Week 4.1

What are we covering this week?

4.1 - DOM, Dynamic frontends, Connecting FE to BE

4.2 - Chrome developer tools, Why frontend frameworks

What have we covered until now

0 to 1

Foundation

Foundation Javascript, async nature of JS
Node.js and its runtime
Databases (NoSQL/SQL)
Mongo and Postgres deep dive
Typescript beginner to advance

Backend

Backend communication protocols
Express basic to advance
ORMs
Middlewares, routes, status codes, global catches
Zod
MonoRepos, turborepo
Serverless Backends
OpenAPI Spec
Autogenerated clients
Authentication using external libraries
Scaling Node.js, performance benchmarks
Deploying npm packages

Frontend

Reconcilers and Frontend frameworks
React beginner to advance
Internals of state, Context API
State management using recoil
CSS you need to know of, Flexbox, basic styling
Frontend UI frameworks, Deep dive into Tailwind
Containerization, Docker
Next.js
Custom hooks
In house auth using next auth

Basic Devops

Docker end to end
Deploying to AWS servers
Newer clouds like fly/Remix
Nginx and reverse proxies

Projects

GSoC Project setting up and issue solving
Building Paytm/Wallet End to End

Now we'll move on to the frontend, catching up with backend from time to time

0 to 1

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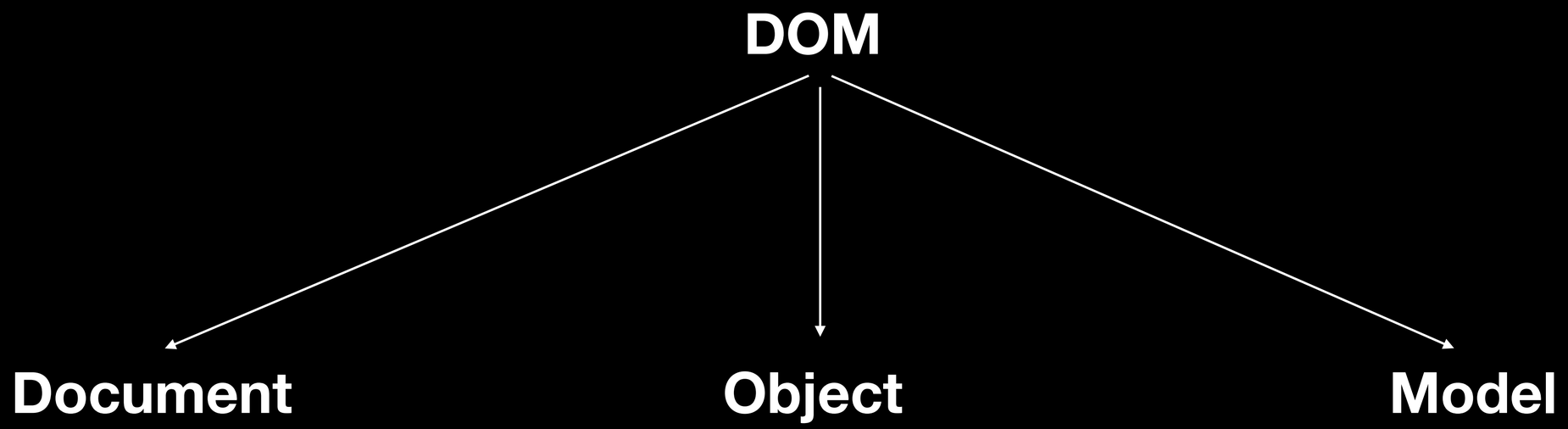
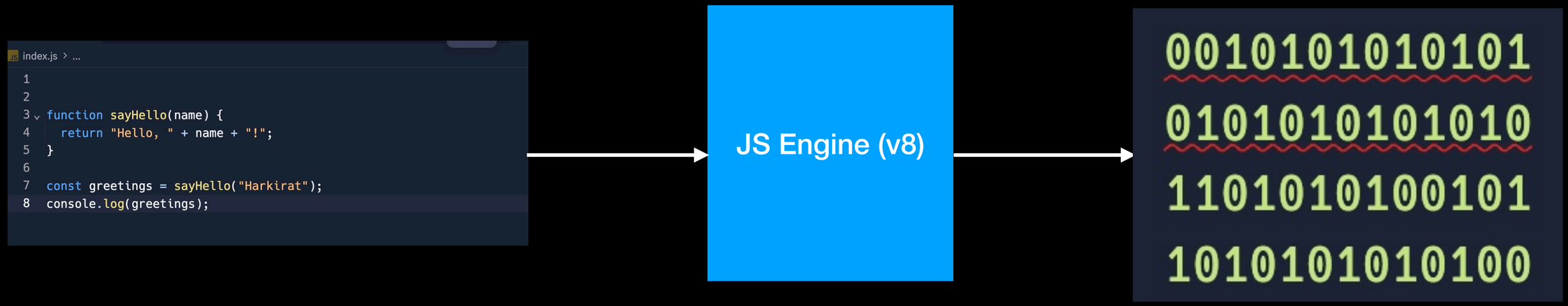


The DOM (Document Object Model) API is a programming interface for web documents. It represents the page so that programs can change the document structure, style, and content. The DOM represents the document as a tree of objects; each object represents a part of the page.

