Web Development and HTML

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CS, NTHU

Outline

- How does Internet Work?
- Web Development
- HTML
  - Block vs. Inline elements
  - Lists
  - Links and Attributes
  - Tables
  - Forms

Outline

- **How does Internet Work?**
- Web Development
- HTML
  - Block vs. Inline elements
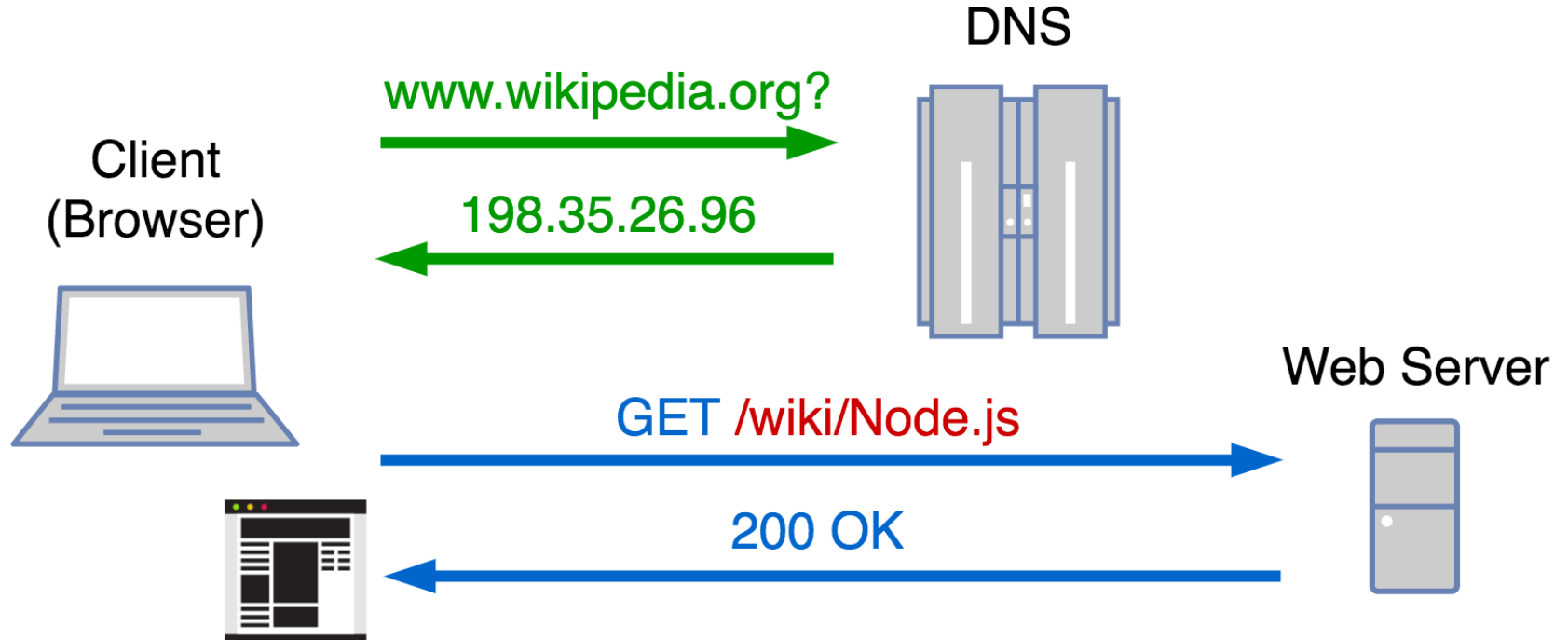 - Lists
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What Happened?

https://www.wikipedia.org/wiki/Node.js

From URL to Web Page

https://www.wikipedia.org/wiki/Node.js

HTTP

- A *protocol* is language spoken by machines
  - Defines structure of messages to be exchanged
- HyperText Transfer Protocol (HTTP) defines:
  - Messages: HTTP *request* and HTTP *response*
  - Requests: accessing *resources* (web pages) via **GET**, **POST**, **PUT**, and **DELETE** methods
  - Responses: *2*00 OK, *3*01 Moved, *4*04 Not Found, *5*00 Server Error, etc.

HTTP Messages

- Each HTTP message have

  - Initial line, header lines, and optionally body

  Request:

  ```
  GET /wiki/Node.js HTTP/1.1
  Host: www.wikipedia.org
  Accept: text/html,
          application/json
  ```

  Response:

  ```
  HTTP/1.1 200 OK
  Content-Type: text/html
  Content-Length: 3324

  <!DOCTYPE html>
  <html>
    <head> ... </head>
    <body> ... </body>
  </html>
  ```

- A resource can have different *presentations*

  - HTML, XML, JSON, etc.

