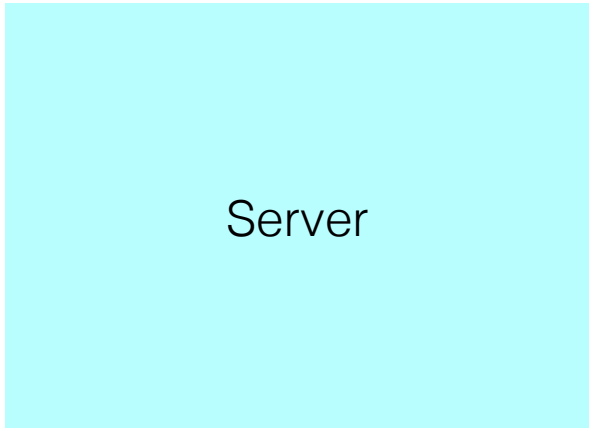
CSC 309
The Big Picture

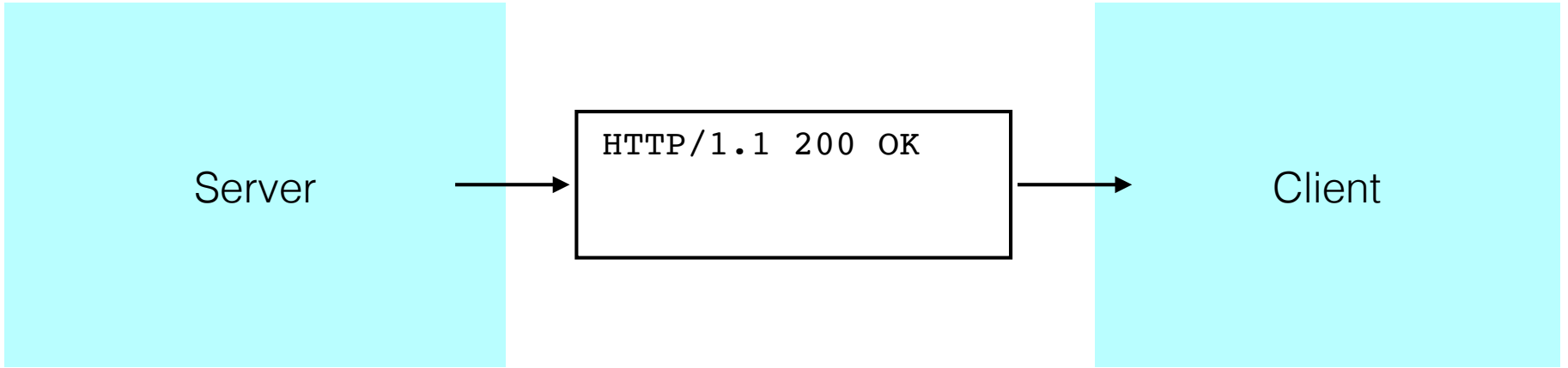
Command line - curl
- wget Postman

- Client sends HTTP request to server
- How?
  - form submit (POST)
  - ajax XMLHttpRequest
  - address bar URL
  - link



- process listening on a TCP socket
- processing request
  send a response

- What is the server?



- Response?
- Status?

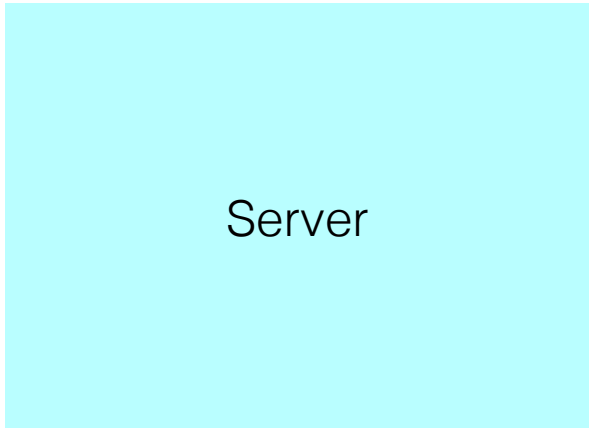
- Text
- JSON
- serialized objed (?)
- XML
- HTML
- CSS, Javascript

