Event Loop and State

Web Development
Lesson 5.1a

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What is “state”?

It is **data or information that gets changed** or manipulated throughout the runtime of a program.

The "state" of a program at a given time refers to **a snapshot of all the data** the program is currently looking at or analyzing to get to the next step in it's execution

State is variables that are watched

Example: Cars have state. What happens when...

...you insert the key into the ignition?

...turn the key?

...press the brake pedal?

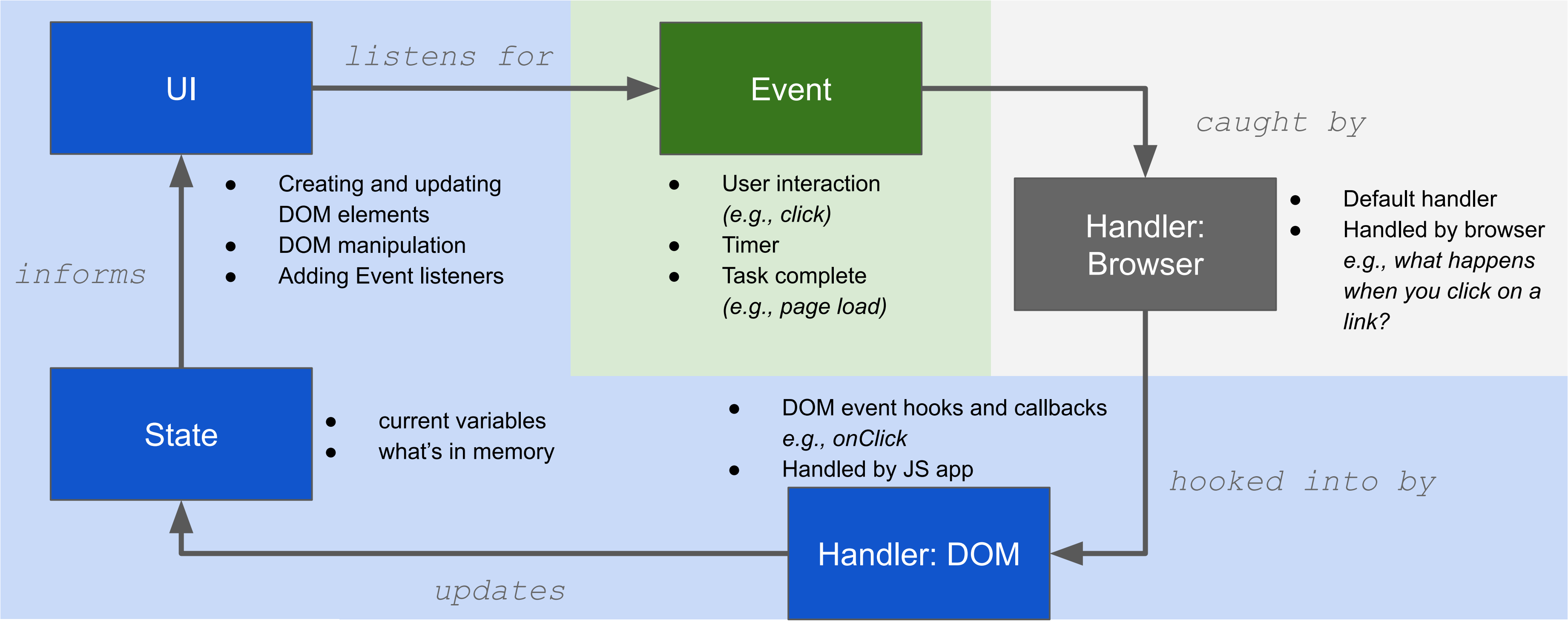
...shift into Drive?

