



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



SASHA



Student Services

Email: **studentservicesSF@ga.co**

Slack: **Matt Jones**



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

Others you may see



RAY HSIA

Instructor Manager



NIÑA PINEDA

Front Lines Lead



VANESSA OHTA

Instruction Manager

Let's get to know each other

STRUCTURE



PAIRS



INTROS: 5 MIN
SHARING: 10 MIN

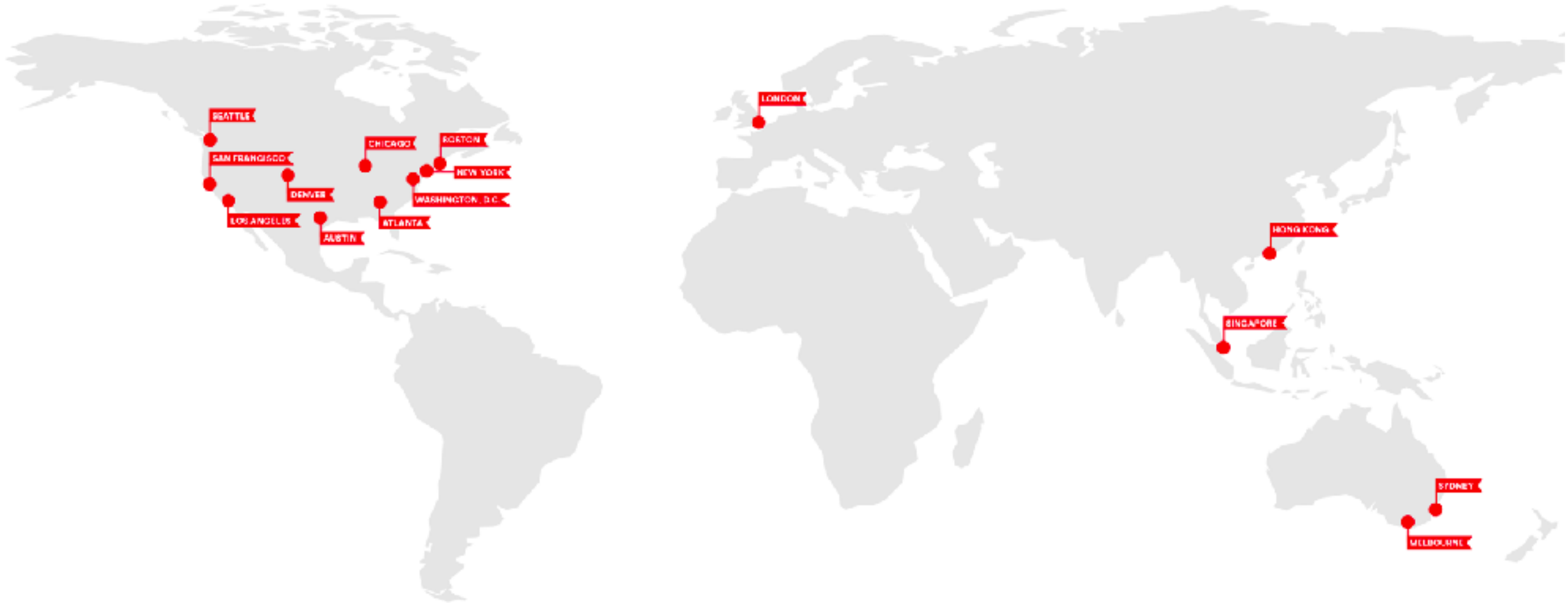
OBJECTIVES

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





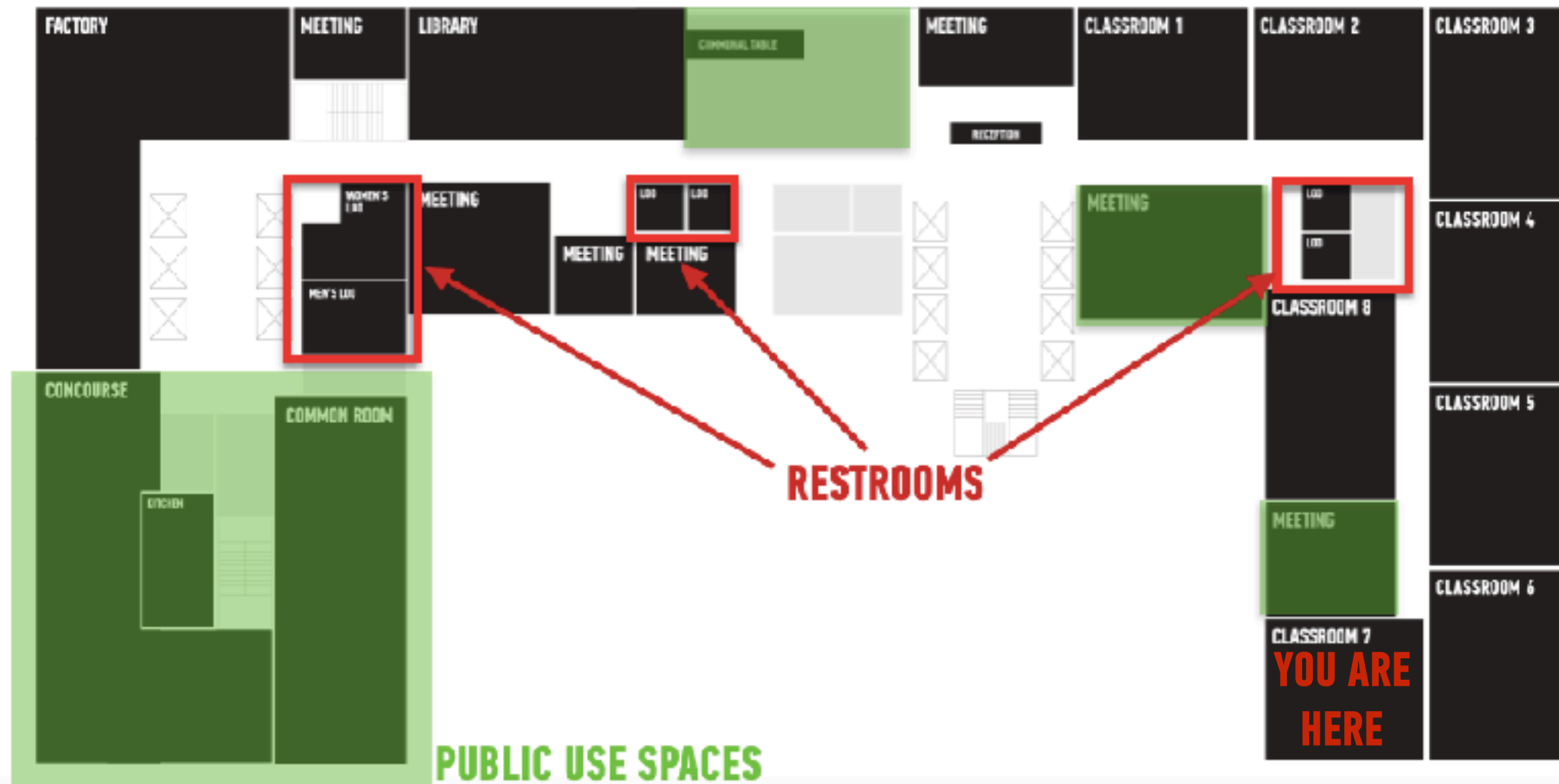
Come work on campus.

