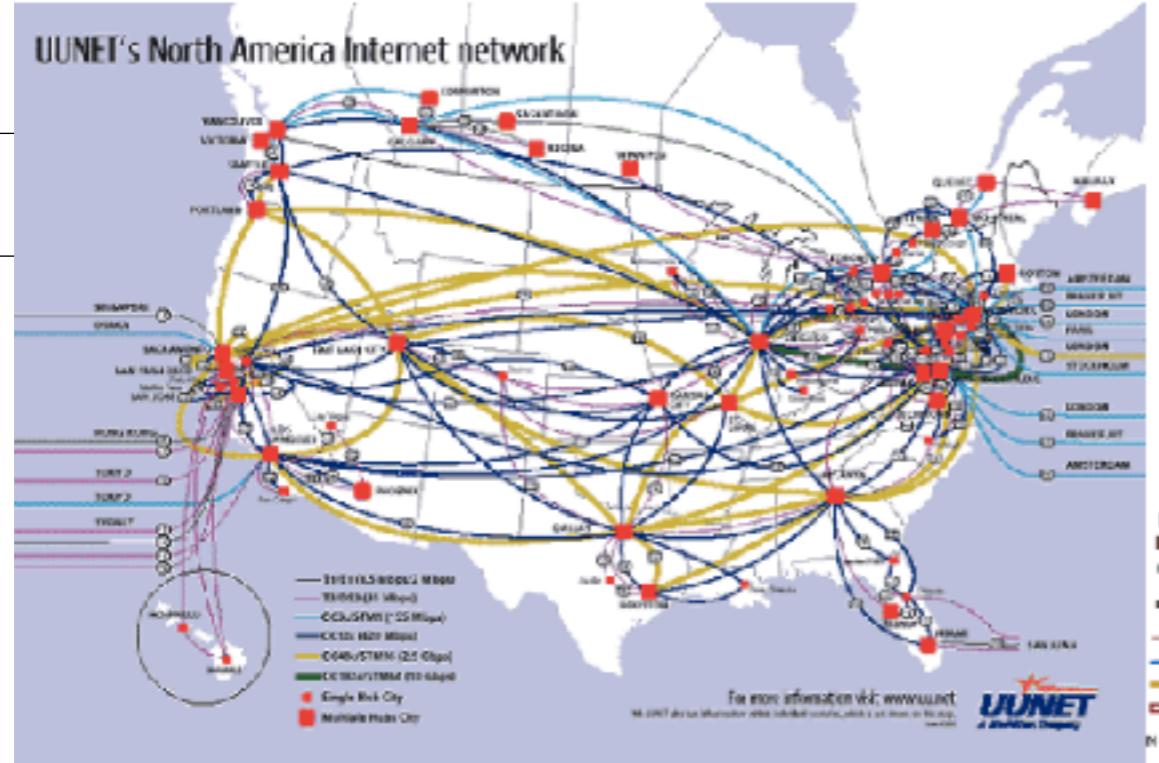
## **What is the Internet?**

- ▶ 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 ever-increasing volume of the world's communications traffic is not carried by satellite or fibre-optic cables under the earth's technology, cables under the earth's oceans. As a ship can't easily types out dissolved oxygen, this map shows how we rely on a network of wires to keep our world all tied together.

## Submarine cable systems

In service

Planned

Delayed

Under construction  
or awaiting regulatory  
approval

Proposed

Abandoned

Retired

Under construction

Delayed

Proposed

Abandoned

Retired

ALEXANDRIA, Wednesday  
A large submarine cable  
between Egypt and Libya  
was cut, causing a major  
internet outage.

TAIWAN, 2005  
A series of four  
cables between  
Taiwan and Japan  
were cut, causing  
a major disruption.

UNITED STATES  
A cable between  
the US and Canada  
was cut, causing  
a temporary  
disruption.

CHINA  
A cable between  
China and Japan  
was cut, causing  
a temporary  
disruption.

INDIA  
A cable between  
India and Australia  
was cut, causing  
a temporary  
disruption.

AUSTRALIA  
A cable between  
Australia and New  
Zealand was cut,  
causing a temporary  
disruption.