200 - success

3xx - redirect

4xx - client error

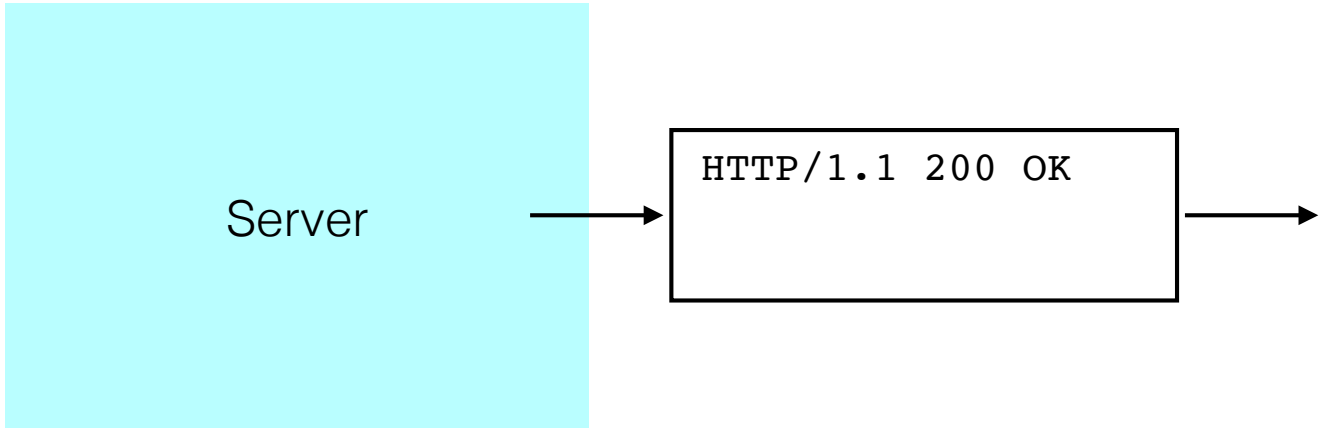
5xx = server error



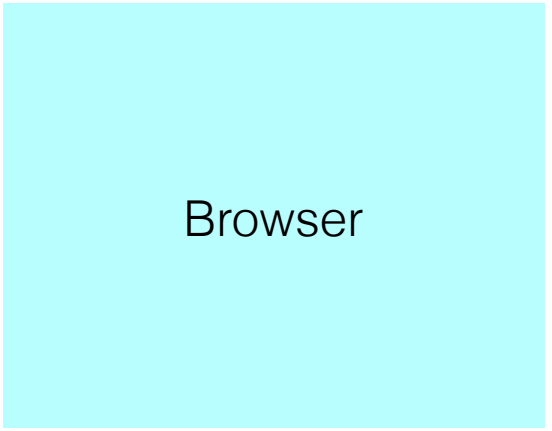
- Main task of the server is to…

- Server Technologies:
  - routes map from URL to method in server
  - Express - framework - minimalist
    - middleware - body-parser (is fs middleware)
  - Node - V8 javascript runtime
    - continuous non-blocking - single threaded
    - event loop
  - Persistent data - DB - file
    - relational - relational algebra - SQL
    - NoSQL - documents object storage - MongoDB
      - BSON - Binary JSON

- Server Architecture: N-tier
  MVC
  - Models - represent + store data
  - Controller - logic - manipulate model
  - View - what the user sees
- Value of a framework?
  - reusable code - handle common operation
  - separate logic
  - opinionated frameworks enforce good practice

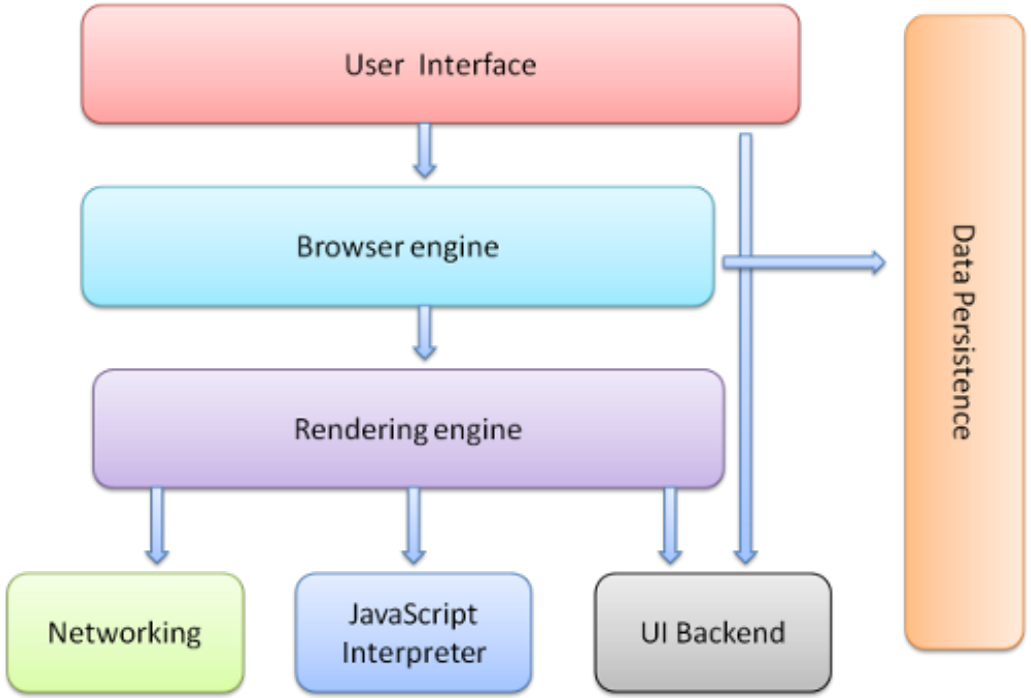


- Sends back data - type?