Chrome Inspector

URI vs. URL vs. URN

- An Uniform Resource Identifier (URI) identifies a resource on the Internet
- An Uniform Resource Locator (URL) is a specialized URI that identifies a resource ***by reachable location***
  - E.g., "http://…", "https://…", "ftp://…"
  - Case sensitive
  - Must be URL encoded
    - "http://host/hello world!" → "http://host/hello%20world%21"
- An Uniform Resource Name (URN) is a specialized URI that identifies a resource ***by name***
  - E.g., "urn:isbn:0451450523"

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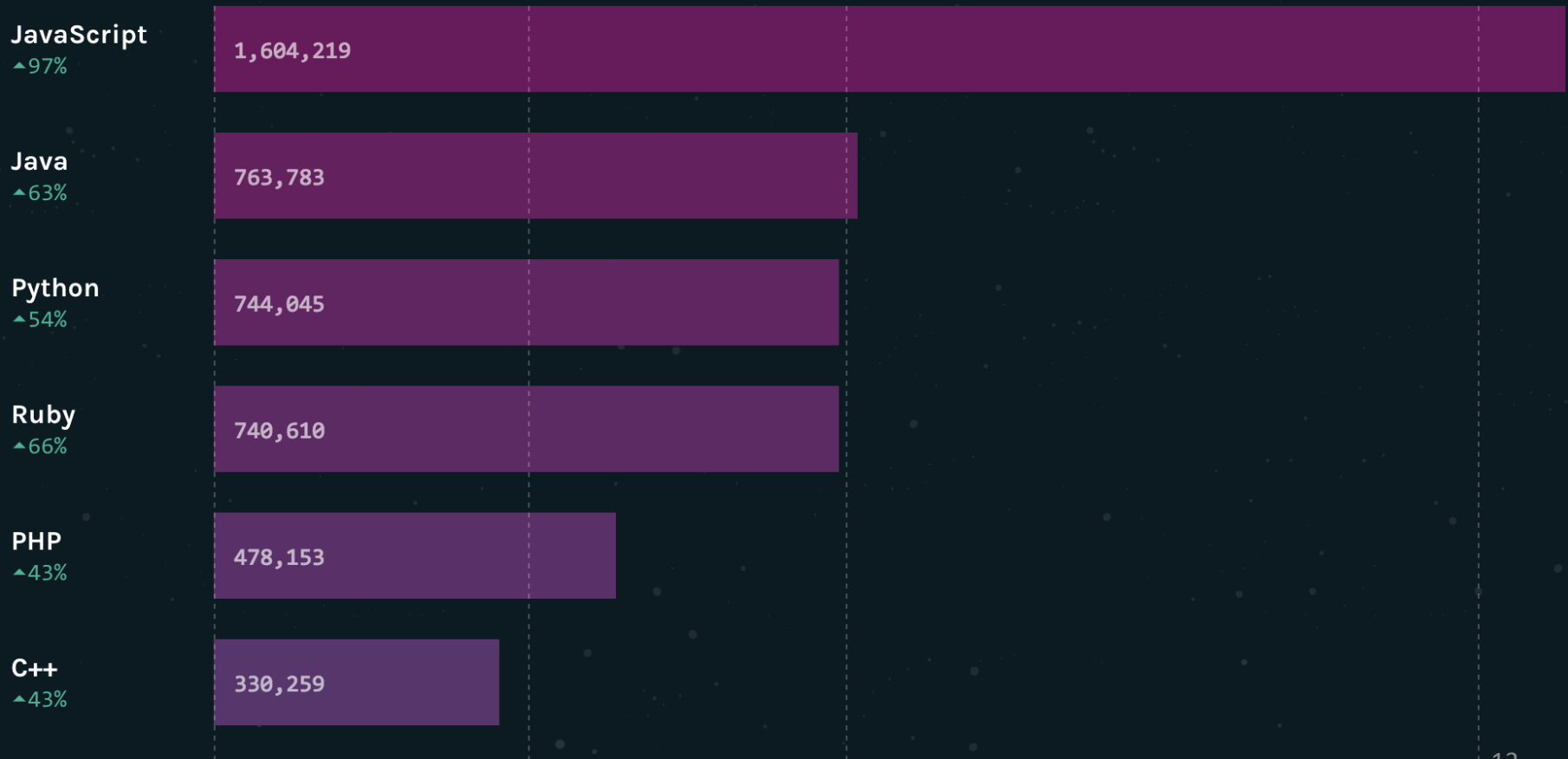 - Forms

Web Development

- To build a website that serves web pages
- Code to be run at client side (front end):
  - Displays pages
  - Interacts with user
  - Sends additional requests
- Code to be run at server side (back end):
  - Handles requests (from multiple clients)
  - Stores data
  - Sends "personalized" responses

- Currently, we focus on client-side development

What's Inside a Web Page?