NEW ZEALAND  
A cable between  
New Zealand and  
Australia was cut,  
causing a temporary  
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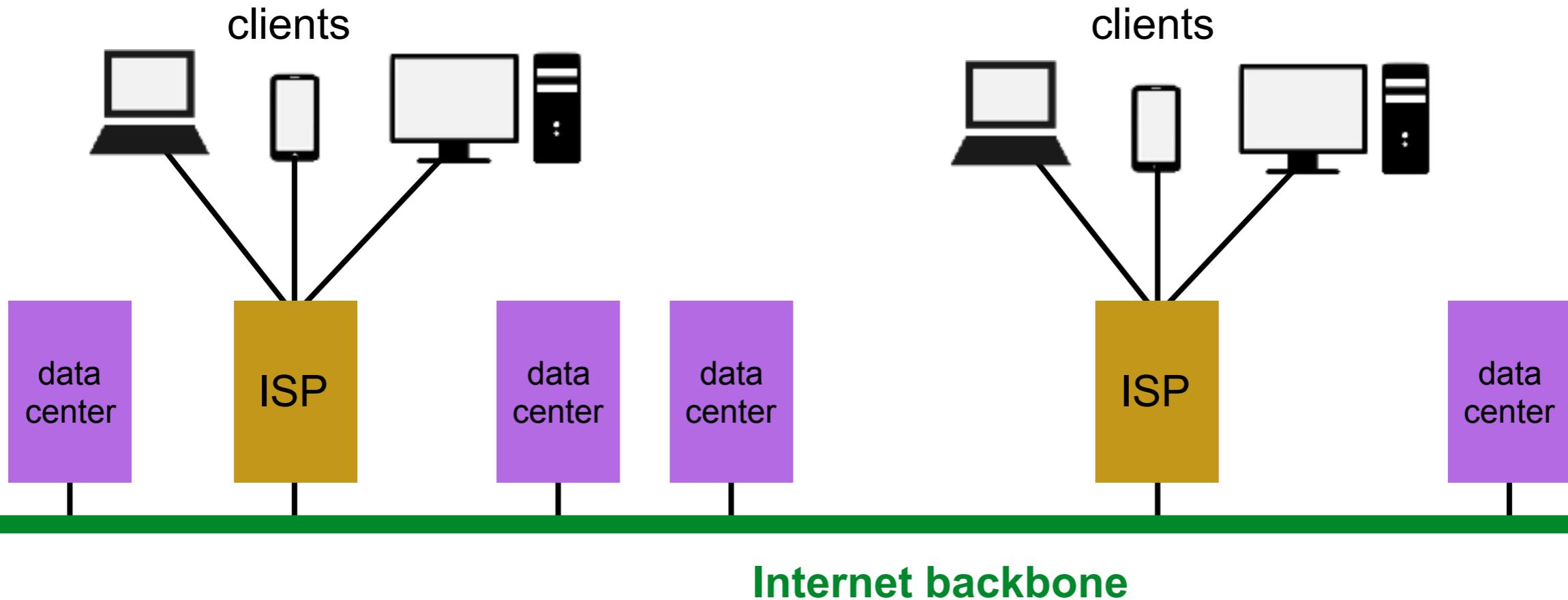
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A cable between  
China

**INSTALLFEST**

# **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)

# INSTALLFEST

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# 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

# ACTIVITY

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## **KEY OBJECTIVE**

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- ▶ Differentiate between the Internet and the World Wide Web.

