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# HOW THE WEB WORKS

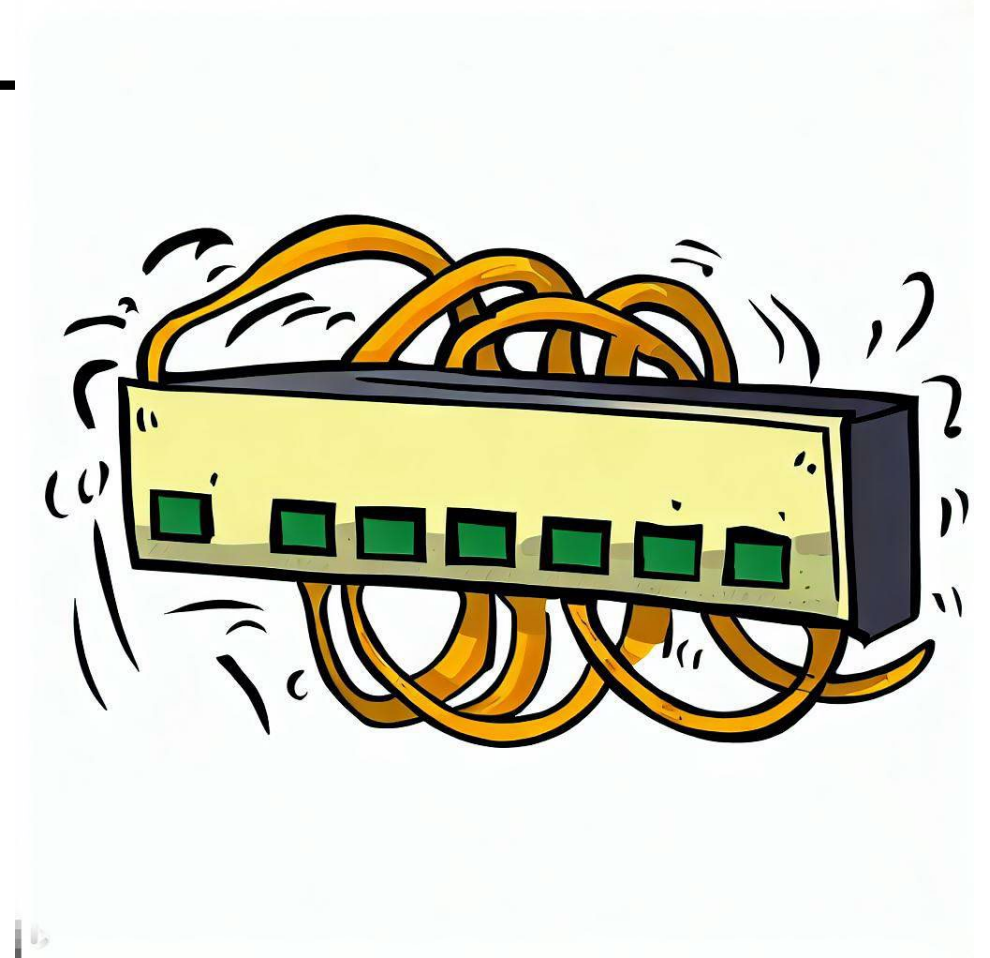
CTD Intro Week 8

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# NETWORKS

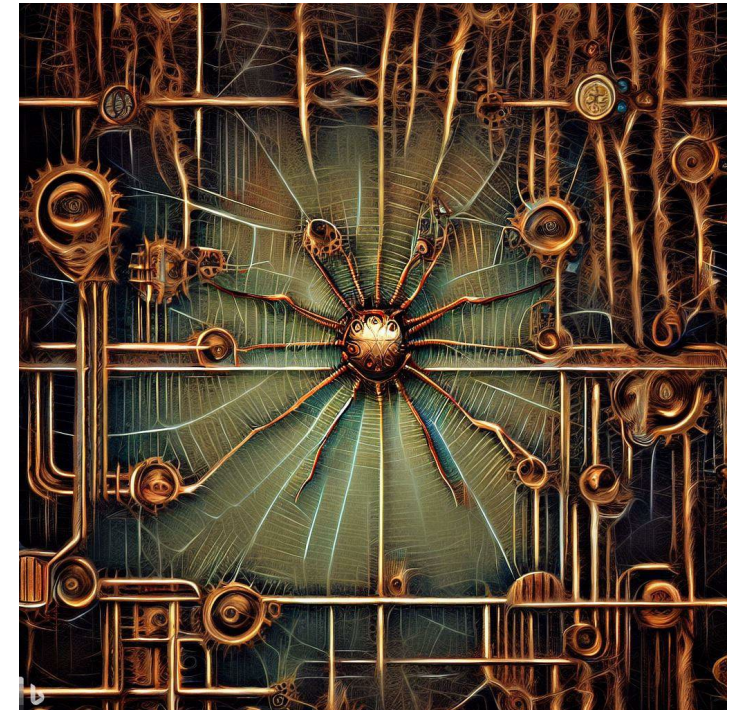
- Packet switched digital networks
  - vs circuit switched (land lines)
- Network protocols
  - ARPANET
  - IP – Internet Protocol
    - IP addresses
    - Routers, switches
  - TCP – reliable end-to-end transfer
  - UDP – simple but unreliable
  - Domain names
  - DNS – Domain Name System/Service
- Ethernet
- Cellular networks



