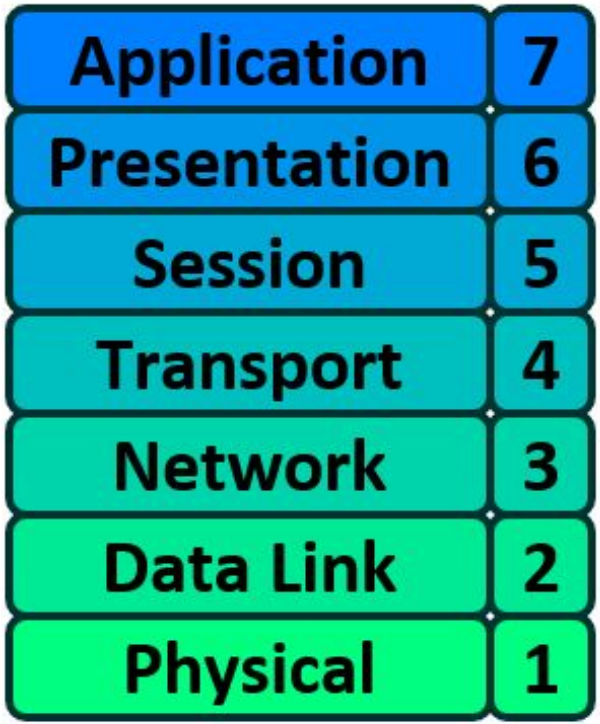
CSE 29 Week 8 Discussion

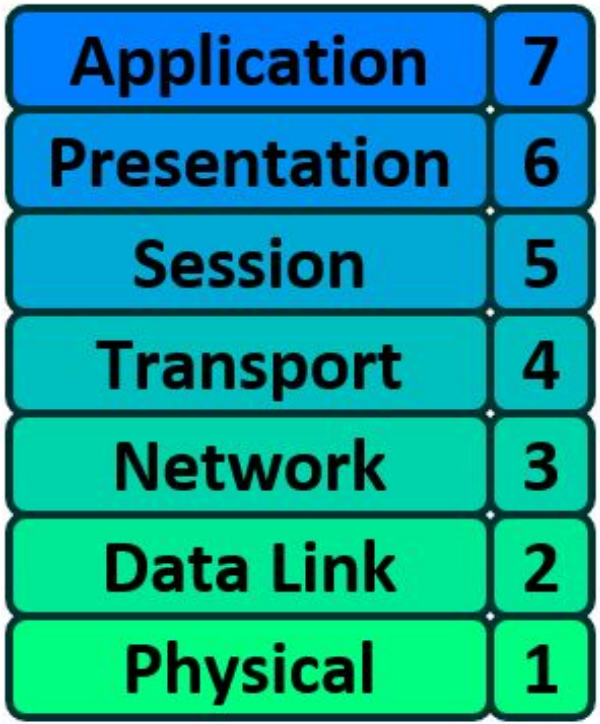
Networking and the HTTP Protocol

OSI Model (Open Systems Interconnection)



- A conceptual framework / standard for how data is sent across the internet from one computer to another.
- Each layer handles different important tasks (addressing, error correction, physics, etc)

OSI Model (Open Systems Interconnection)



HTTP (user interface)

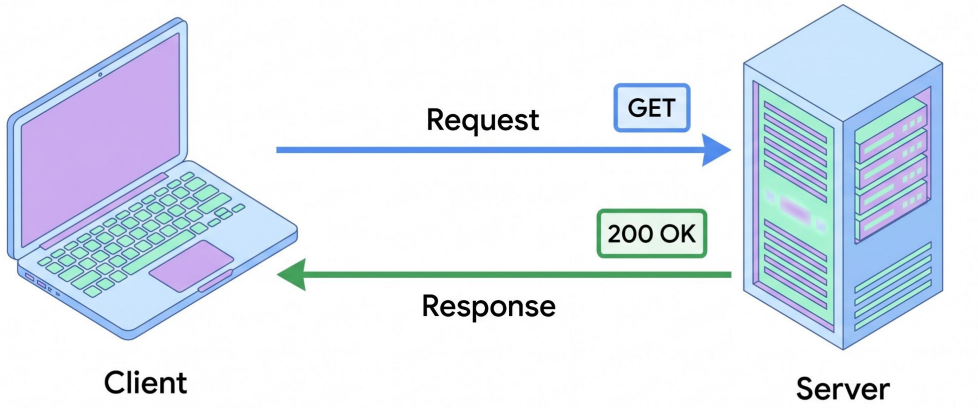
TCP (reliability)

IP (addressing, routing)

WiFi, Ethernet (how does it move in the medium?)