## **TYPE OF EXERCISE**

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- ▶ Turn and Talk

## **TIMING**

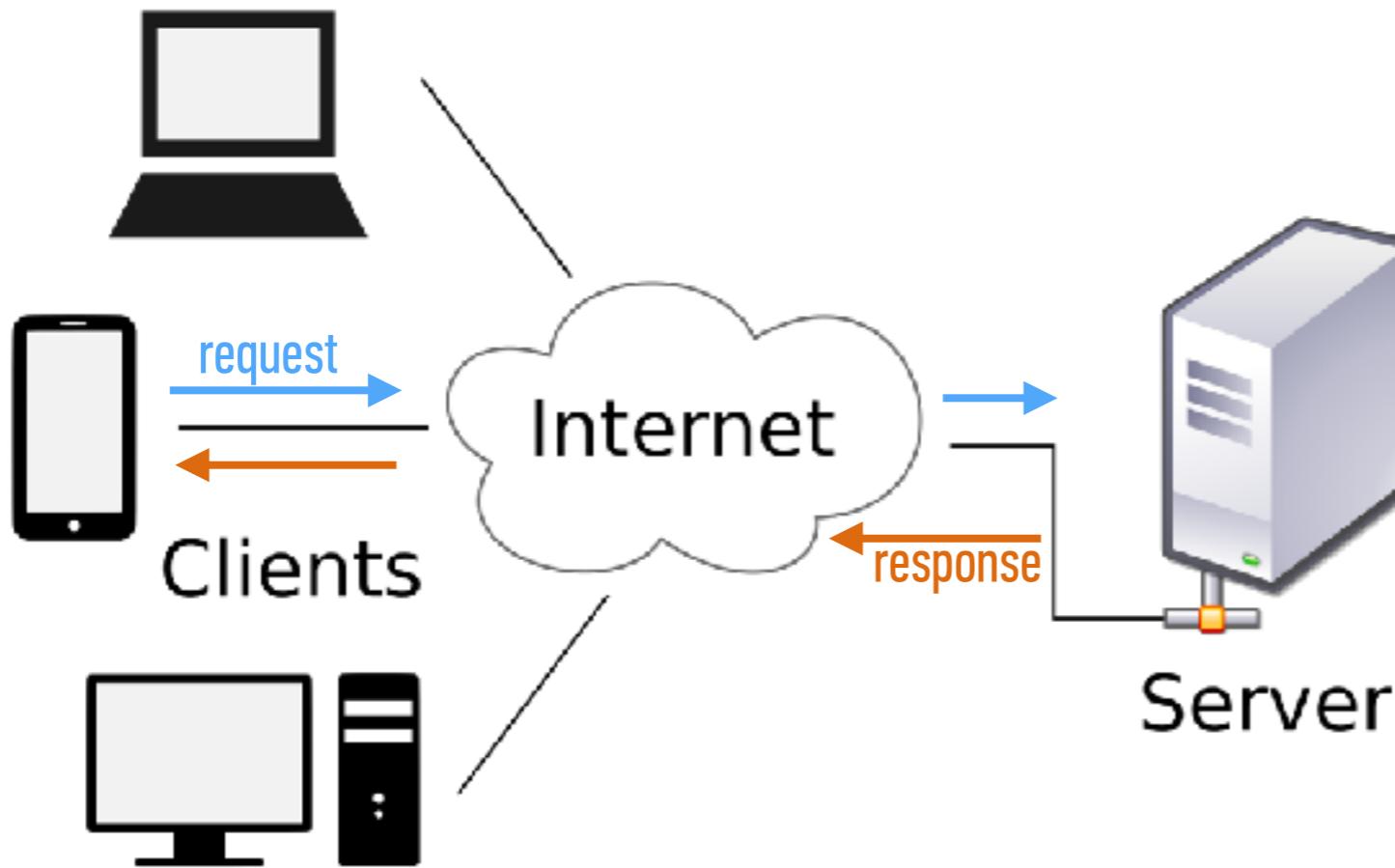
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*4 min*

1. What is the Internet?
2. What is the World Wide Web?
3. What is the difference between the two?

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# THE CLIENT-SERVER MODEL



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# HOW DO YOU REACH A SPECIFIC SERVER?