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.



Course dates

JavaScript Development 10

Course dates:

- Mondays and Wednesdays, 6:30pm - 9:30pm
- February 5 - April 16

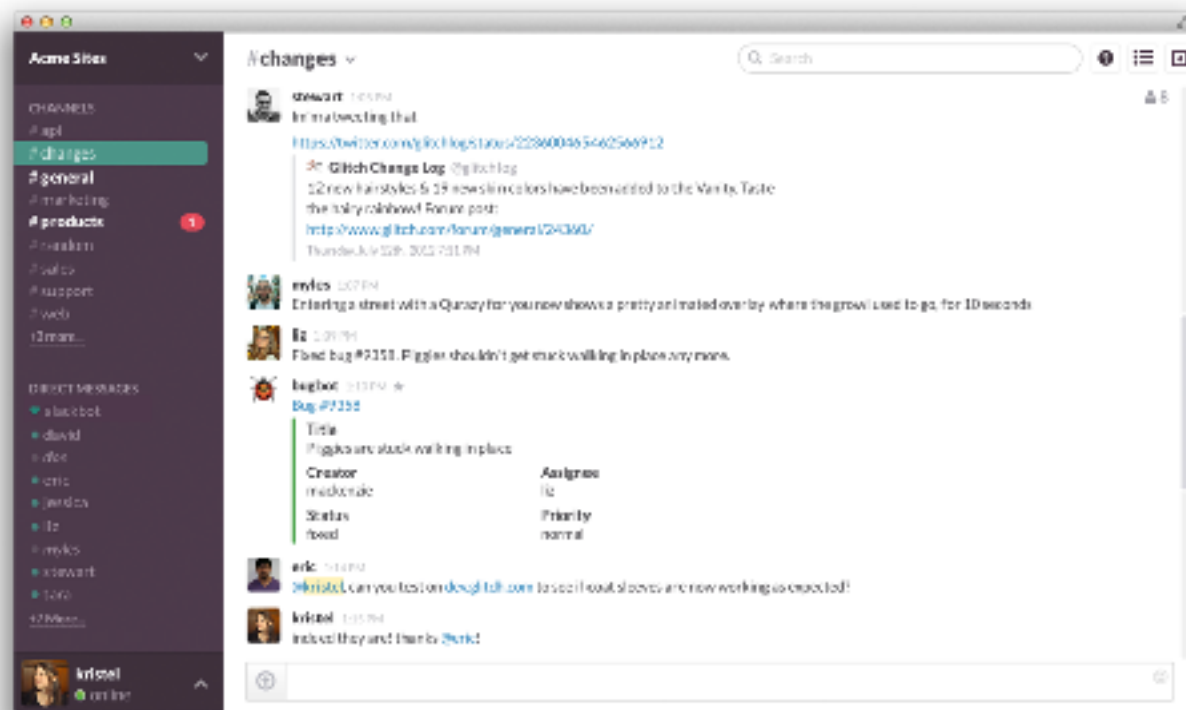
Holidays: none





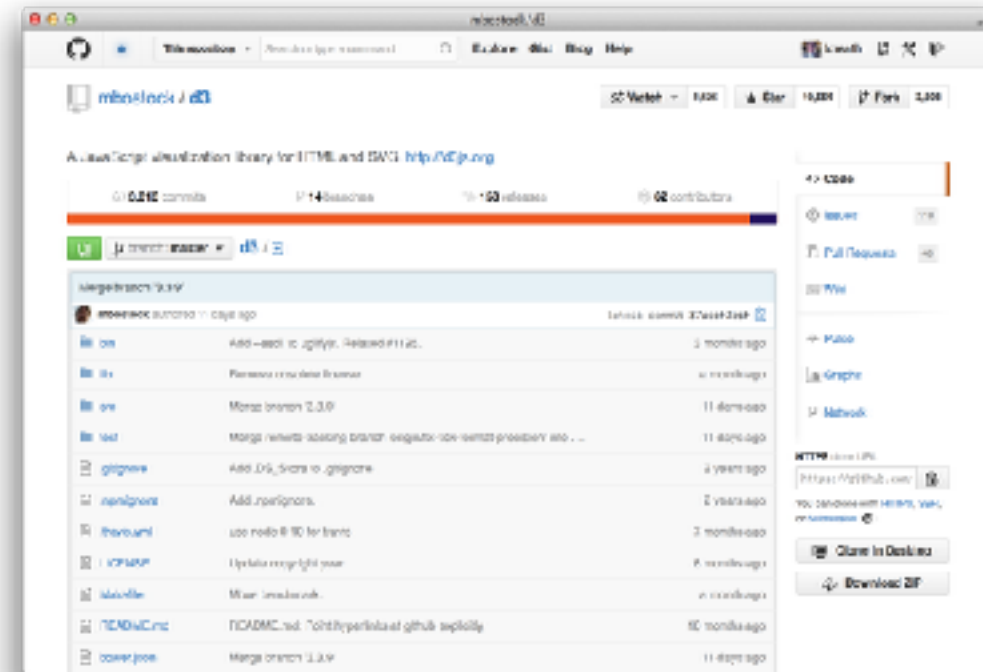
