JONAS.IO
SCHMEDTMANN

THE COMPLETE JAVASCRIPT COURSE

FROM ZERO TO EXPERT!

@JONASSCHMEDTMAN

SECTION

ASYNCHRONOUS JAVASCRIPT: PROMISES, ASYNC/AWAIT AND AJAX

LECTURE

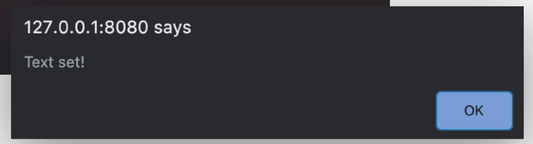
ASYNCHRONOUS JAVASCRIPT, AJAX AND APIS

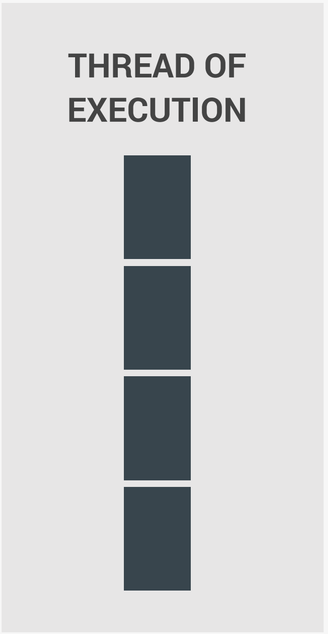
JS

SYNCHRONOUS CODE

BLOCKING

```
const p = document.querySelector('.p');
p.textContent = 'My name is Jonas!';
alert('Text set!');
p.style.color = 'red';
```





Part of execution context that actually executes the code in computer's CPU

SYNCHRONOUS

- 👉 Most code is **synchronous**;
- 👉 Synchronous code is **executed line by line**;
- 👉 Each line of code **waits** for previous line to finish;
- 👎 Long-running operations **block** code execution.

ASYNCHRONOUS CODE

Asynchronous

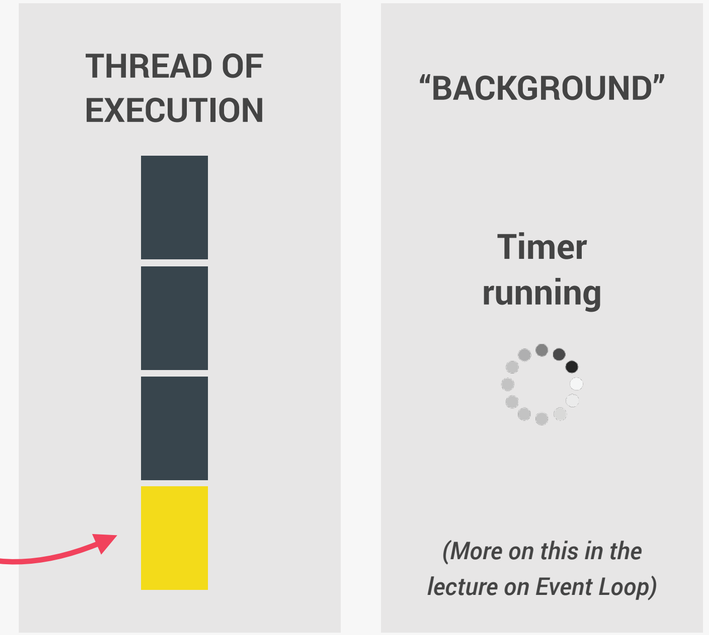
```
const p = document.querySelector('.p');
setTimeout(function () {
  p.textContent = 'My name is Jonas!';
}, 5000);
p.style.color = 'red';
```

CALLBACK WILL RUN AFTER TIMER

👉 **Example:** Timer with callback

```
[1, 2, 3].map(v => v * 2);
```

Callback does NOT automatically make code asynchronous!



ASYNCHRONOUS

Coordinating behavior of a program over a period of time

- 👉 Asynchronous code is executed **after a task that runs in the "background" finishes**;
- 👍 Asynchronous code is **non-blocking**;
- 👉 Execution doesn't wait for an asynchronous task to finish its work;
- 👉 Callback functions alone do **NOT** make code asynchronous!

ASYNCHRONOUS CODE

Asynchronous

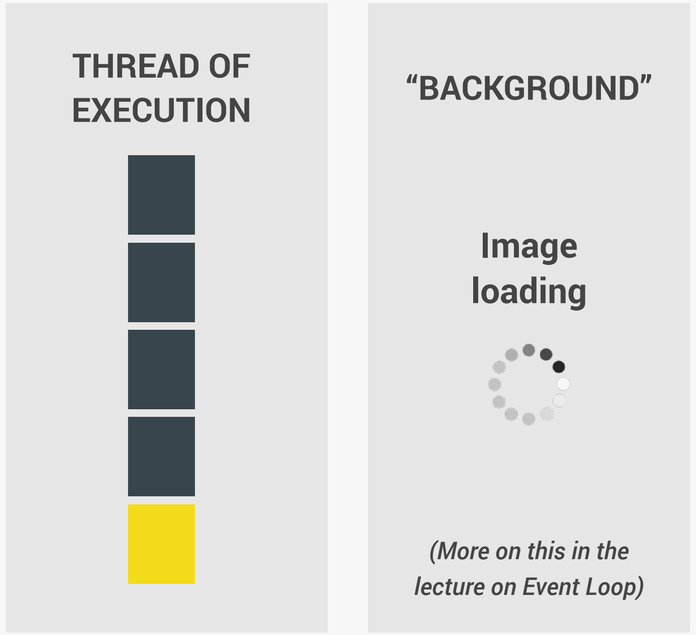
```
const img = document.querySelector('.dog');
img.src = 'dog.jpg';
img.addEventListener('load', function () {
  img.classList.add('fadeIn');
});
p.style.width = '300px';
```

CALLBACK WILL RUN AFTER IMAGE LOADS

`addEventListener` does NOT automatically make code asynchronous!

👉 **Example:** Asynchronous image loading with event and callback

👉 **Other examples:** Geolocation API or **AJAX calls**



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WHAT ARE AJAX CALLS?

AJAX

Asynchronous **J**avaScript **A**nd **X**ML: Allows us to communicate with remote web servers in an **asynchronous way**. With AJAX calls, we can **request data** from web servers dynamically.

WHAT IS AN API?

API

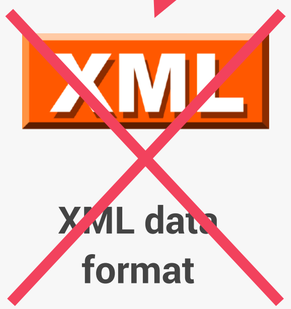
- **A**pplication **P**rogramming **I**nterface: Piece of software that can be used by another piece of software, in order to allow **applications to talk to each other**;
- There are be many types of APIs in web development:

  DOM API | Geolocation API | Own Class API | **“Online” API**

  Just “API”
- **“Online” API:** Application running on a server, that receives requests for data, and sends data back as response;
- We can build **our own** web APIs (requires back-end development, e.g. with node.js) or use **3rd-party** APIs.

There is an API for everything

AJAX



XML data format

JSON data format

Most popular API data format

- Weather data
- Data about countries
- Flights data
- Currency conversion data
- APIs for sending email or SMS
- Google Maps
- *Millions of possibilities...*

✈️ 🌍