CSE312 - Web Dev

Activities

1. CSE199 Treasure Hunt

2. Write a browser Extension that enables chat on the course website

3. Write a web page that uses Google Maps

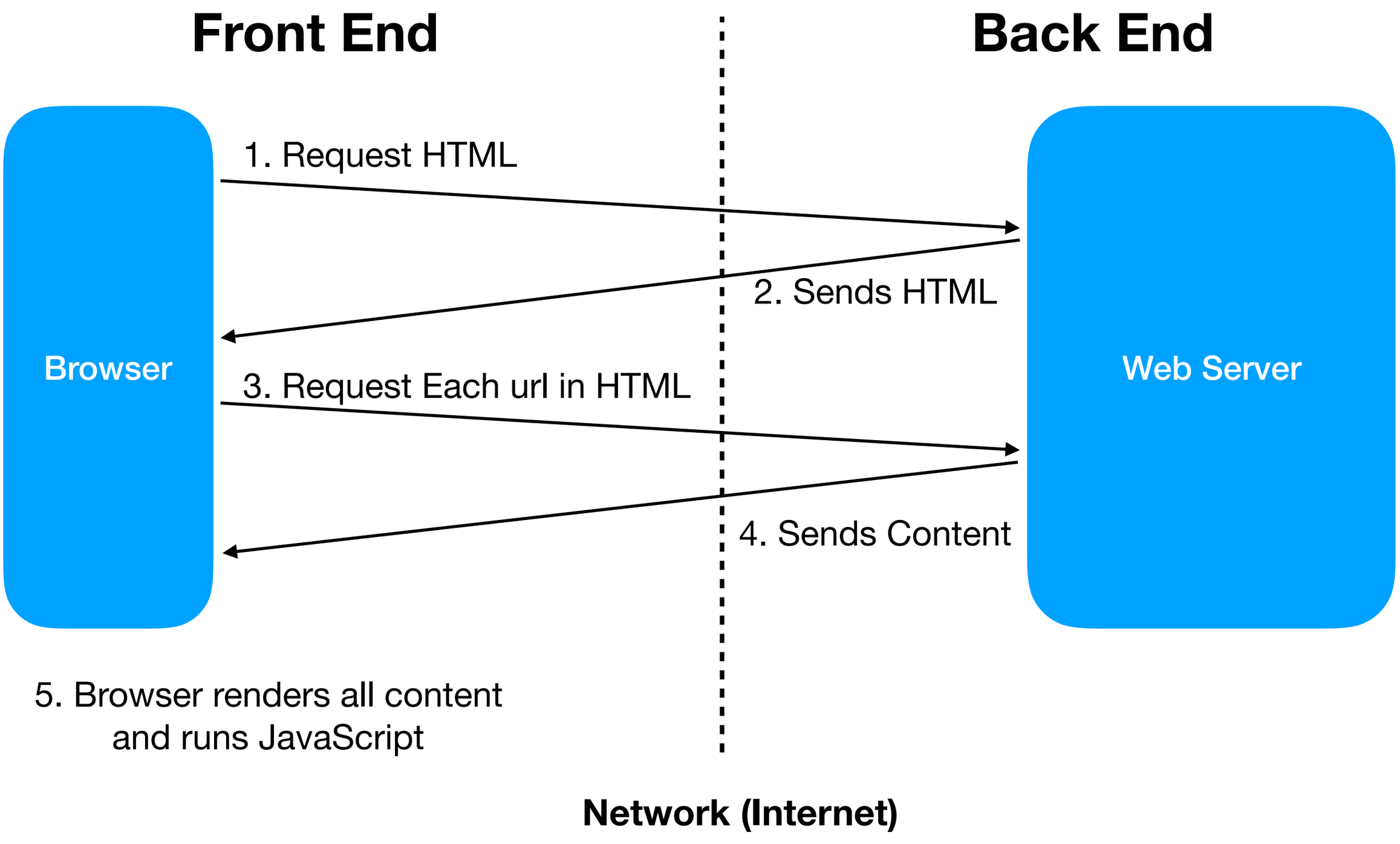
JSON

- A way of representing complex data as a string
- Can send these strings over the Internet
    - Primary format for sending data over the Internet
- Useful especially when communicating between different programming languages
    - Ex. JavaScript on the front end and a Python back end

JSON - Data Types

- String - Any value in quotes
- Number - Numerical values (not in quotes)
- Boolean - true or false (not in quotes)
- null
- Array - Comma separated values surrounded by [ ]
- Object - Comma separated key-value pairs surrounded by { }

Loading a Web Site



Loading a Web Site

- The server sends all content for a site to the user
- The browser reads the HTML/CSS/JavaScript to render the page
- *We'll have much more to talk about latter in the course, but for now..
- Key Point: The server send the entire page to the client

Loading a Web Site

- Key Point: The server send the entire page to the client
- **What are the implications/concerns with this?**

Live Demos

Activity 1

CSE199 Treasure Hunt

Complete phase 3 of the CSE199 treasure hunt

https://fury.cse.buffalo.edu/cse199

Demo: Show the last screen with the long token
-Keep this tab open and I'll check all 3 activities at the end of class

Browser Extensions

- Extensions allow additional JavaScript code to be injected into a website

- Useful when we want to modify a site without opening the browser console and typing commands after every page load

- Extensions automate this process

Browser Extensions

- Extension have some limitations
  - Cannot access variables or functions from the page
    - More specifically: Extensions and page source run in two different environments
- Extension can modify the DOM (HTML elements)

Live Demos

Activity 2

Write and upload a browser Extension that enables chat on the course website

There is a chat feature on the course website, but it's hidden

Write an extension that will display this chat on every page load

Demo: Go to the course website and hit refresh. Chat should appear automatically

Web APIs

- Web content/services designed to be used by programmers

- Loading a website in a browser returns HTML
    - Browsers renders this so it's readable for humans

- Requesting content from an API returns content readable by our software
    - Commonly returns JSON

Web APIs

- Web APIs can be abused
- Ex. Yahoo! Finance had an API to request 15 minute delayed stock prices for free
- http://www.jarloo.com/yahoo_finance/
- Used to be free an open
- Nothing from that documentation/blog works today

Web APIs

- If an API were completely open
    - What's stopping someone from creating their own finance website using Yahoo's API
    - What if Google search had a free API? I could make a search site just as good as Google
- They needs to limit API usage
    - Can track IPs and limit the number of requests, but there are ways around this

Web APIs - Keys

- To limit and track usage, most APIs require an API key
- Register an account and request an API key
- All usage must include your key
- Since the key is linked to your account, they can verify that you are using the API
    - Limit, or bill, you accordingly

Live Demos

Activity 3

Write a web page that uses Google Maps

Setup Google Maps on your own web page
-You will need to register an account and get an API key (It may ask for a credit card, but won't charge you. If this is an issue/concern, let me know)

Read through the API docs to implement the following:
-When a user clicks on the map, the latitude and longitude at the click are displayed somewhere on your page

Demo: Open your HTML in a browser, click on the map, show where the lat/long is displayed on the page