STUDENT EXPERIENCE

Slack



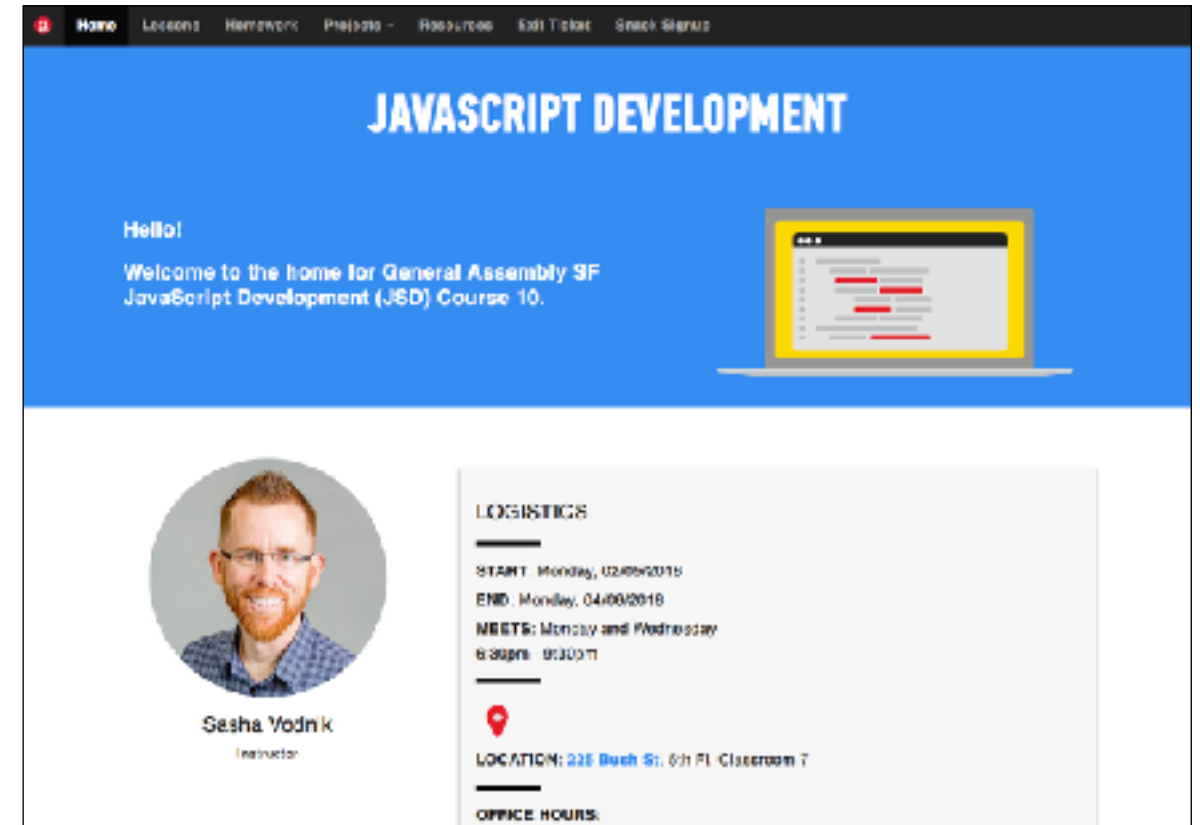
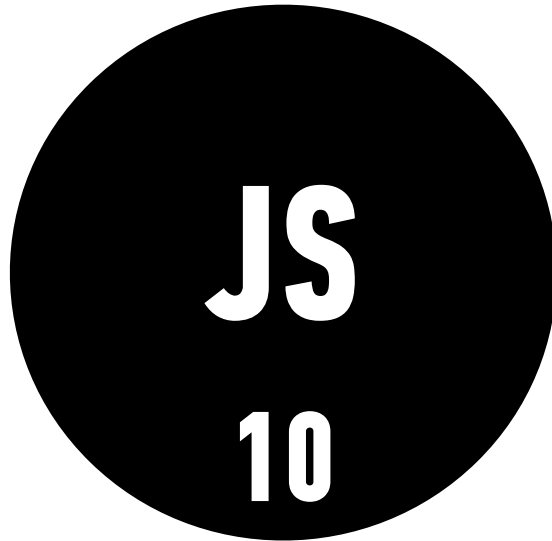
All course communication with each other and instructors will happen here.

Github



Github will have starting code for all class activities and assignments.