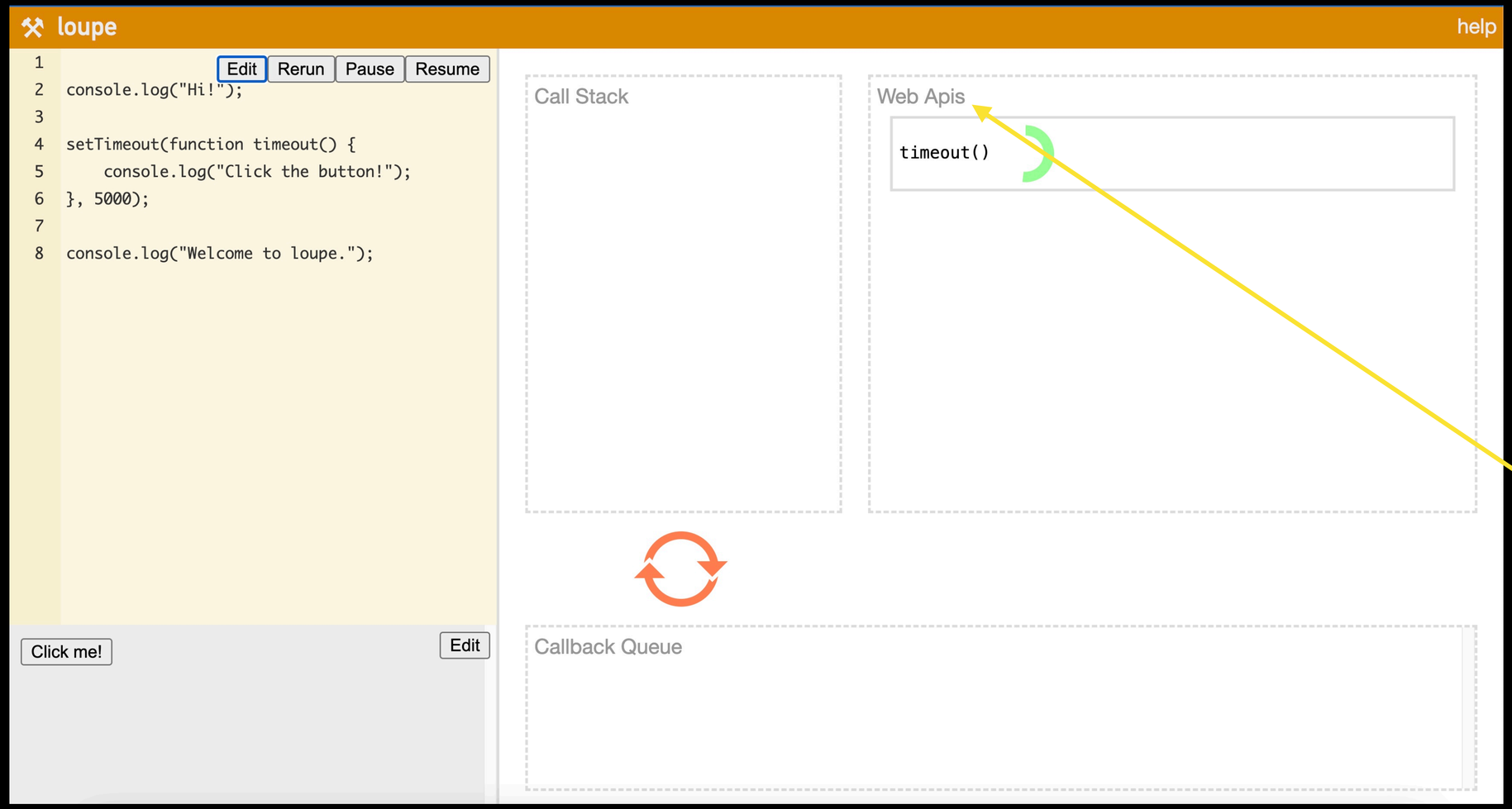
What was Javascript?

It was an implementation of the ECMAScript spec



What was Javascript?

But the Javascript that runs in your browser has some extra functionality



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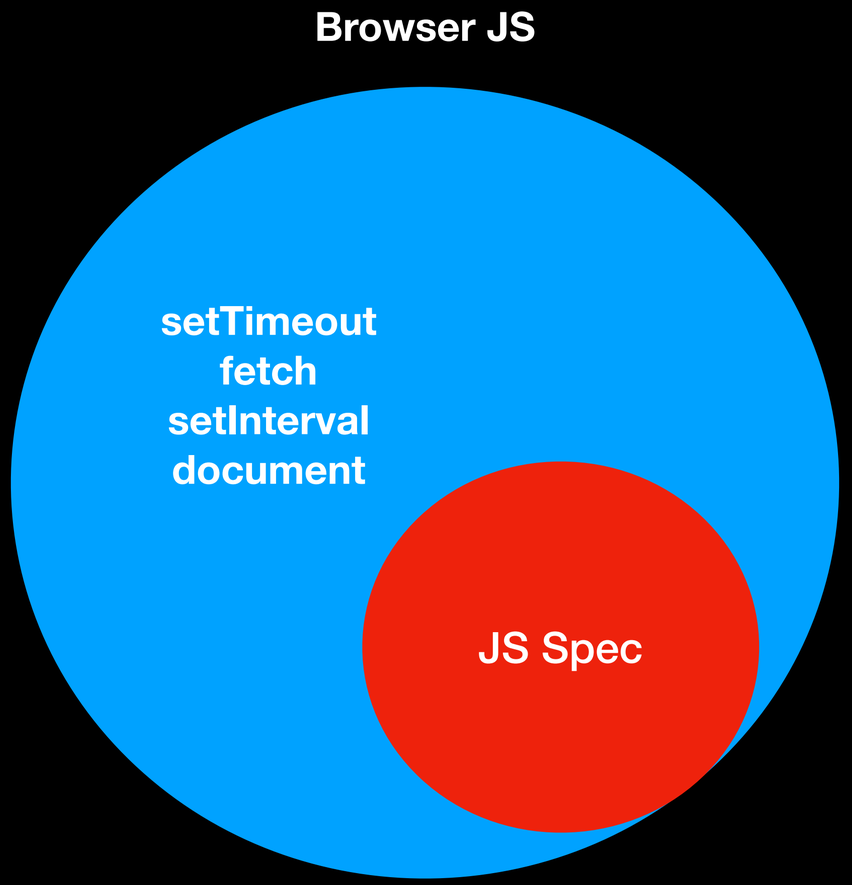

