

INTRO TO JAVASCRIPT AND THE WEB

JAVASCRIPT DEVELOPMENT

LEARNING OBJECTIVES

- ▶ Understanding the client-server model
- ▶ Understanding the difference between the internet and the world wide web
- ▶ Knowing the basics of using the terminal
- ▶ Understand what Git and Github are, and how we will use them
- ▶ Learn what Node is and how we'll use it

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WEB DEVELOPMENT

Web development is the process of building applications for the web. This includes both back-end and front-end development.

FRONT-END WEB DEVELOPMENT

The development of client (browser) code for web applications and web sites.

Typically includes things that the user “sees”, such as HTML, CSS, and Javascript.

Front-end code is downloaded and executed on the user’s machine.

BACK-END WEB DEVELOPMENT

The development of server code for web applications and web sites. Typically includes “behind the scenes” code, such as database code and third-party integrations. This code is executed on the web sites servers and the client doesn’t ever see the code.

HOW DOES JAVASCRIPT FIT IN?

- ▶ Javascript is downloaded and executed by the user's browser to make web pages interactive (even works when they're offline!)
- ▶ Allows you to build and modify pages using any of the browser's features.
- ▶ In the beginning it was used for simple interactivity, now we build entire applications with it (Gmail, Facebook, etc.)
- ▶ Can interact with your server-side code without the user's input (this is typically called AJAX)

**WHAT CAN
JAVASCRIPT DO?**

CAVEATS

- ▶ Javascript is implemented differently in different browsers. Somebody using browser from 10 years ago won't have the same features as browsers from today.
- ▶ Javascript can be disabled, leaving only HTML and CSS behind. (People do this because Javascript *can* be a security hole.)

NODE.JS

Node.JS is a set of tools that includes a Javascript interpreter, a REPL (read-eval-print-loop), and a set of Javascript libraries (pre-written chunks of code). In this class we will be using the REPL to access the interpreter. We will not spend much (if any) time on the libraries bundled with Node.

JAVASCRIPT FRAMEWORKS

Javascript frameworks such as Ember, Angular, and React provide tools and structure to more easily build applications. While very useful, this class will focus more on the fundamentals of Javascript and less on any particular technology.

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THE TERMINAL

INDEPENDENT PRACTICE

- ▶ Create a `~/Sites/goals` folder
- ▶ Create three empty files: `goals.html`, `worries.html`, `index.html`
- ▶ In `goals.html`, place your top 3 goals for this class
- ▶ In `worries.html` place your top 3 worries for this class
- ▶ In `index.html`, create a page that links to the other two pages you created
- ▶ Open up `index.html` to verify that everything works

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INTERNET VS WEB

THE INTERNET

The internet is a large collection of computers around the world connected by cables. The internet doesn't actually *do* anything, it's just the term for the network of computers. For all intents and purposes, nobody *owns* the internet, it's a free and open medium.

THE WORLD WIDE WEB

The world wide web is a collection of documents in the form of HTML pages. Shared using the internet, the pages are viewed by users with web browsers. The web is just one small portion of the internet.