Class website



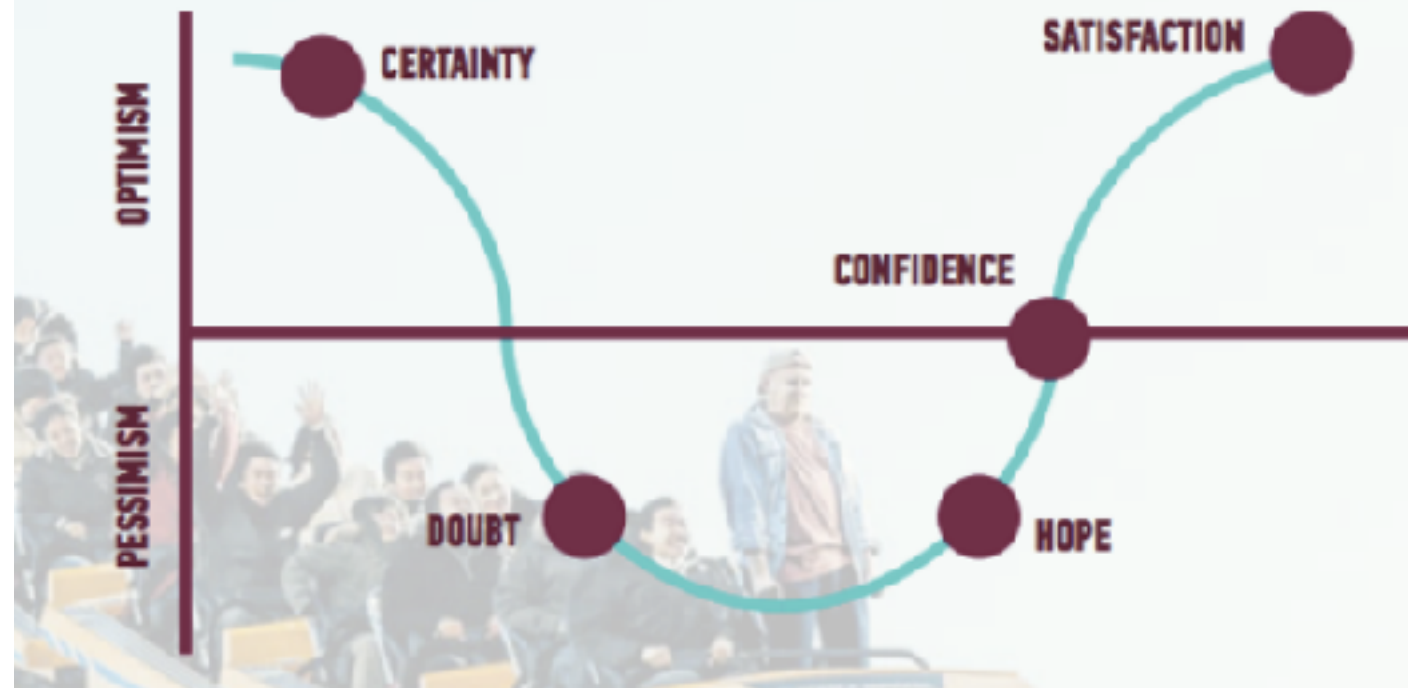
The class website will have slide decks and handouts for each class, as well as details on assignments and projects.

INSTALLFEST

SYLLABUS

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

THE LEARNING ROLLERCOASTER



How to get a certificate



How to get a certificate

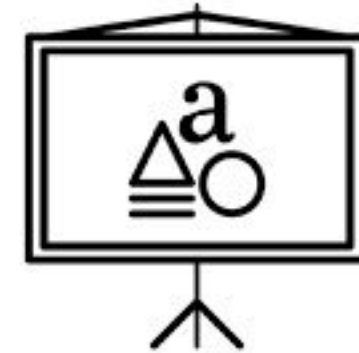


Complete 80% of the homework

1

2

Don't miss more than 3 classes



Complete and present a final project

3

INSTALLFEST

GA VALUES

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

INSTALLFEST

GA VALUES

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



GRIT

We keep going when things get tough.

INSTALLFEST

GA VALUES

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

A photograph of two fishermen in a small wooden boat on a calm river. They are wearing traditional conical hats and are engaged in a tea ceremony, with one pouring tea from a small pot into a cup. In the background, a traditional stilt house is visible on the riverbank, and the scene is shrouded in a light mist.

TEAMWORK

We work together to meet our goals.

INSTALLFEST

GA VALUES

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



CURIOSITY

We accept feedback with poise and professionalism.

INSTALLFEST

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.

INSTALLFEST

GA VALUES

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



GENEROSITY

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

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

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

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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 ☐ ☐ ☐ ☐ ☐ Strongly Agree

I was engaged throughout this entire lesson. *

1 2 3 4 5
Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

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

1 2 3 4 5
Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

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

Your answer

CLASS NORMS

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



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

JAVASCRIPT DEVELOPMENT

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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.

INSTALLFEST

AGENDA

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

JAVASCRIPT DEVELOPMENT

JAVASCRIPT & WEB DEVELOPMENT

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 $\Rightarrow$ 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 $\neq$ Java
- One of the most popular programming languages
 - github.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

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A SERVER FARM

45



UUNET's North America Internet network

The map illustrates a complex web of fiber-optic connections across North America and Europe. Major hubs are marked with red squares, while single back cities are marked with red dots. The network includes several high-speed backbone links:

- Sprintlink (Miles)
- Comcast (Miles)
- Cablecom (25 Miles)
- CCN (Miles)
- Comcast (25 Miles)
- Comcast (25 Miles)
- Comcast (25 Miles)

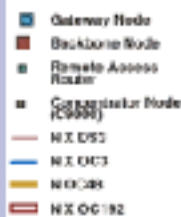
Legend:

- Single Back City
- Multiple Hub City

For more information visit: www.uunet.net

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UUNET
A WorldNet Company



Note: map is not to scale.



The internet's undersea world

The vast majority of the world's communications are not carried by satellite but by submarine cables. Technology, cables under the earth's oceans, Asia, Europe and the Americas are linked by a complex network of cables that carry the world's information and link us all together.