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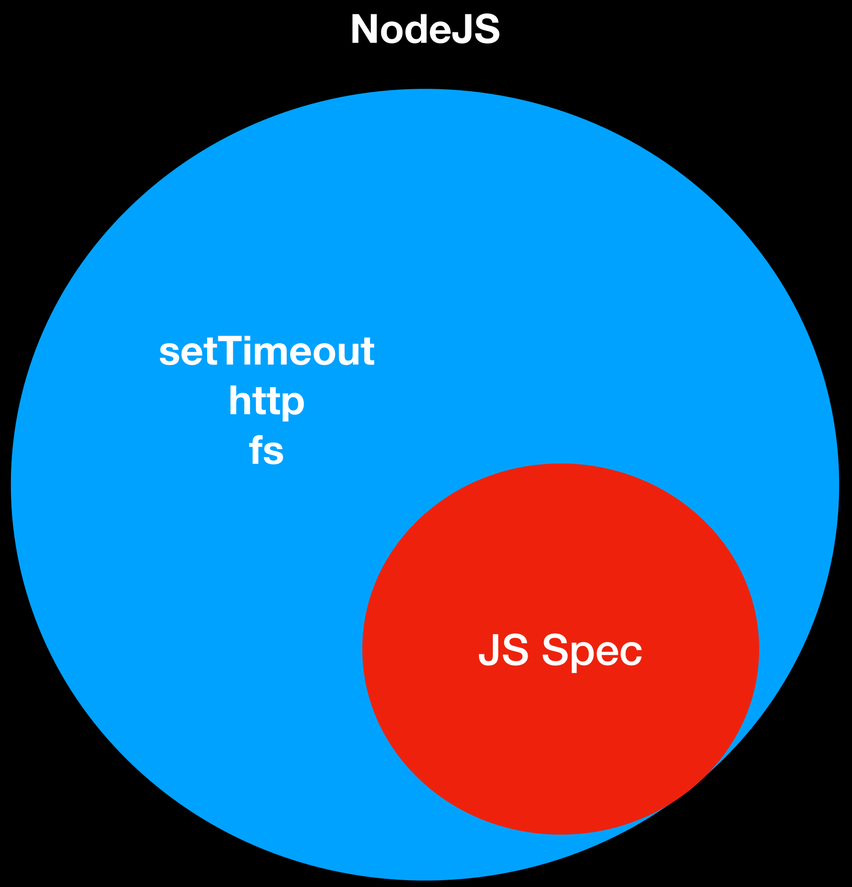

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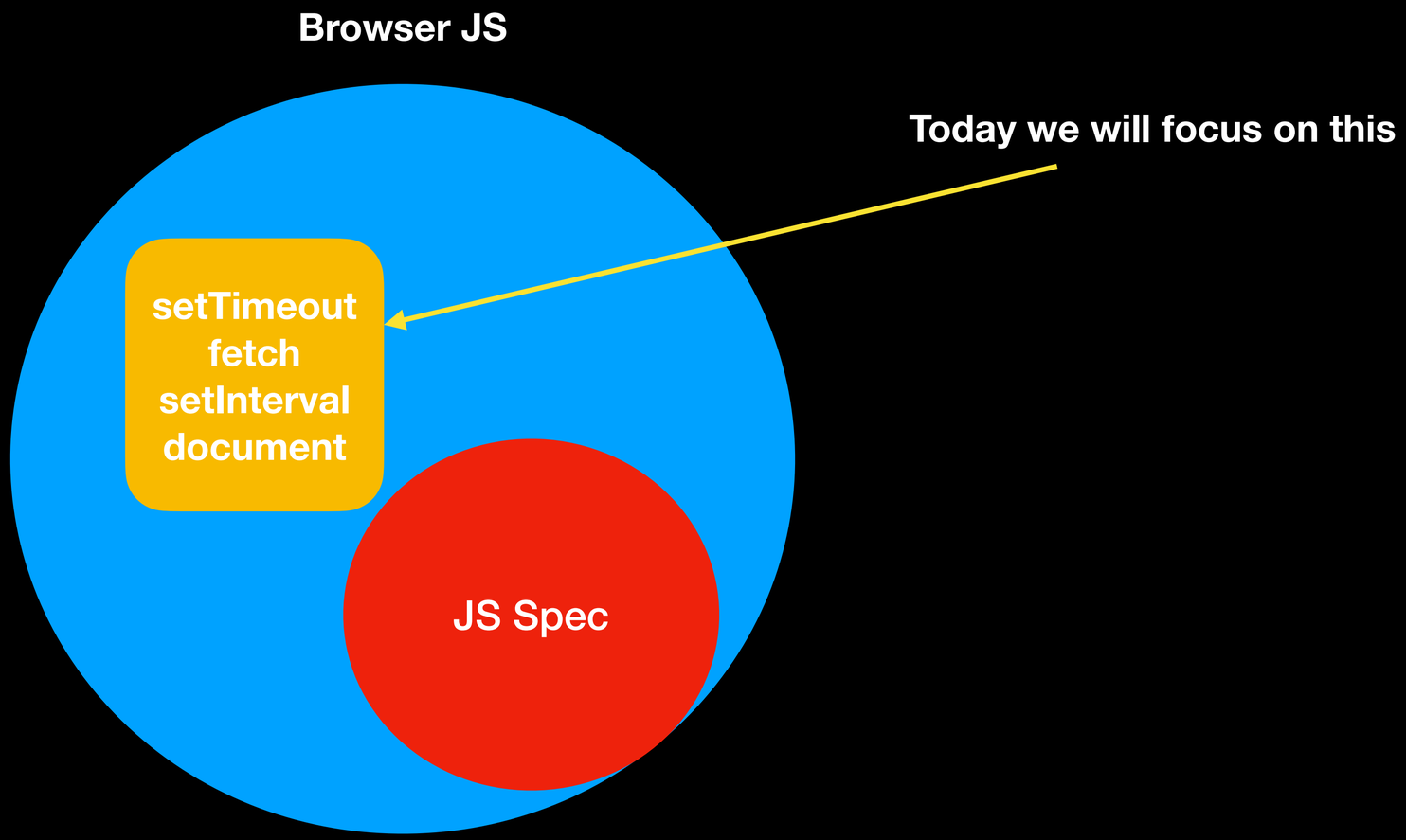