- Hyper-Text Markup Language (***HTML***)
  - Content and structure
- Cascade Style Sheet (***CSS***):
  - Styles (e.g., color, font, width, height, etc.)
- ***Javascript***:
  - Interactions
  - A general-purpose programming language

Javascript Lies beyond Browsers

15 most popular languages used on GitHub by opened Pull Request and percentage change from previous period

Language		Pull Requests
JavaScript	▲97%	1,604,219
Java	▲63%	763,783
Python	▲54%	744,045
Ruby	▲66%	740,610
PHP	▲43%	478,153
C++	▲43%	330,259

Hello HTML

Viewport & Responsiveness

<meta name="viewport" content="width=device-width, initial-scale=1.0">

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Block vs. Inline Elements

Lists

Links and Attributes

Tables

Forms

Interacting with Servers

- Queries
  - E.g., specialized presentation for current user
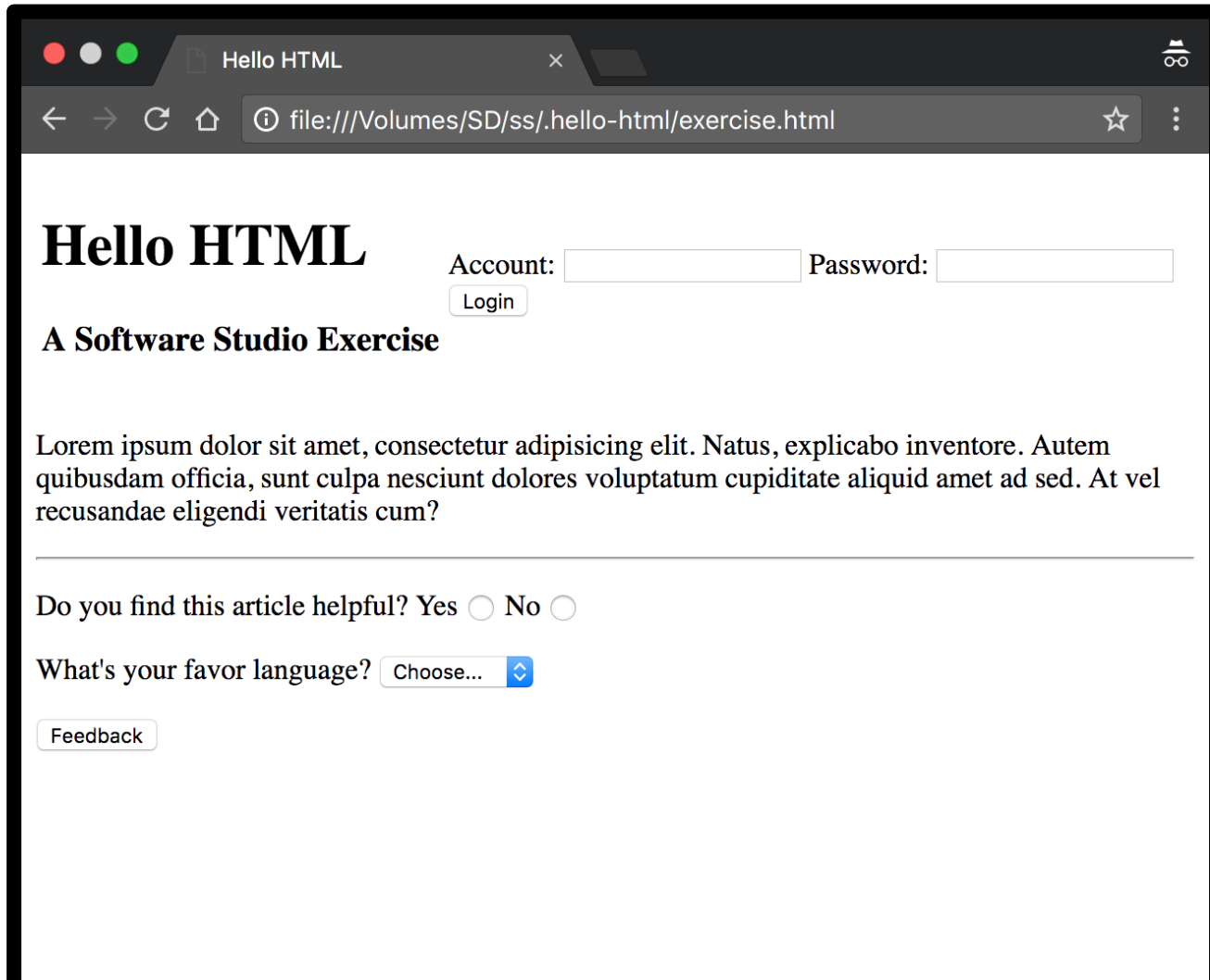- Passing arguments
  - E.g., user login

Form Validation

Assigned Reading

- [HTML5 tutorial](#)

Reference

- [Mozilla Developer Network](#) (MDN)

Exercise