Submarine cable systems

In service

Under construction

Planned

Other submarine systems

Other submarine systems

Other submarine systems

Other submarine systems

Other submarine systems

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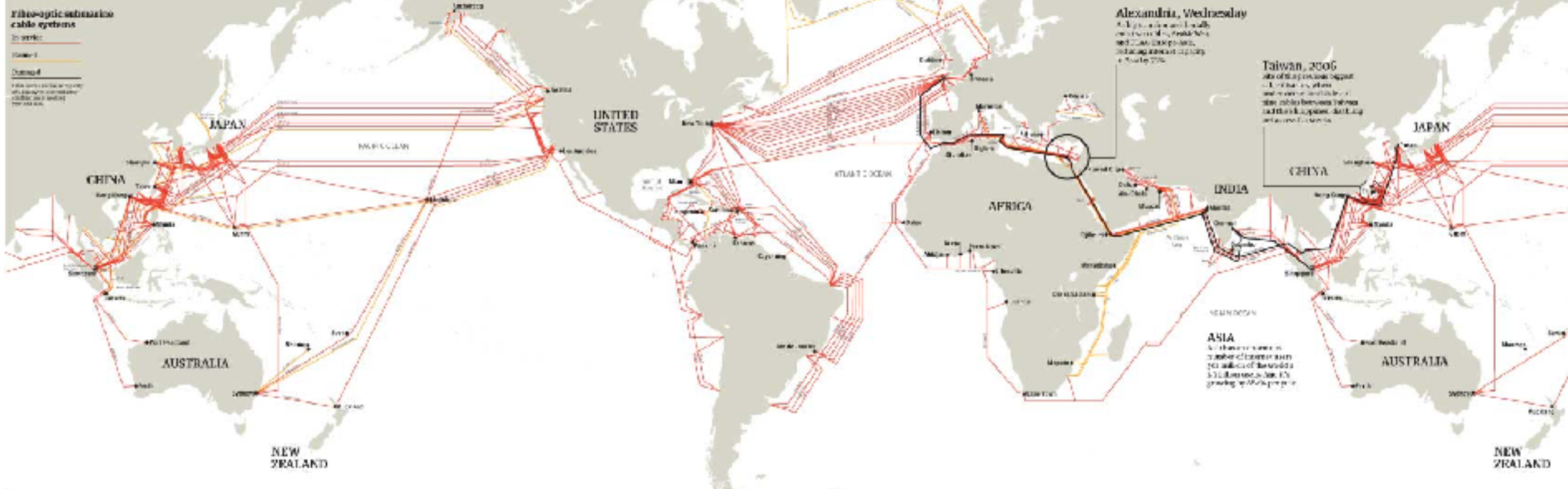
Other submarine systems

Other submarine systems

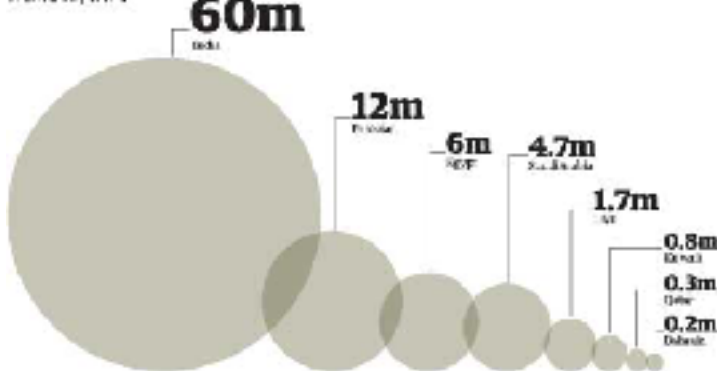
Other submarine systems

Other submarine systems

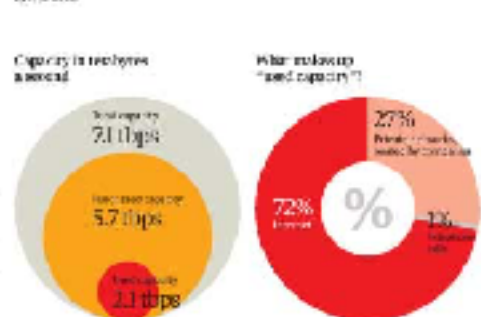
Other submarine systems



Internet users affected by the Alexandria accident
The cable was damaged in the accident



World cable capacity
Capacity in terabytes
Capacity in terabytes



The longest submarine cables
The longest submarine cables are the ones that connect the Americas to Europe and Asia. The longest cable is the TAT-14, which is 10,000 km long.

Cable	Length (km)
TAT-14	10,000
SEA-ME-WE 3	10,000
EURO-ASIA-1	10,000
AFRICA-EUROPE-1	10,000

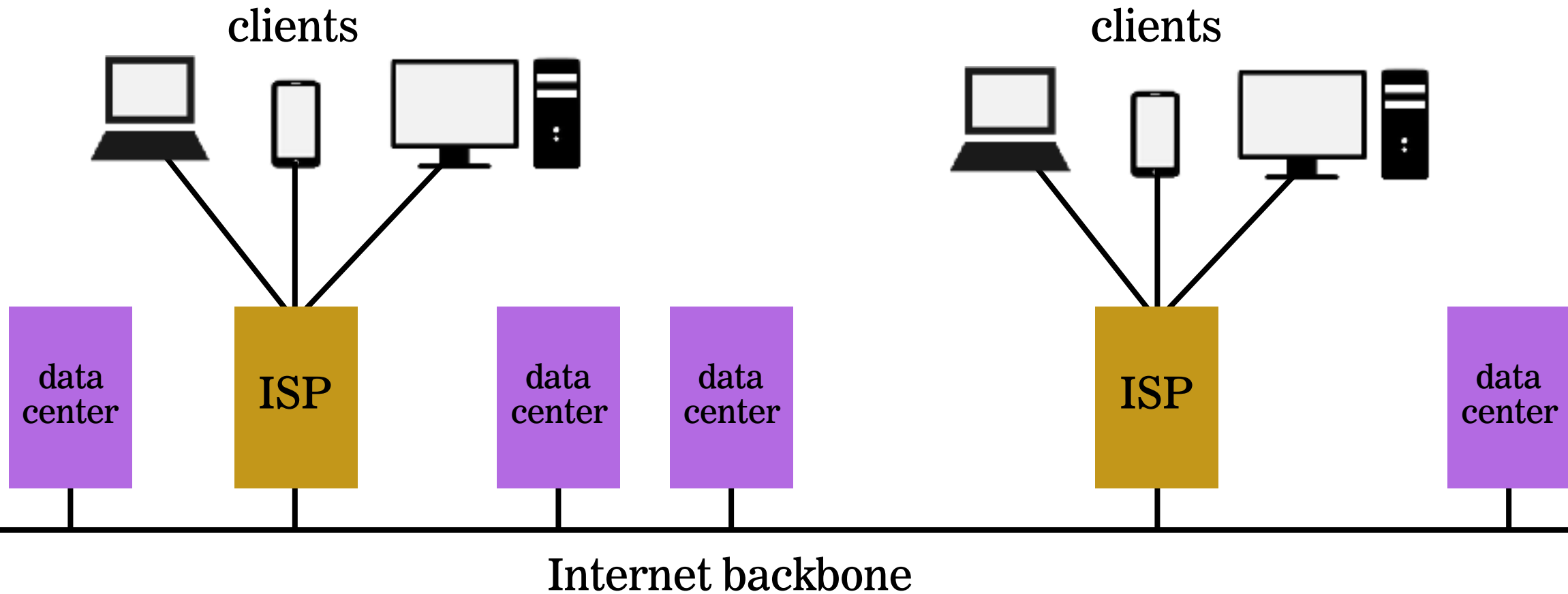
The world's cables in bandwidth
The world's cables in bandwidth are measured in terabits per second (Tbps). The world's cables have a total capacity of 21.1 Tbps.