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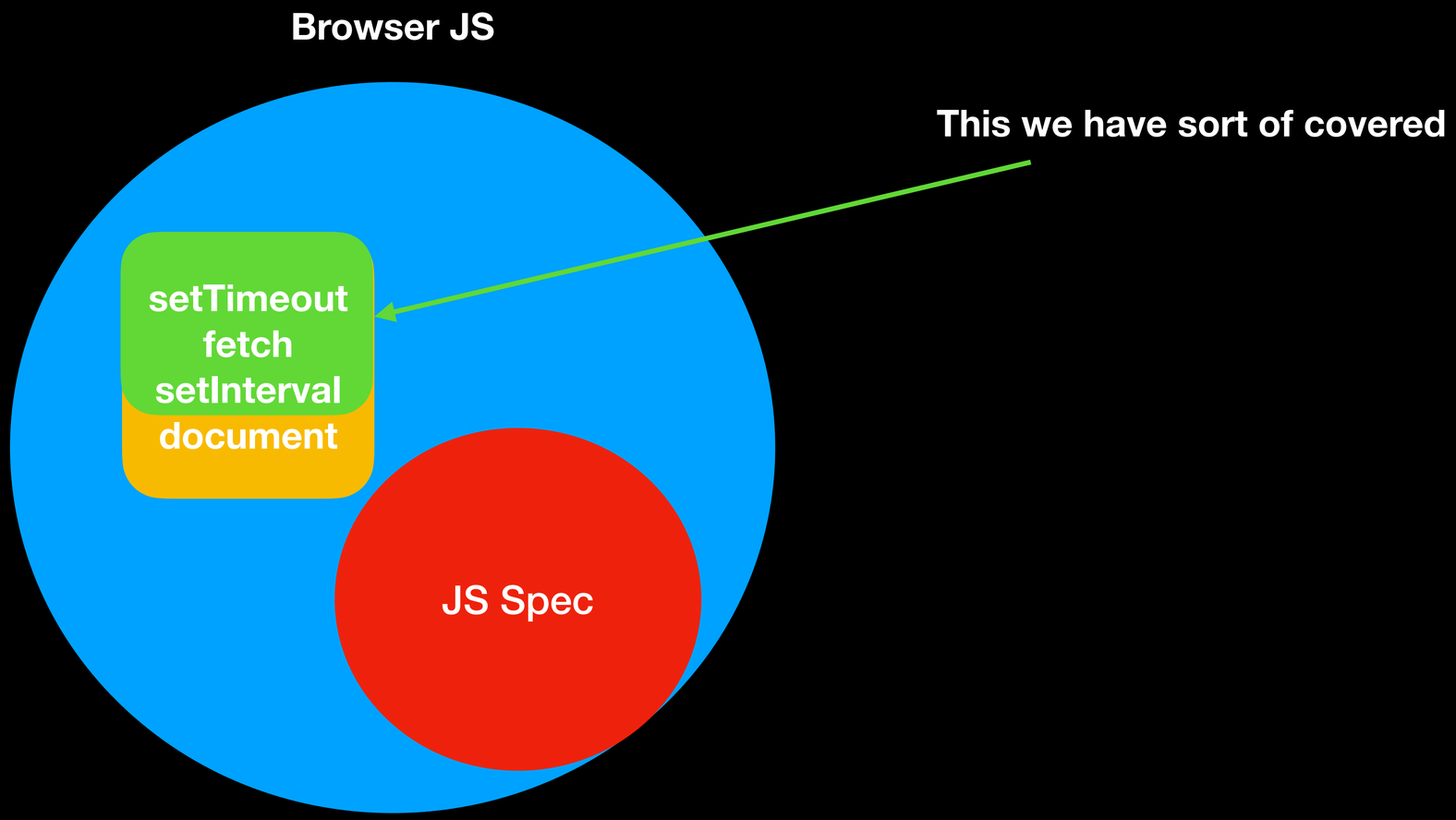

