




# Web APIs, Event Loop and State

Web Development  
Lesson 4.1





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

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



...you insert the key into the ignition?



...turn the key?



...press the brake pedal?



...shift into Drive?

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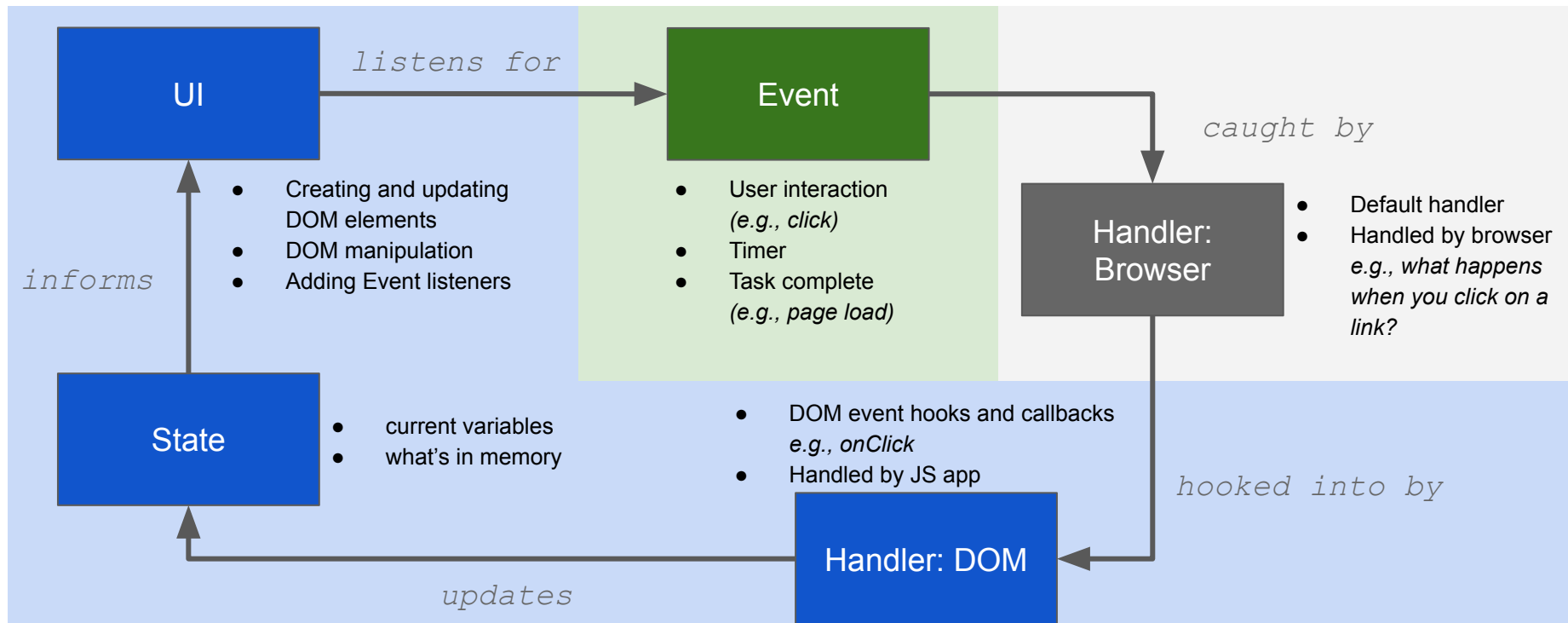
# Front-end Event Loop



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





# Event loop

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Who has control?

**Our application:**

- Javascript
- HTML
- CSS

- User
- Timer
- External data sources
- Browser

**Browser**

# State

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## 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

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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