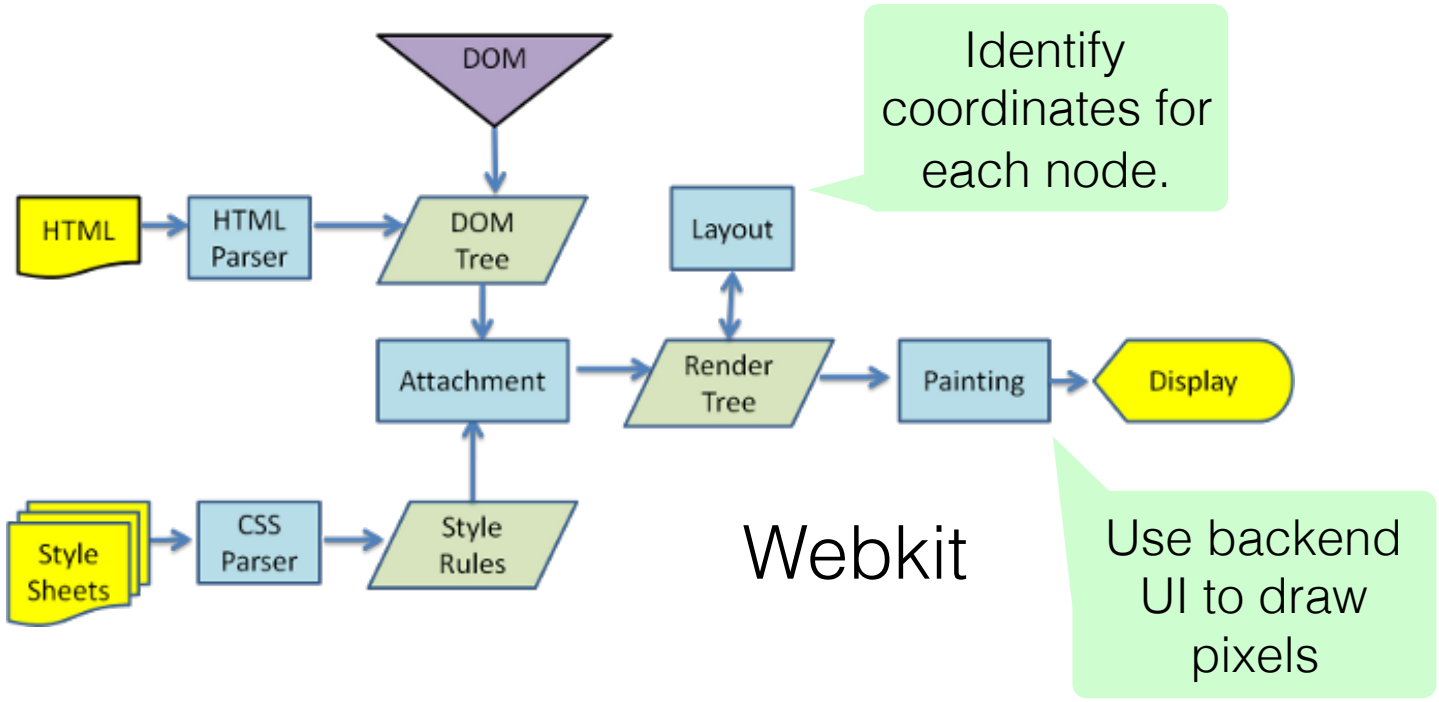
- Browser displays the resource you requested
- How?

- User Interface
  - Address bar
  - Forward/back buttons, etc
- Browser Engine
  - marshals actions between UI and rendering engine
- Rendering Engine
  - displays requested content
- UI Backend
  - Used for drawing basic objects like windows



https://www.html5rocks.com/en/tutorials/internals/howbrowserswork/

- What is the DOM?



- DOM is the data structure that results from parsing the HTML
- The DOM is combined with CSS rules to form the render tree for painting

- HTML
  - Mixture of semantic and layout information
  - Hierarchical structure matches the DOM
  - Elements, attributes
  - Forms

- What is HTML?

- How does it relate to the DOM?

- What is CSS? (How does it work?)

- How is Javascript used in the browser?

- What is JQuery? What is it for?

- What is Ajax?

- REST