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Web Development Overview

Topics

- Web Application Basics

- Client and server architecture
  - User Interaction
  - HTTP Messages
  - Server-side
  - Client-side

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Web Applications

- Web applications are accessible through browsers
  - Facebook, Amazon, Netflix

- A web application displays dynamic content based on...
  - User's request
  - User's data & previous interactions
  - Security & access considerations

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User Interaction

The user opens a **browser**:

1. Types an URL in the address bar or clicks a link in a web page

2. The browser **(client-side)** sends a **request** to the server

3. The server **(server-side)** returns a **response** back to the browser

4. Browser receives the response and renders the web page to the user

User   Browser   Request   Server

Client-side   Response   Server-side

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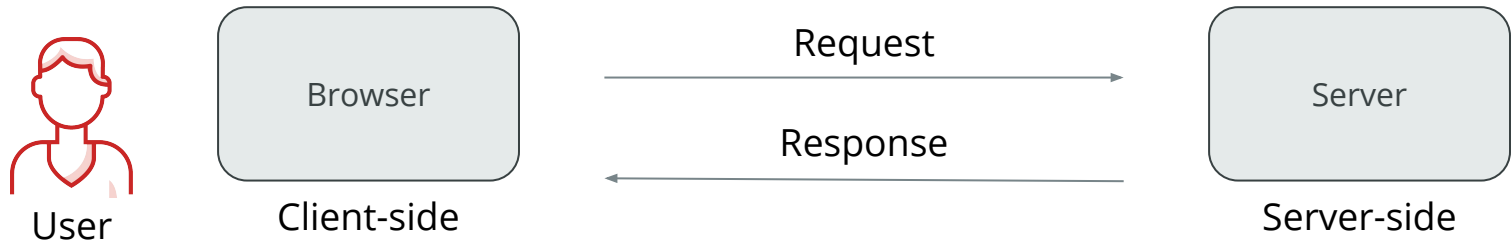
Web requests & responses

- Browsers and web servers communicate using the **HTTP protocol**

- An **HTTP request** is sent when users interact with a web page
  - E.g., click a link on a web page, submit a form, a search on a web page

- The server waits for requests and sends back an **HTTP response** to the browser

- Successful HTTP responses contain the requested resource (e.g. HTML page)