HTTP (hypertext transfer protocol)

- A protocol used to transfer data between clients and servers (i.e. browser to web server and vice versa)
- Client initiates communication



HTTP (hypertext transfer protocol)

- Request structure

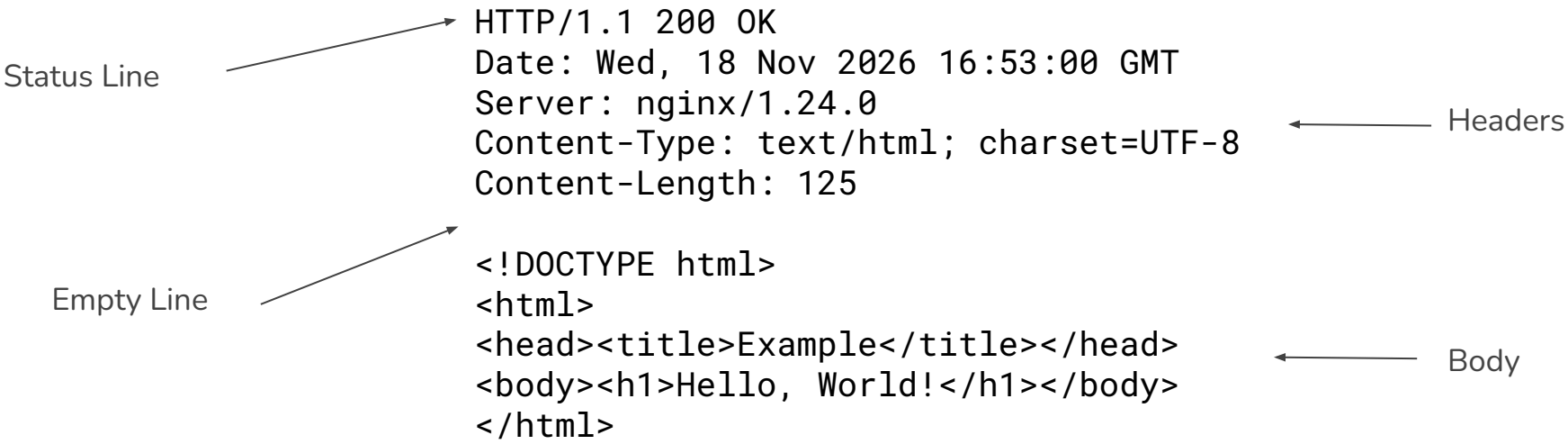


HTTP (hypertext transfer protocol)

Method	Purpose	Has Request Body?
GET	Retrieves data or a resource from the server without altering it.	No
POST	Submits new data to the server (e.g., submitting a form or creating a new record).	Yes
PUT	Replaces an entire existing resource with the newly provided data.	Yes
PATCH	Applies partial updates to an existing resource without replacing the whole thing.	Yes
DELETE	Removes the specified resource from the server.	Optional

HTTP (hypertext transfer protocol)

- Response structure
- Status Codes (2xx = success, 3xx = redirection, 4xx = client error, 5xx = server error)



GET, POST, PUT, PATCH, DELETE



```
POST /api/users HTTP/1.1
Host: example.com
User-Agent: Mozilla/5.0
Content-Type:
application/json
Content-Length: 39

{
  "name": "Jane Doe",
  "role": "admin"
}
```

If we go to the following URL in e.g. a browser:

http://ieng6-201.ucsd.edu:8250/post?user=Aaron&message=Hi

What is the hostname of the computer we are we connecting to?

What's the port we're connecting to?

What's the first line of the HTTP request our browser sends?

GET, POST, PUT, PATCH, DELETE



```
POST /api/users HTTP/1.1
Host: example.com
User-Agent: Mozilla/5.0
Content-Type:
application/json
Content-Length: 39

{
  "name": "Jane Doe",
  "role": "admin"
}
```

If we go to the following URL in e.g. a browser:

http://ieng6-201.ucsd.edu:8250/post?user=Aaron&message=Hi

Show Browser Tools

What is the hostname of the computer we are we connecting to?

ieng6-201.ucsd.edu

What's the port we're connecting to? 8250

What's the first line of the HTTP request our browser sends?

GET /post?user=Aaron&message=Hi HTTP /1.1

cURL (client URL)

- Open-source command-line tool that is used to send data to/from a server using HTTP (or other protocols)
- https://cse29.site
- ascii.live/parrot
- You can download things

Number Server

Hostname: ieng6-201.ucsd.edu

Port number: 5555

Endpoints:

- /shownum
- /increment

Questions

- **Project 4**
- Lecture content: pointers, stack, memory allocation, ...
- Labs: unix commands, git, vim, ...
- etc

Reminders

- Lab 8 check-off due **11AM** Monday, 11/23
- Project 3 resubmission due **10PM** Monday, 11/23
- Project 4 due **10PM** this Monday, 11/23