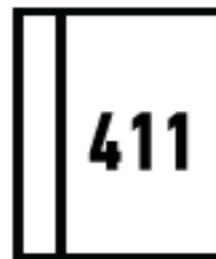
BUSINESS NAME

Joe's Florist



CUSTOMER

DIRECTORY ASSISTANCE



FLOWERS



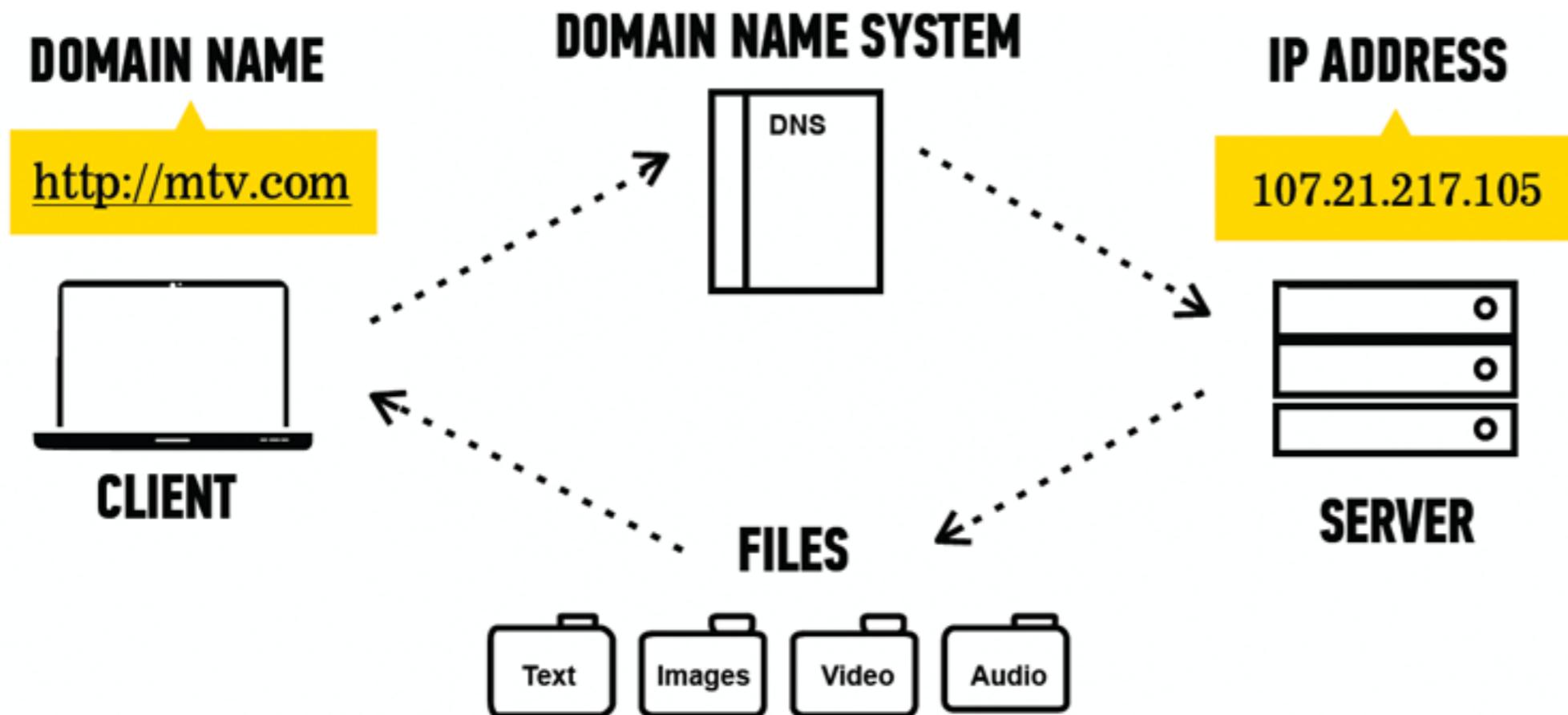
PHONE NUMBER

212-123-4567



FLORIST

# HOW DO YOU REACH A SPECIFIC SERVER?



# ACTIVITY

---



## KEY OBJECTIVE

---

- ▶ Summarize the client-server model & explain how DNS lookup works.

## TYPE OF EXERCISE

---

- ▶ Partner activity (groups of 2-3)

## TIMING

---

*2 min*

1. In your browser, open a new tab, type **50.0.2.222**, then press Enter.
2. Discuss with your partners what happened and why.
3. On your desk, collaborate to draw a diagram illustrating what happened. Include **client**, **server**, and **DNS** in your diagram.

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**LET'S INSTALL!**

## ACTIVITY - SET UP SLACK

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### TASKS

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*2 min*

1. Visit **slack.com/downloads** to download the application
2. Sign up using your email and join our class Slack channel: **JS-SF-12**
3. Upload a profile picture to Slack

# ACTIVITY - OPEN THE TERMINAL (COMMAND LINE)



## TASKS

*1 min*

- **Mac:** Open the Terminal app  
(Applications > Utilities > Terminal)
- **Windows:** Open Windows PowerShell  
(Start Button > type **powershell**)

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## TOOLS WE'LL BE USING

---

### HOMEBREW (BREW)

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



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## TOOLS WE'LL BE USING

---

### GIT & GITHUB

- **git**: code versioning software
- **GitHub**: online storage
- Together, they let you collaborate and keep track of code



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## TOOLS WE'LL BE USING

---

### NODE & NPM

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



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## TOOLS WE'LL BE USING

---

### VISUAL STUDIO CODE

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



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**INSTALLFEST**

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# **INSTRUCTIONS**

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

**See Slack for the instructions URL**

# ACTIVITY

---



## KEY OBJECTIVE

---

- ▶ Use Node.js, npm, Git, and other command line tools on your computer.