Cable	Capacity (Tbps)
TAT-14	10.0
SEA-ME-WE 3	10.0
EURO-ASIA-1	10.0
AFRICA-EUROPE-1	10.0



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)

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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](#).



hypertext

[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.

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



EXERCISE

KEY OBJECTIVE

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

TYPE OF EXERCISE

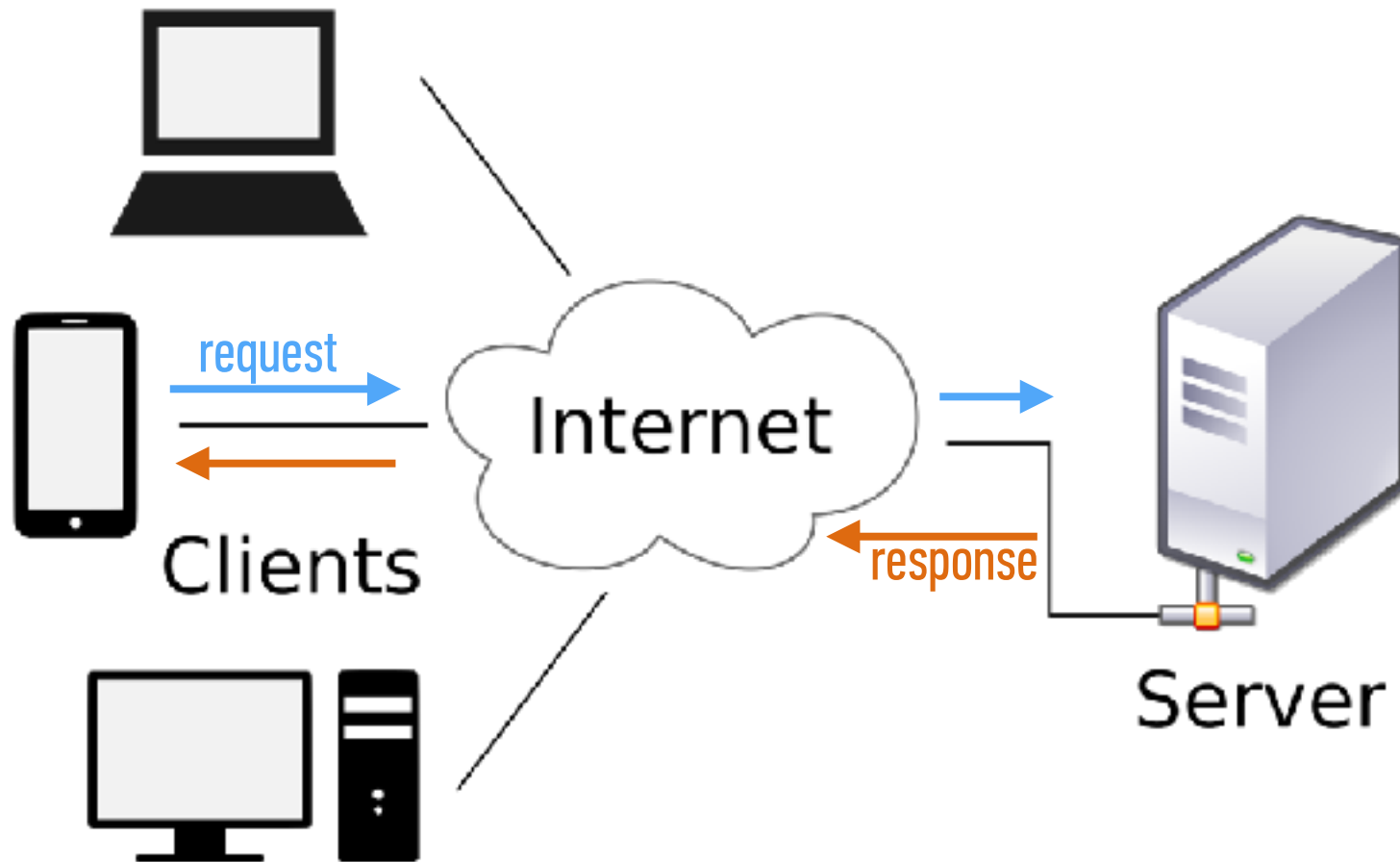
- ▶ Turn and Talk

TIMING

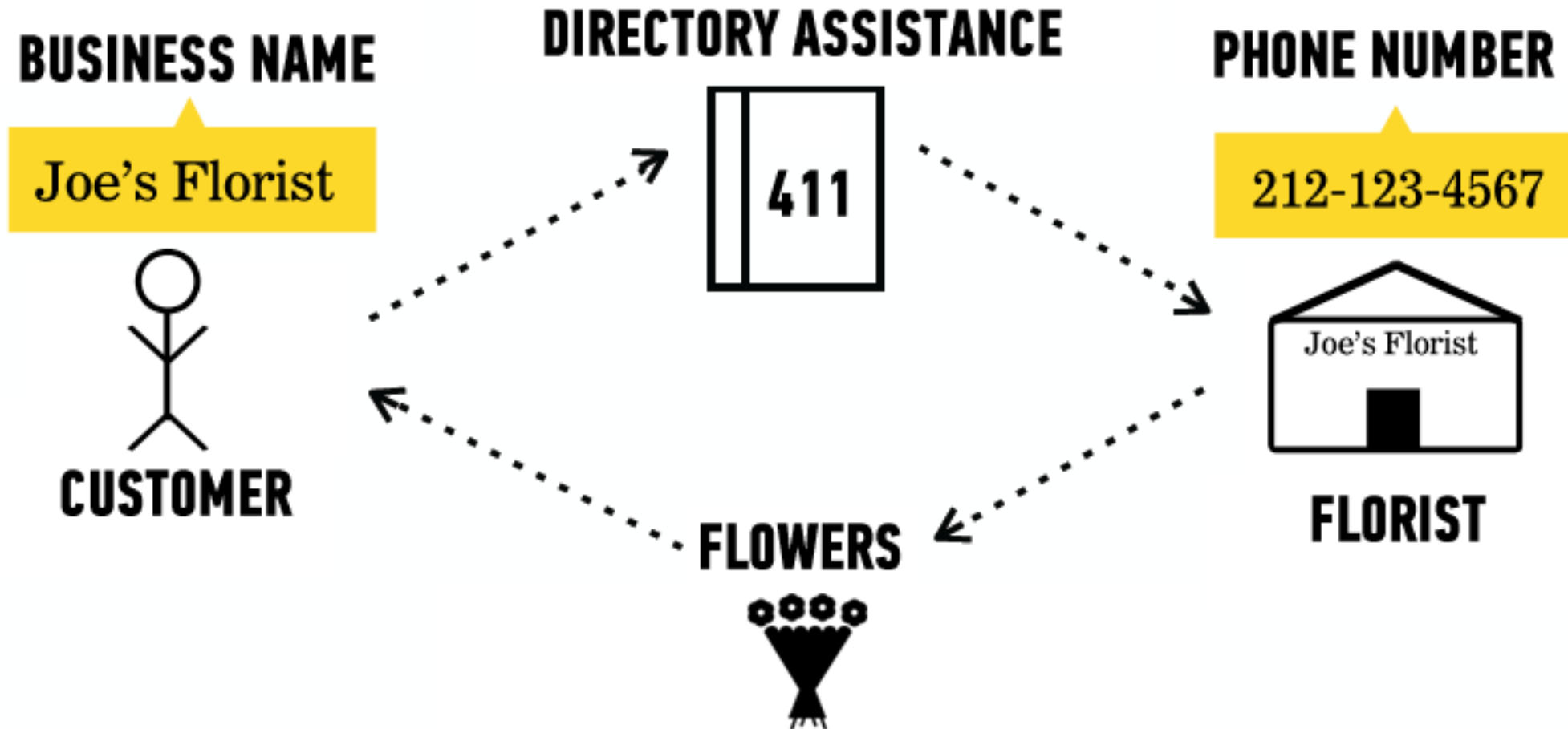
4 min

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

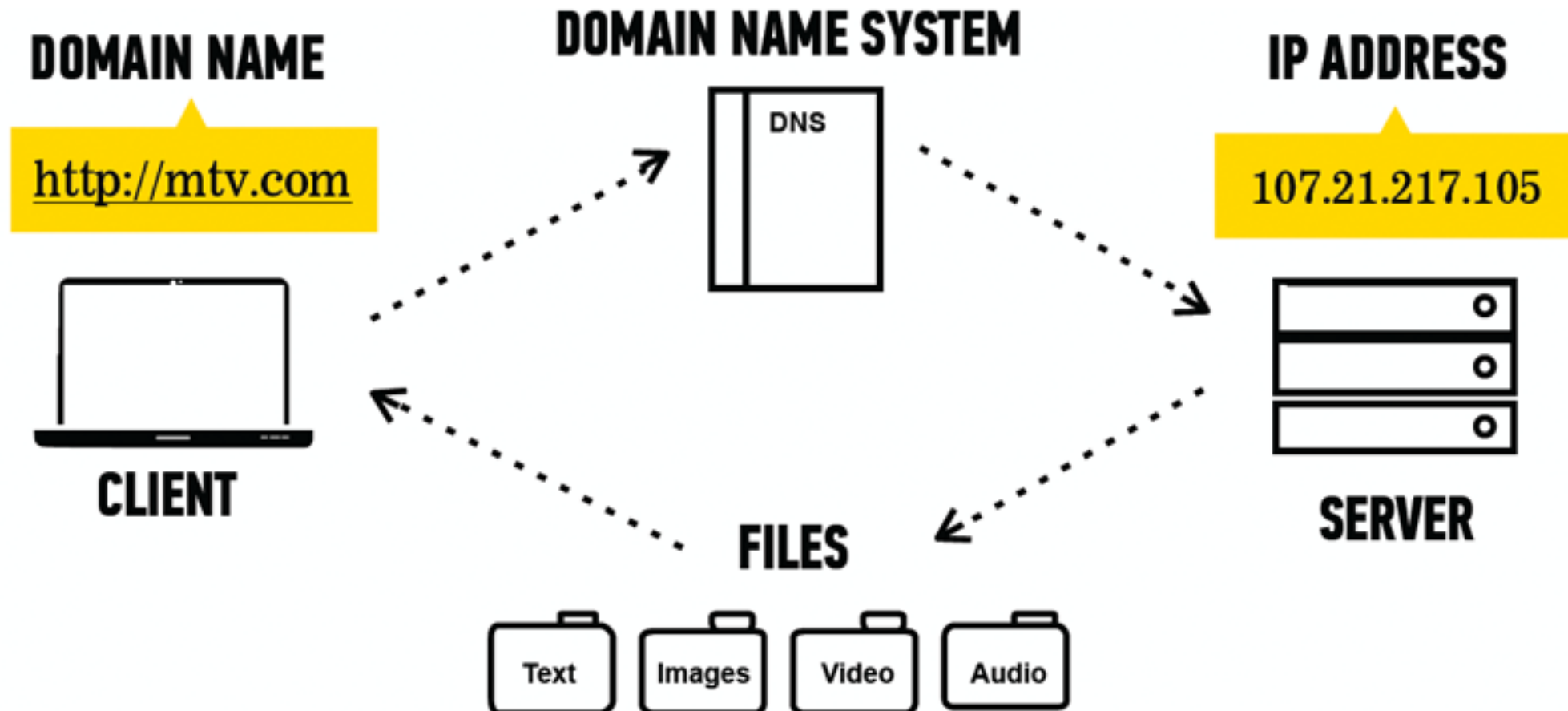
THE CLIENT-SERVER MODEL



HOW DO YOU REACH A SPECIFIC SERVER?