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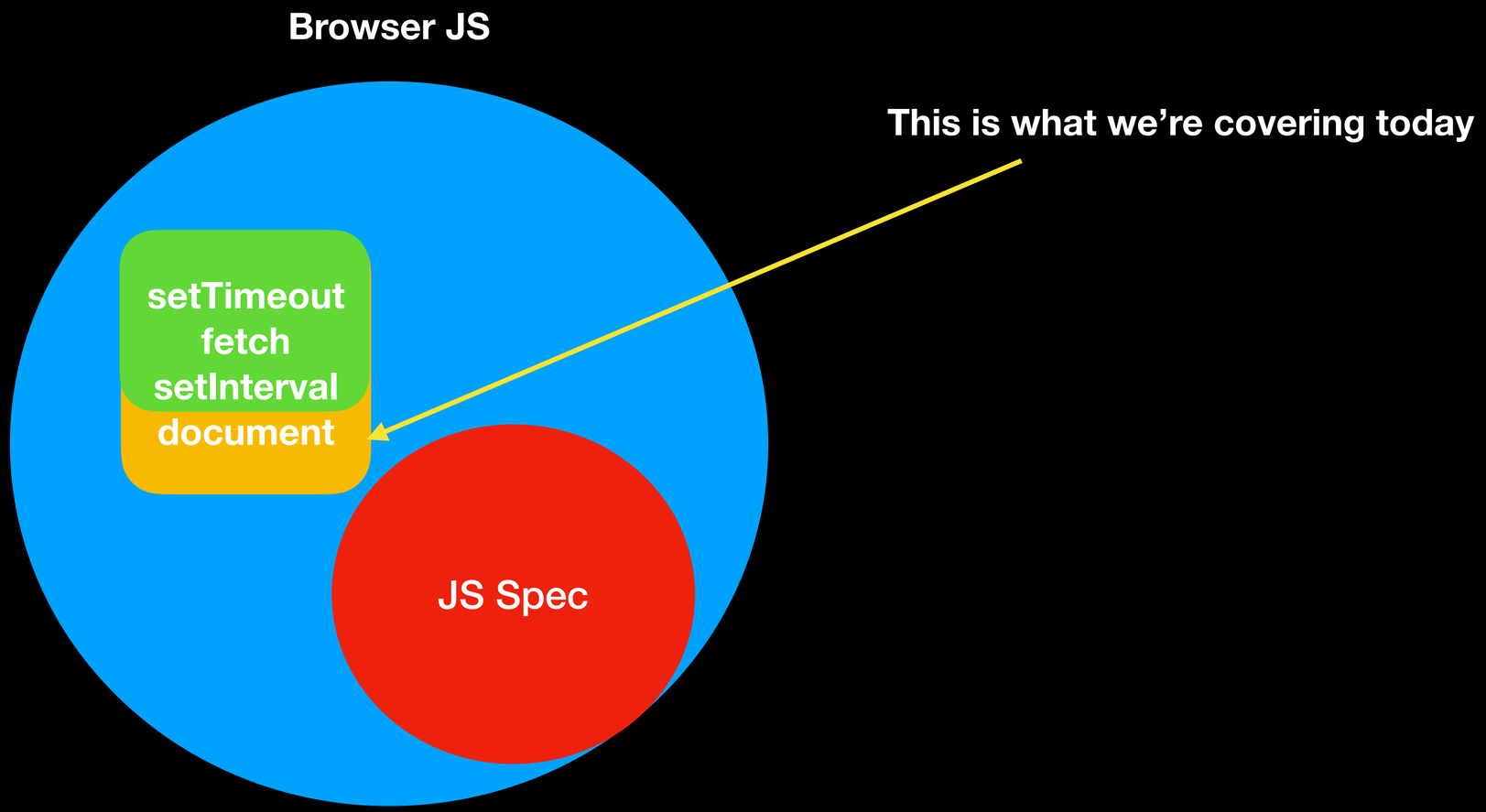
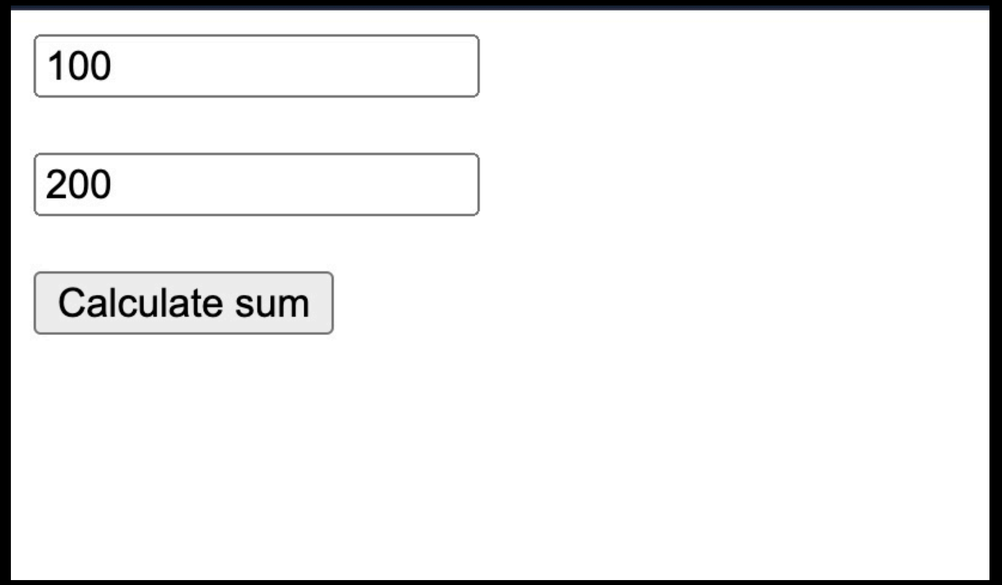


DOM / Document object

Lets create a simple website to calculate the sum of two numbers

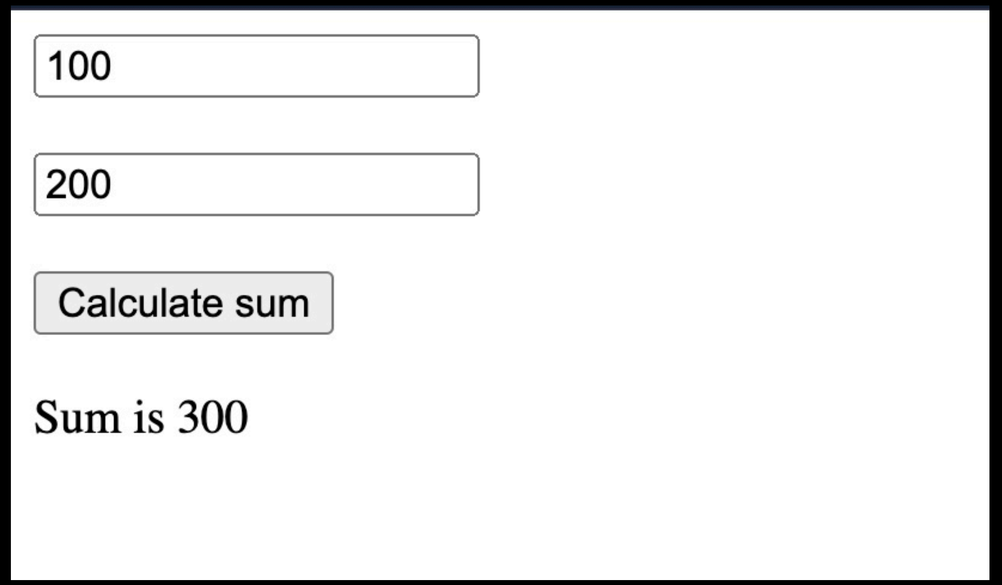
This is a static website, clicking the button does nothing



