

NILS HARTMANN

<https://nilshartmann.net>

Frontend-Entwicklung

HTMX  
oder

Single-  
Page-  
Anwendung ?

NILS HARTMANN

<https://nilshartmann.net>

Frontend-Entwicklung

HTMX

oder

Single-  
Page-

Anwendung

?

oder

JS-Fullstack-Anwenddung

# NILS HARTMANN

nils@nilshartmann.net

**Freiberuflicher Entwickler, Architekt, Trainer**

Java, Spring, GraphQL, React, TypeScript



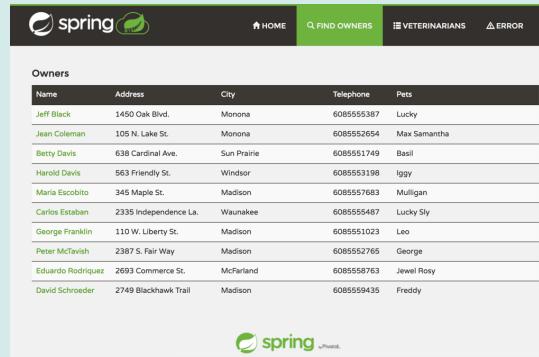
<https://graphql.schule/video-kurs>

<https://reactbuch.de>

[HTTPS://NILSHARTMANN.NET](https://nilshartmann.net)

# Webanwendungen...

# WEBANWENDUNGEN



The screenshot displays a web application interface for managing pet owners. At the top, there is a navigation bar with the Spring logo, followed by links for HOME, FIND OWNERS (highlighted in green), VETERINARIANS, and ERROR.

The main content area is titled "Owners" and contains a table with columns: Name, Address, City, Telephone, and Pets. The table lists 15 entries, each with a small thumbnail image of a pet next to its name.

Name	Address	City	Telephone	Pets
Jeff Black	1450 Oak Blvd.	Monona	6085555387	Lucky
Jean Coleman	105 N. Lake St.	Monona	6085552654	Mae Samantha
Betty Davis	638 Cardinal Ave.	Sun Prairie	6085511749	Basil
Harold Davis	563 Friendly St.	Windsor	6085553198	Iggy
Maria Escobito	345 Maple St.	Madison	608557683	Mulligan
Carlos Esteban	2335 Independence La.	Wauakee	6085555487	Lucky Sly
George Franklin	110 W. Liberty St.	Madison	6085511023	Leo
Peter McTavish	2387 S. Fair Way	Madison	6085552765	George
Eduardo Rodriguez	2693 Commerce St.	McFarland	6085558763	Jewel Rosy
David Schroeder	2749 Blackhawk Trail	Madison	6085559435	Freddy

At the bottom of the page, there is a footer with the Spring logo and the word "powered".

# WEBANWENDUNGEN

The screenshot shows the ICE Portal website interface. At the top, it displays "Reiseinformationen für den ICE 109". Below this, it says "Nächster Halt in 6 min" and "Gleis 2". The train's current speed is 108 km/h, and the destination is Osnabrück Hbf at 12:35, with a red digital clock showing 12:46. A warning icon is present. On the left, there's a sidebar with "Menü" and a "hw plus" advertisement for Sasha Show tickets. The main content area shows the route from Hamburg-Altona to Basel SBB, listing stops like Hamburg-Altona, ICE 109 nach Basel SBB, and Gl. 10. It includes buttons for "Vergangene Halte zeigen", "Ab", "An", "Suchen", "Erweiterte Suche", and "Aktuelle Meldungen". At the bottom, there are links for "hvv Deutschlandticket", "Mach mit!", "Schüler\*innen", and "Schnelles Internet".

The screenshot shows the Spring website with a navigation bar featuring "HOME", "FIND OWNERS" (which is highlighted in green), "VETERINARIANS", and "ERROR". The main content area is titled "Owners" and displays a table of pet owners with their details:

Name	Address	City	Telephone	Pets
Jeff Black	1450 Oak Blvd.	Monona	6085555387	Lucky
Jean Coleman	105 N. Lake St.	Monona	6085552654	Max Samantha
Betty Davis	638 Cardinal Ave.	Sun Prairie	6085511749	Basil
Harold Davis	563 Friendly St.	Windsor	6085553198	Iggy
Maria Escobito	345 Maple St.	Madison	608557683	Mulligan
Carlos Esteban	2335 Independence La.	Wauakee	6085555487	Lucky Sly
George Franklin	110 W. Liberty St.	Madison	6085511023	Leo
Peter McTavish	2387 S. Fair Way	Madison	6085552765	George
Eduardo Rodriguez	2693 Commerce St.	McFarland	6085558763	Jewel Rosy
David Schroeder	2749 Blackhawk Trail	Madison	6085559435	Freddy

At the bottom, there's a logo for "spring" and "powered by JBoss Seam".

# WEBANWENDUNGEN

The image displays four distinct web applications arranged horizontally:

- Booking.com**: A travel booking website showing flight information for an ICE 109 train. It includes details like the next stop at Osnabrück Hbf (Gleis 2) in 6 minutes, current speed (108 km/h), and a Genius Prämien offer for Nils.
- ICE Portal**: A real-time train status application for the ICE 109. It shows the train's current position at Hamburg-Altona, its destination (Basel SBB), and the number of stops remaining (14). It also features a "Schnelles Internet" (fast internet) button.
- Eventbrite**: An event management platform showing an attendee list for an event on April 4, 2024. The list includes 80 attendees who are going and 29 who are not. It features a search bar and a section for finding common interests.
- Spring**: A pet adoption platform listing owners and their pets. The table includes columns for Name, Address, City, Telephone, and Pets. Owners listed include Jeff Black, Jean Coleman, Betty Davis, Harold Davis, Maria Escobito, Carlos Esteban, George Franklin, Peter McTavish, Eduardo Rodriguez, and David Schroeder, along with their respective pets.