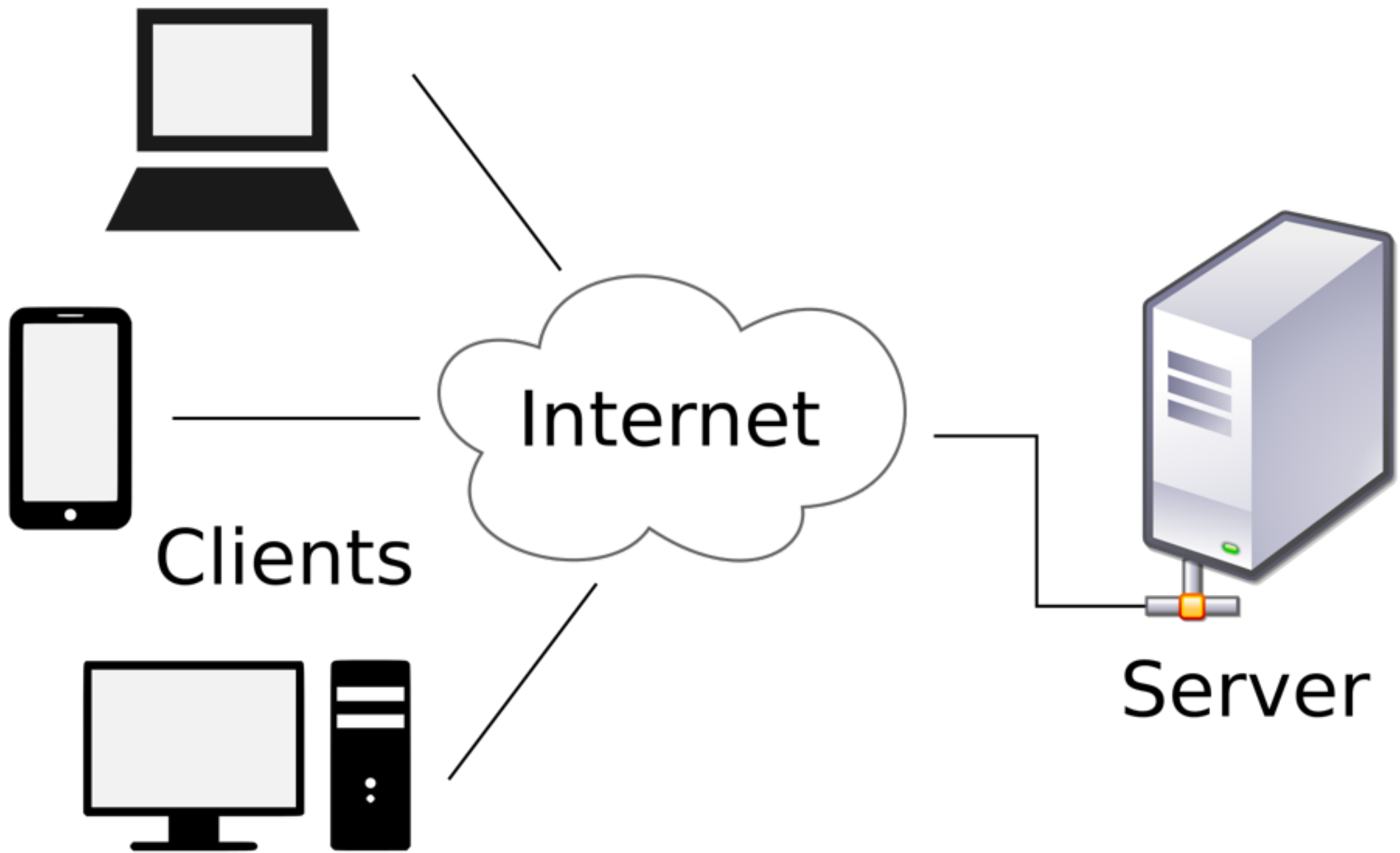
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CLIENT-SERVER MODEL

RESEARCH THESE 6 TERMS

- ▶ Host
- ▶ Client
- ▶ HTTP
- ▶ Request
- ▶ Response
- ▶ DNS

- ▶ Host - a computer that serves (or hosts) information for other computers
- ▶ Client - a computer that requests information from a host
- ▶ HTTP - Hypertext Transfer Protocol, one of the methods for transferring data on the internet (HTTP is used by the web)
- ▶ Request - A packet of information sent to a host detailing information the client would like
- ▶ Response - A packet of information sent by the host to the client giving the information that was asked for
- ▶ DNS - The system that maps domain names to computer addresses



DNS LOOKUP

A DNS lookup is a request that goes to your ISP to ask for the address of a computer on the internet.

Example: You type in [google.com](#) and the DNS server will respond with [172.217.3.78](#)

**WHAT DO FRONT AND
BACK-END DEVELOPMENT
FIT INTO OUR DIAGRAM?**

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GIT AND GITHUB

GIT

Git is a version control system. Similar to the filesystem on your computer it has files and folder, but it also tracks changes to the files and folders over time. It also has additional tools to help make collaboration easier.

GITHUB

Github is a web application that hosts Git repositories. It keeps your Git repositories stored on its servers (in the cloud) so that you, and your team, can access the repositories from anywhere.

WHY DO WE USE THEM?

- ▶ Code backups
- ▶ Revision tracking - the ability to see changes over time, revert changes, re-do changes elsewhere, etc.
- ▶ Easier collaboration - everybody can work in parallel and Git will combine the changes

SOME QUICK VOCABULARY

- ▶ Repository - a Git repository is what stores all of your code, as well as the different version of it. A git repository exists in the form of a (hidden) folder called .git
- ▶ Clone - a clone is a copy of another Git repository. You *clone* a repository to your computer so that you can have a local copy of all of the code
- ▶ Commit - a commit is set of changes made to the repository. If you open a file, delete 5 lines, then save your changes to Git, those changes are considered a commit.

GETTING STARTED WITH GITHUB

- ▶ Signup for an account
- ▶ Generate and attach SSH keys
- ▶ Create a new repository named `<username>.github.io`
- ▶ Clone the repository to your computer
- ▶ Add the files from our exercise earlier
- ▶ Commit the files
- ▶ Push the changes to Github

CONFUSED? IT'S OK

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JAVASCRIPT IN THE TERMINAL

REPL

The REPL (read-eval-print-loop) is a terminal application where we can type Javascript and have it evaluated in realtime. This allows us to experiment and receive feedback quickly.

JAVASCRIPT VARIABLES

A variable in Javascript is a name that you can assign values to. Variables can hold any valid Javascript value, and they can change value at any time. You can use a variable in any place that you could use a value.

QUESTIONS?

EXIT TICKETS