DOM / Document object

But making them dynamic is hard
What do I mean, when I say dynamic -

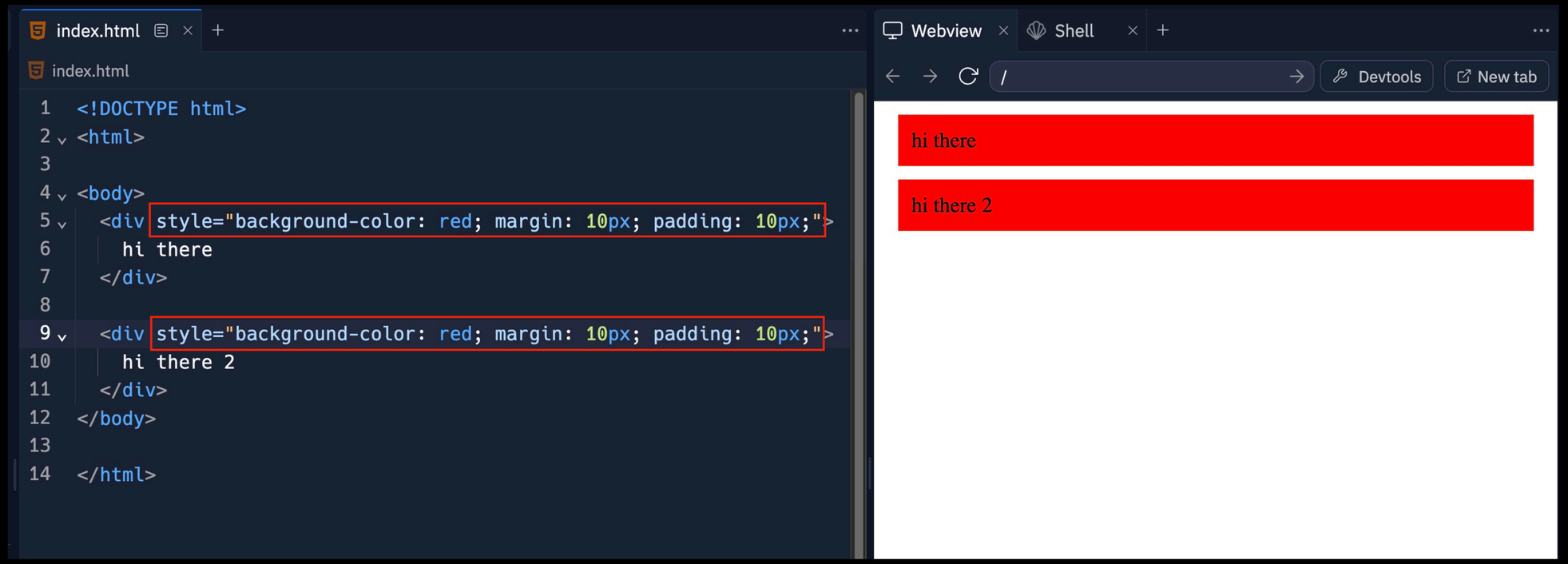
1. Changing the elements on the website once the website is loaded
2. Actually calculating the sum based on the inputs and rendering it on the screen