User   Browser
Client-side

HTTP Request

HTTP Response
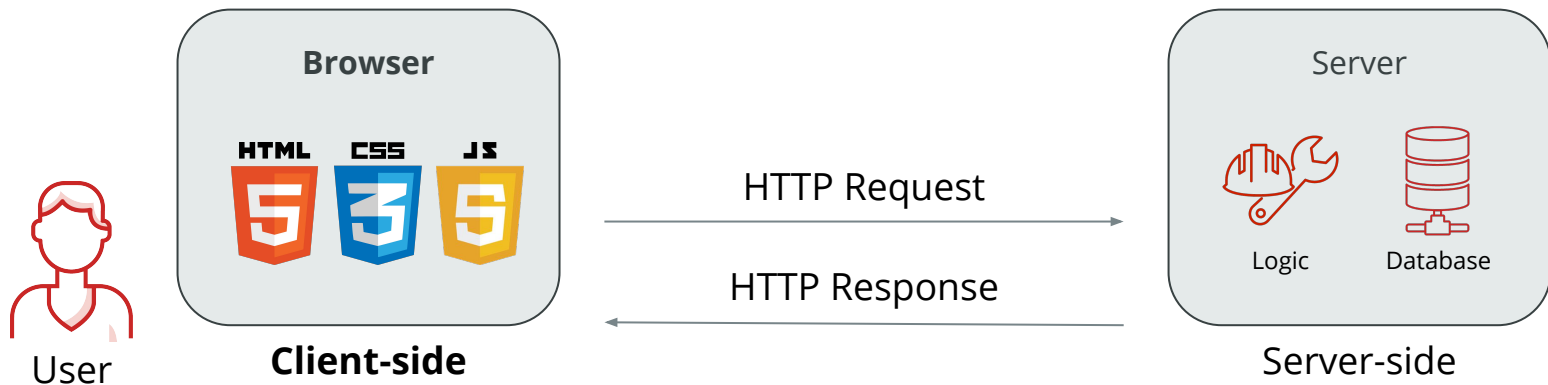
Server
Server-side

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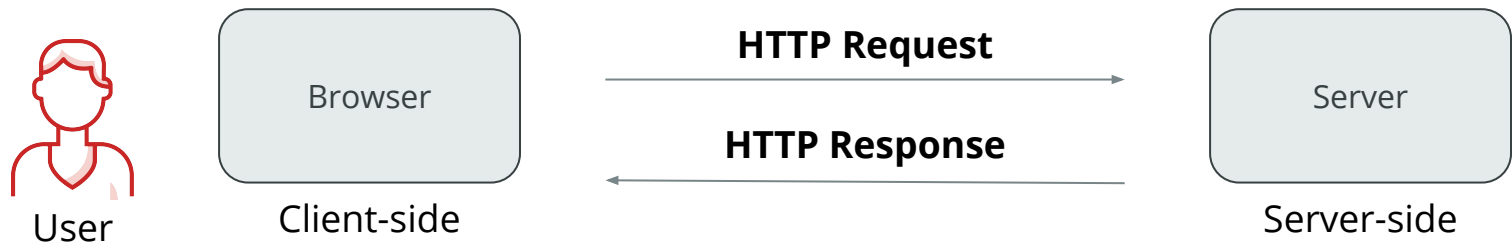
Server-side

- Listens for incoming requests
- Processes requests
  - Retrieves needed data and stores relevant info
  - Controls access to data and customizes responses
- Sends response back to the browser
  - Dynamically built HTML page
  - Other resources required by that HTML page

Server

Logic   Database

User   Client-side

HTTP Request

HTTP Response

Server-side

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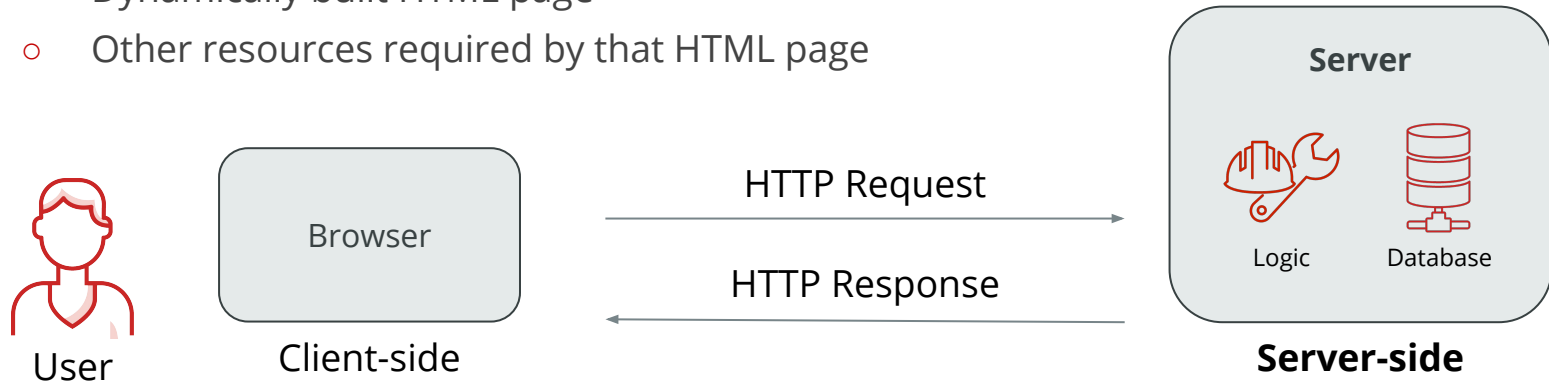
Client-side

- Client-side code runs in a browser
- Browser renders the response to the end-user
  - Basic web page components (HTML)
  - Styling of those components (CSS)
  - Behavior and interactivity of those components (JS)

User

Browser

HTML   CSS   JS

Client-side

HTTP Request

HTTP Response

Server

Logic   Database

Server-side

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Summary

- Introduction to Web Applications

- Client and server architecture
  - User Interaction
  - HTTP Messages
  - Server-side
  - Client-side

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Thank You!