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# WORLD WIDE WEB

- Hypertext
- World Wide Web
  - HTML – Hypertext Markup Language
    - Elements for formatting and links, etc. (coming next week)
- URL – Universal Resource Locator
  - file://, http://, https://
- HTTP – Hyper Text Transport Protocol
  - Built on TCP/IP Protocol
- HTTPS – Secure
  - SSL – Secure Socket Layer
    - Public key encryption, symmetric ciphers
- Search Engines
  - Web crawlers
  - Sophisticated algorithm to find relevant content based on the query (e.g. google page rank)
    - How many pages link to this page? Etc. Constantly fine tuned.
  - LLM summarization







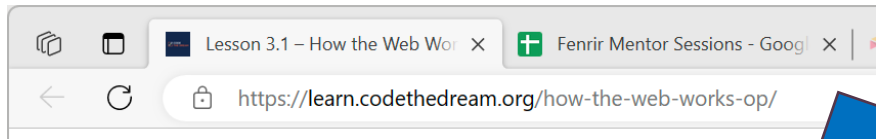
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# CLIENT / SERVER ARCHITECTURE

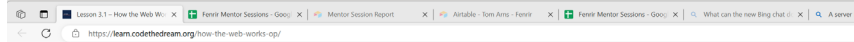
- Distributed systems
    - Separate large compute and storage from display and interaction
  - Server
    - AKA back-end
    - Datacenter
  - Client
    - Browser, phone app, desktop app
    - javascript
  - Web Server
    - Server which uses http(s) protocol
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# WEB IN ACTION



https get  
lots of network hops



## Lesson 3.1 – How the Web Works

### Learning Objectives

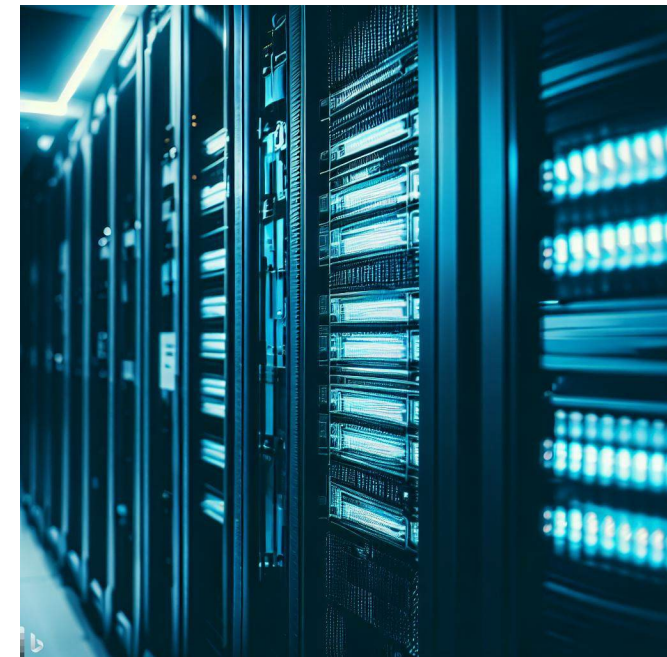
- How the Web Works
- URLs
- Domain Names
- IP addresses
- The Domain Name System
- HTTP and HTTPS

### Materials

Go to each link in this list and read through the content on that page. If there are links you are redirected to as you read/work through the content, follow those links as well and read the content there also.

- [The Odin Project – How Does the Web Work?](#)

html page  
lots of network hops



server in a datacenter

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# Q&A

- How is git, github, and vscode working?
- Demo