DOM / Document object

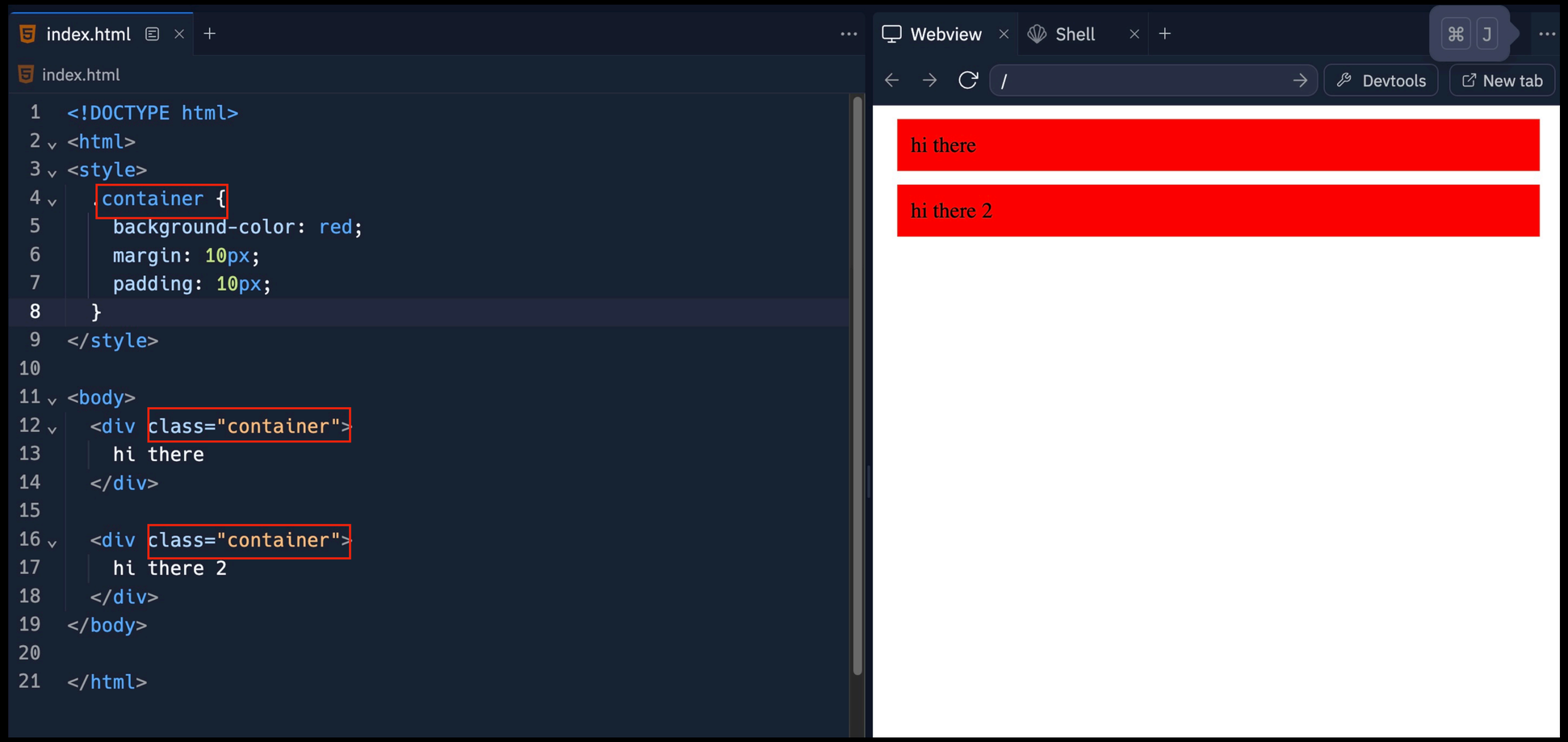
Classes and ids

Lets say we want to have the similar divs in two places



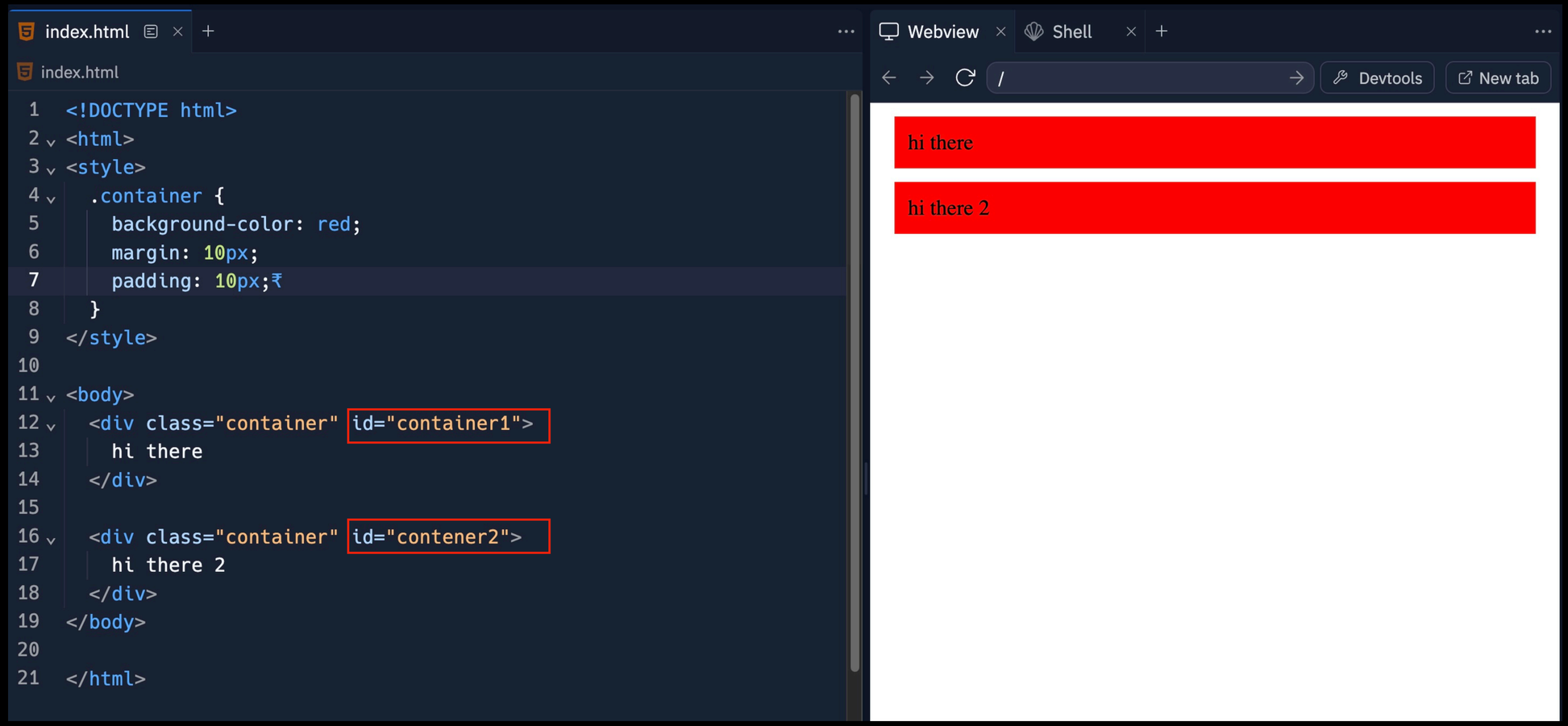
DOM / Document object

Classes



DOM / Document object

Ids are supposed to be unique. They are used to uniquely identify a div/span/input/button



DOM / Document object

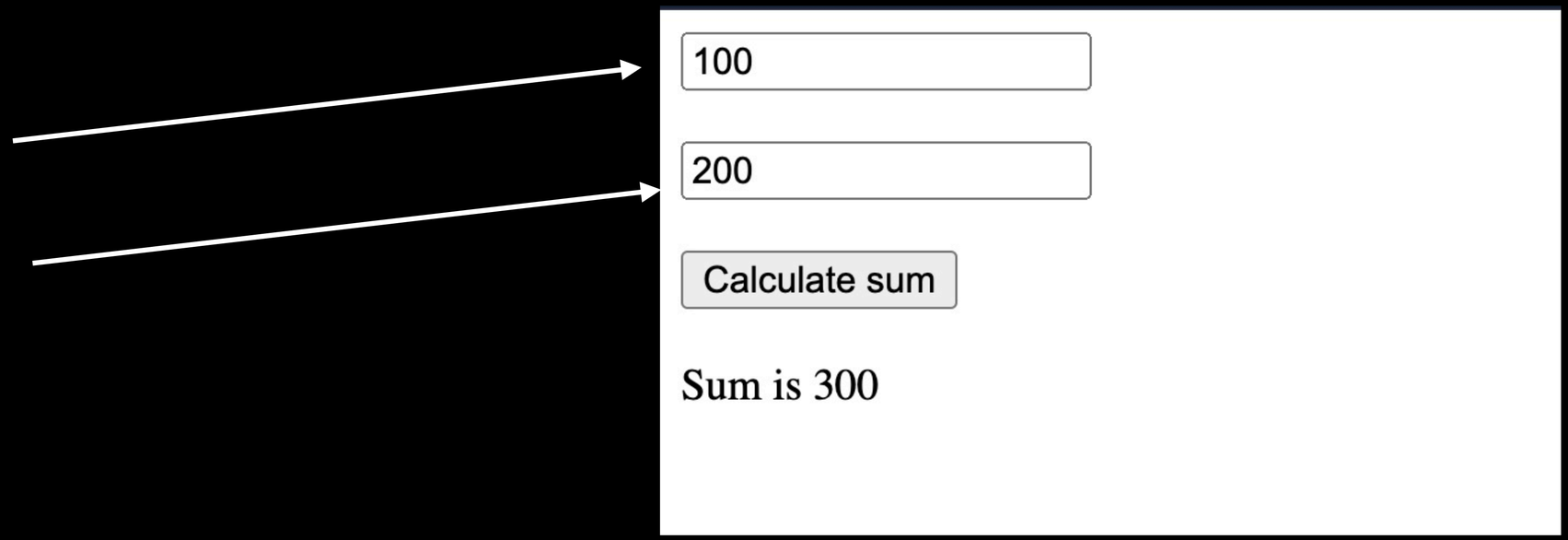
Why are Ids useful?
Classes let you get rid of code repetition
But what do ids do?