Front-end Event Loop

The front end displays the user interface, listens for user interaction events, updates state and and renders the display based on new state

Event loop

Handling user interaction



- Creating and updating DOM elements
- DOM manipulation
- Adding Event listeners

- User interaction *(e.g., click)*
- Timer
- Task complete *(e.g., page load)*

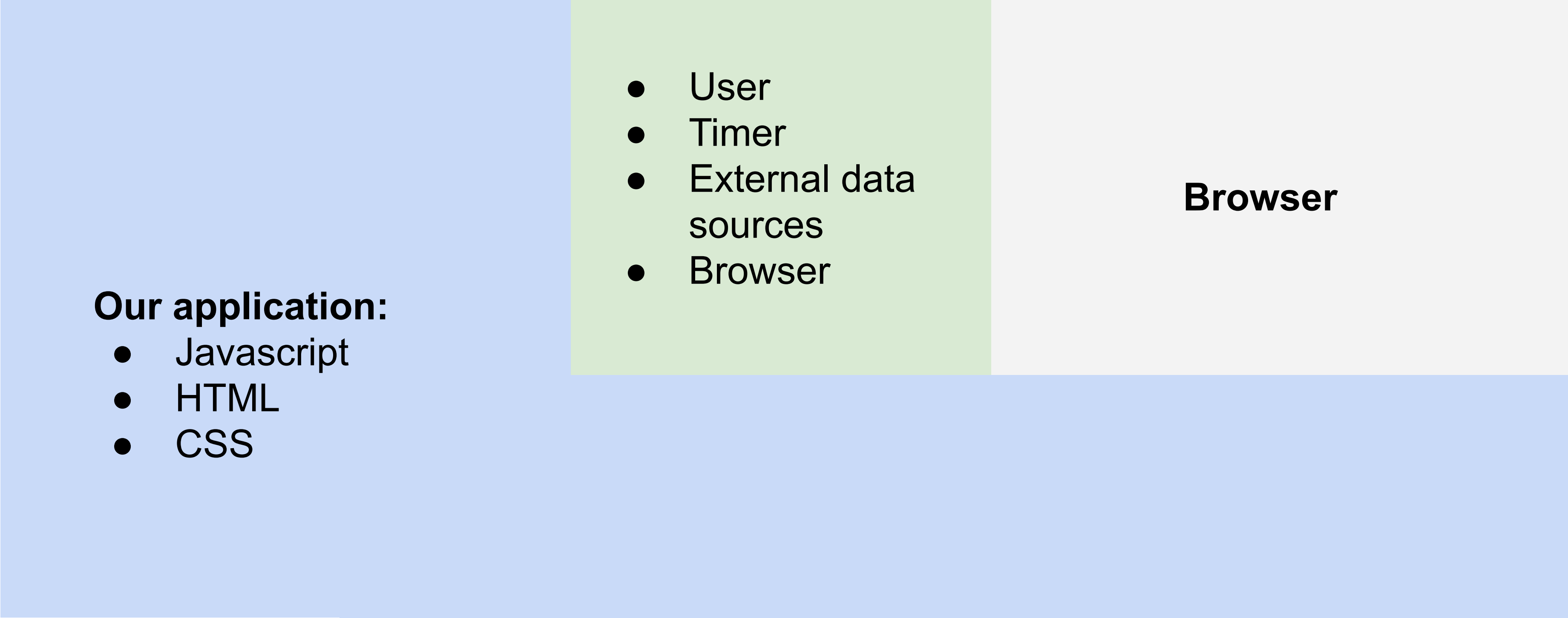
- Default handler
- Handled by browser *e.g., what happens when you click on a link?*

- current variables
- what's in memory

- DOM event hooks and callbacks *e.g., onClick*
- Handled by JS app

Event loop

Who has control?



- User
- Timer
- External data sources
- Browser

Browser

Our application:

- Javascript
- HTML
- CSS

State

Three levels of state

01

In memory

- Variables in Javascript
- Data attributes on elements

1. *Very volatile*
2. *Quick to access*
3. *Won’t persist over a page load*
4. *Short term*

02

Browser API

- localStorage
- sessionStorage
- indexedDB
- Cookies
- Cache API

1. *Persist over page load*
2. *Stuck in browser*

03

Remote

- Server-side file storage
- MySQL
- MongoDB

1. *Over internet (not stuck in browser)*
2. *“Slow” to access*
3. *Long term*

State

Uses for each level

01

In memory

Application State:

- variables
- Data attributes
- React Context
- Redux

02

Browser API

Application State:

- localStorage
- indexedDB

Session State:

- sessionStorage
- Cookies

Resource State:

- Cache API

03

Remote

Session State:

- Database

Resource State:

- Files