## TIMING

---

*20 min*

1. Follow the instructions to install tools on your machine:  
**Mac:** <https://pages.git.generalassembly.ly/vodnik/JSD12/resources/mac-install.html>  
**Win:** <https://pages.git.generalassembly.ly/vodnik/JSD12/resources/windows-install.html>
2. If classmates around you are still working on this when you finish, please offer to lend a hand
3. BONUS: Explore and install one or more of the extensions listed in the Visual Studio Code section at  
<https://pages.git.generalassembly.ly/vodnik/JSD12/pages/resources.html#vscode>

# ACTIVITY

---



## KEY OBJECTIVE

---

- ▶ Use Node.js, npm, Git, and other command line tools on your computer.

## TYPE OF EXERCISE

---

- ▶ Partner activity (groups of 2-3)

## TIMING

---

*2 min*

1. With your group members, create a list of the command line tools and other applications you just installed.
2. Describe the purpose of each tool.

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# PSEUDOCODE

# 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

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## PSEUDO CODE

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- ▶ When we write a program, we need to figure out a way to translate the ideas that are in our heads into code
- ▶ Pseudo code is a way to 'plan out' your program before coding it
- ▶ **Pseudo code** is a *detailed yet readable description* of what a computer program must do
- ▶ Expressed in plain English rather than in a programming language

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## PSEUDOCODE — THE IMPORTANCE OF PLANNING

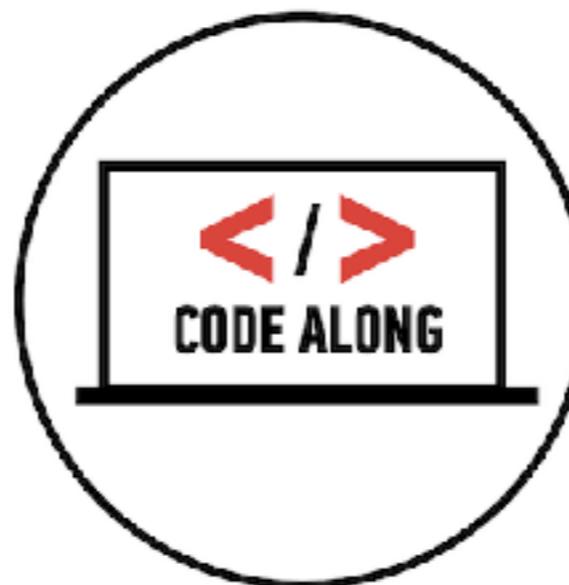
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## PSEUDOCODE — HEIGHT COMPARISON

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## PSEUDOCODE — PASSING SCORE

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# LAB — PSEUDOCODE

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## KEY OBJECTIVE

---

- Write pseudocode and explain how it relates to programmatic thinking.

## TYPE OF EXERCISE

---

- Pairs

## TIMING

---

*5 min*

1. Create pseudocode for a program that calculates the number of miles a user travels between home and work (or another destination) per year.
2. Take into account distance between home and destination, times per day the user makes that trip (probably 2), and working days per year.

# ACTIVITY

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## **KEY OBJECTIVE**

---

- ▶ Explain how pseudocode relates to programmatic thinking.

## **TYPE OF EXERCISE**

---

- ▶ Turn and Talk

## **TIMING**

---

*4 min*

1. Describe pseudocode in your own words.
2. Explain what programmatic thinking is, and how it relates to pseudocode.

# **Exit Tickets!**

**(Class #0)**

## 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

### Command Line & Data Types

- Work with files/directories via the terminal window
- Create a Git repository and push/pull changes
- Run basic JavaScript code on the command line
- Describe the concept of a "data type" and how it relates to variables.

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# Q&A