DOM / Document object

They let you access elements via the DOM API
Can you use ids to do CSS? - Yes
But what do you use it for usually - Javascript

DOM / Document object

Lets say I ask you to log the values in these inputs



DOM / Document object

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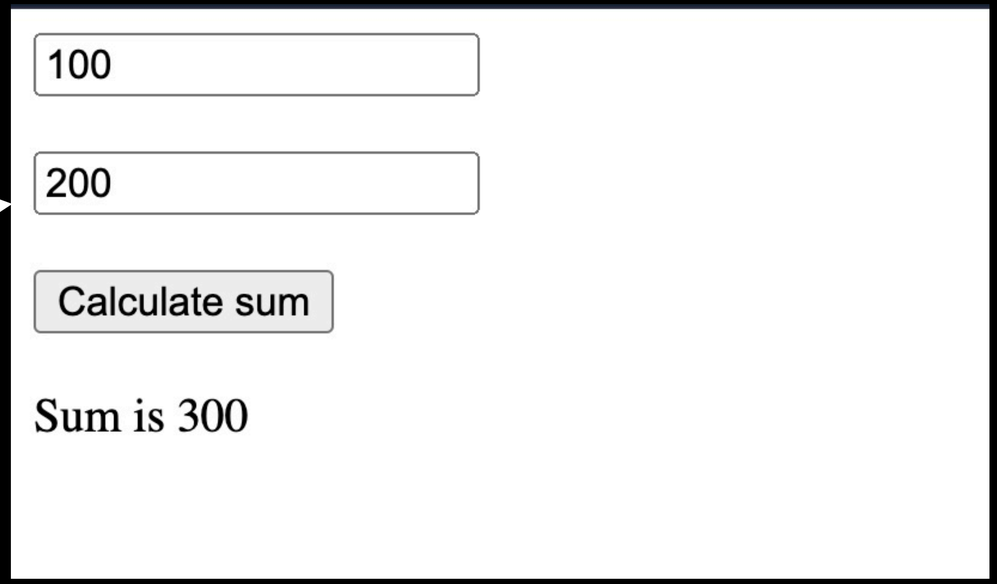
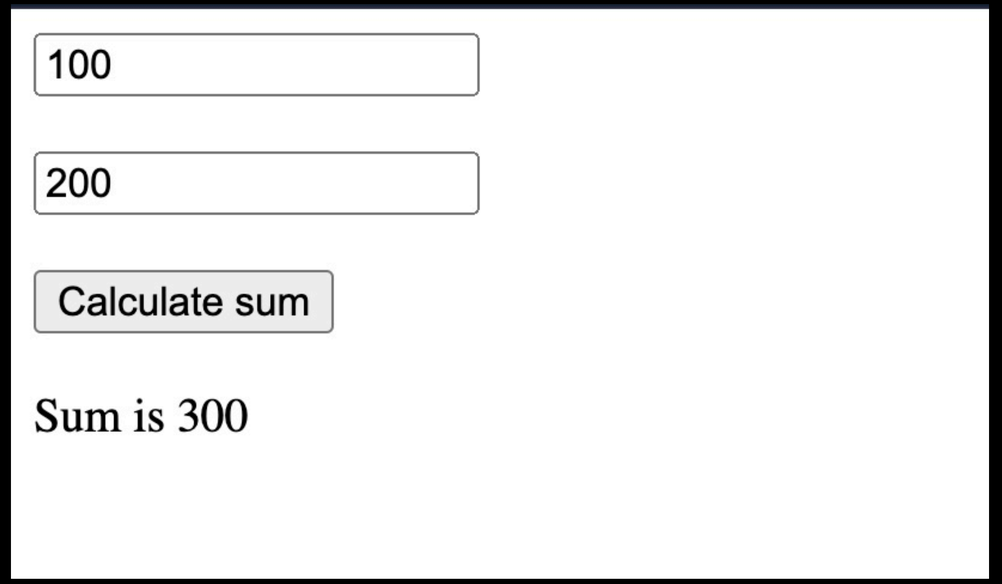
Here is where the global document object
Comes into the picture



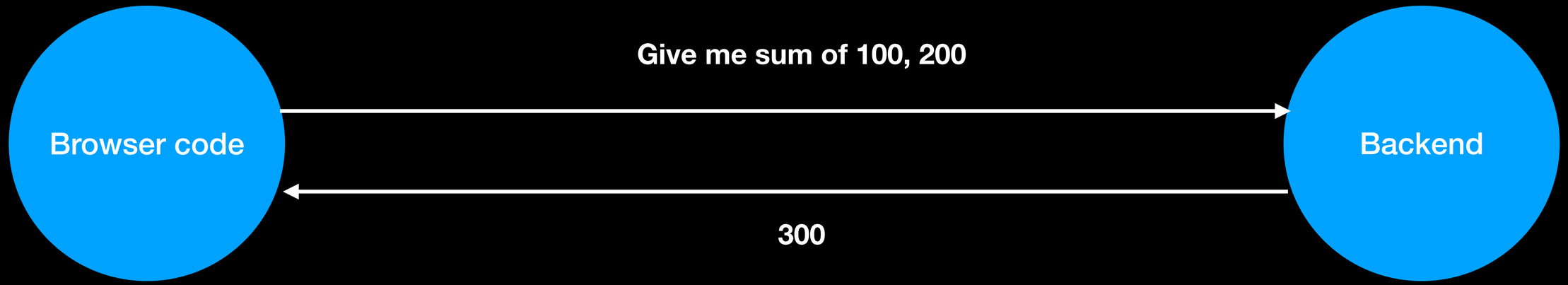
DOM / Document object

document.getElementById
document.getElementsByClassName

Lets complete this assignment



Now, lets say you don’t have access to the calculation logic on the frontend
Lets assume its a hard problem that someone has exposed on a backend server
And you need to hit the backend server and get back the value



Backend server

https://sum-server.100xdevs.com/sum?a=1&b=2

Harder assignment

https://sum-server.100xdevs.com/interest?principal=100&rate=5&time=2