HOW DO YOU REACH A SPECIFIC SERVER?



ACTIVITY



EXERCISE

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.

INSTALLFEST

LET'S INSTALL!

ACTIVITY - SET UP SLACK

EXERCISE



TASKS

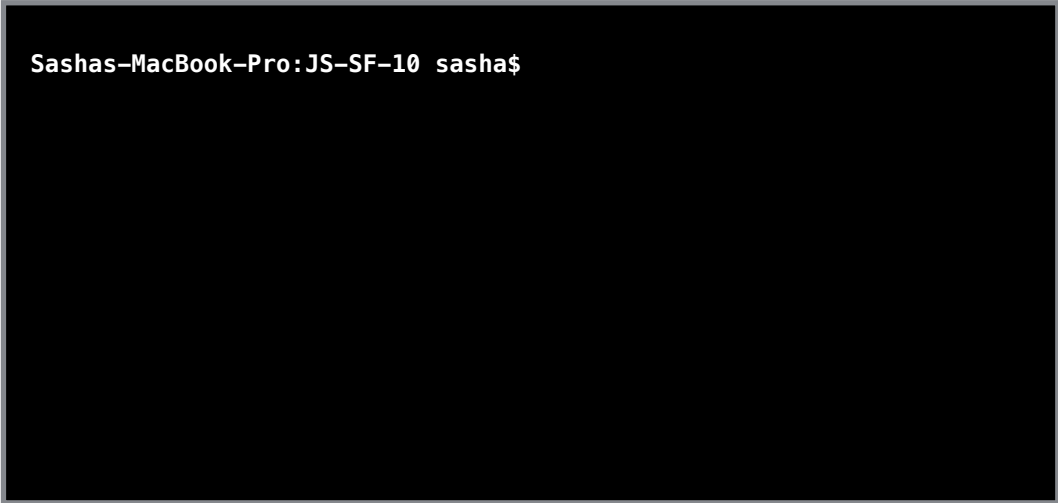
5 min

1. Visit **slack.com/downloads** to download the application
2. Sign up using your email and join our class Slack channel: **JS-SF-10**
3. Upload a profile picture to Slack

ACTIVITY – OPEN THE TERMINAL (COMMAND LINE)



EXERCISE



```
Sashas-MacBook-Pro:JS-SF-10 sasha$
```

TASKS

1 min

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

TOOLS WE'LL BE USING

HOMEBREW (BREW)

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



TOOLS WE'LL BE USING

GIT & GITHUB

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



TOOLS WE'LL BE USING

NODE & NPM

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



TOOLS WE'LL BE USING

VISUAL STUDIO CODE

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



INSTALLFEST

INSTRUCTIONS

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

See Slack for the instructions URL

ACTIVITY



EXERCISE

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://svodnik.github.io/jsd10/resources/mac-install.html>
Win: <https://svodnik.github.io/jsd10/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://svodnik.github.io/jsd10/pages/resources.html>

ACTIVITY



EXERCISE

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

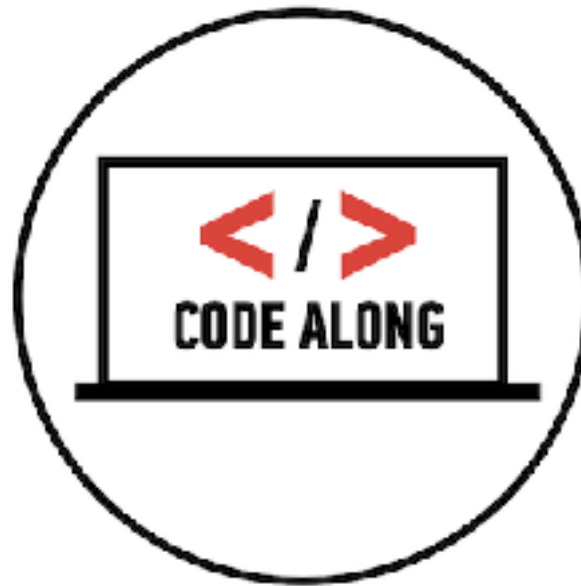
PSEUDO CODE

- 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

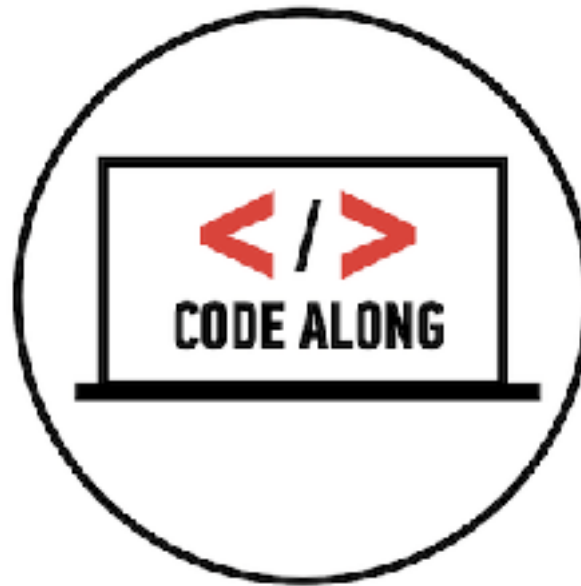
PSEUDOCODE — THE IMPORTANCE OF PLANNING



PSEUDOCODE — HEIGHT COMPARISON



PSEUDOCODE — PASSING SCORE



LAB — PSEUDOCODE



EXERCISE

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



EXERCISE

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

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

INSTALLFEST

Q&A