# WEBANWENDUNGEN

The image shows a Mac desktop with six browser tabs open, illustrating various web applications:

- Booking.com**: A travel search engine showing flight information for flight 108 from Osnabrück Hbf to Basel SBB.
- ICE Portal**: A real-time train status board for ICE 109, showing the next stop at Gleis 2 in 6 minutes.
- HIBERNATE**: A Jira project management interface for the "Hibernate ORM" software project.
- sessionize**: A speaker dashboard for Nils Hartmann, showing session details and a public profile.
- spring-graphql-training**: A GitHub repository for a GraphQL training project, listing pull requests and issues.
- Attendee list for Frontend for Backend: HTMX oder Single-Page-Anwendung?**: An event attendee list from Ichiba GmbH, showing 80 attendees.

# WEBANWENDUNGEN

The image displays a collage of several web application interfaces:

- Booking.com**: A travel booking website showing flight information for the ICE 109 from Osnabrück Hbf to Basel SBB.
- ICE Portal**: A real-time train status board showing the next stop at Gleis 2 in 6 minutes, speed (108 km/h), and a "Schnelles Internet" connection indicator.
- Hibernate**: A project management tool showing a list of tasks and a sidebar for navigating projects and filters.
- Microsoft Teams**: A communication platform displaying a chat history between users, including file attachments and timestamps.
- Sessionize**: An event management tool showing a speaker dashboard for Nils Hartmann, including a bio and a list of sessions.
- GitHub**: A code repository for a "spring-graphql-training" project, showing pull requests, issues, and a list of contributors with their contact details.
- Eventbrite**: A screenshot of an event page for a "Frontend for Backend: HTMX oder Single-Page-Anwendung?" event, showing attendee lists and RSVP statistics.

# WEBANWENDUNGEN

The image displays a collage of several web application screenshots, illustrating various types of web-based tools and interfaces:

- Booking.com**: A travel booking website showing flight information for the ICE 109.
- ICE Portal**: A mobile-style interface showing travel details, including a speed of 108 km/h and a next stop in 6 minutes.
- ChatGPT - DALLE**: An AI-generated image of a beef burger.
- HIBERNATE**: A project management tool showing a list of tasks and projects.
- sessionize**: A speaker dashboard for Nils Hartmann.
- Microsoft Teams**: A communication platform showing a chat history and file sharing.
- Spring**: A developer-oriented application showing a list of owners and their details.

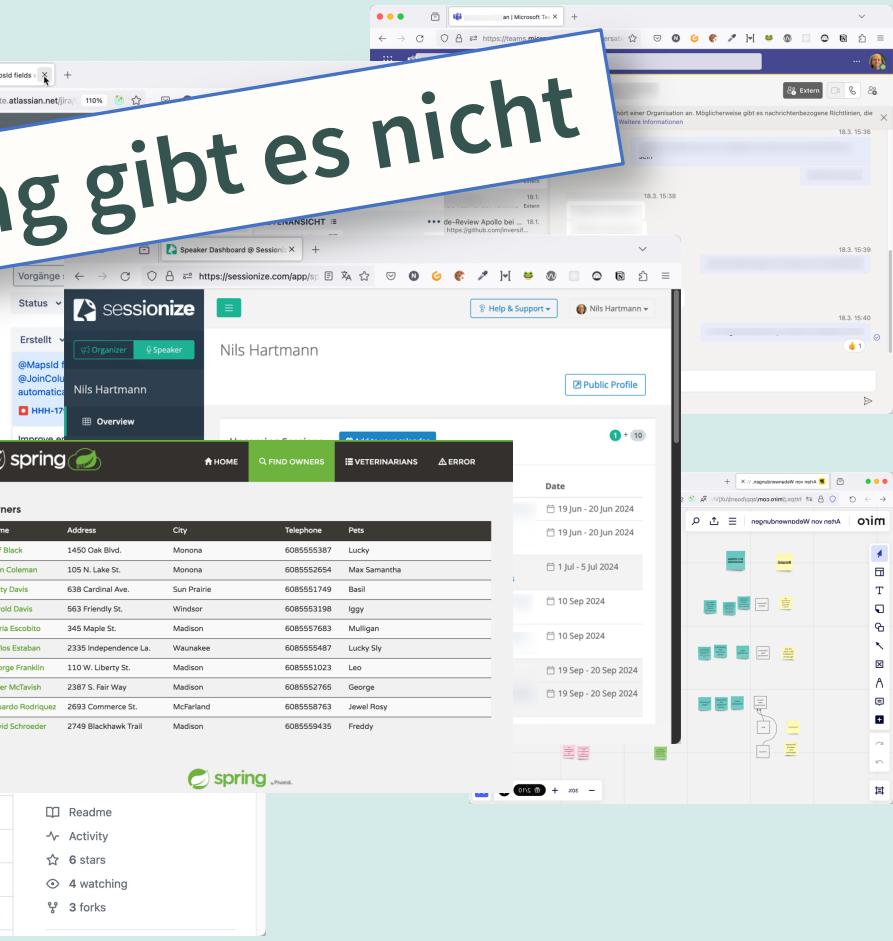
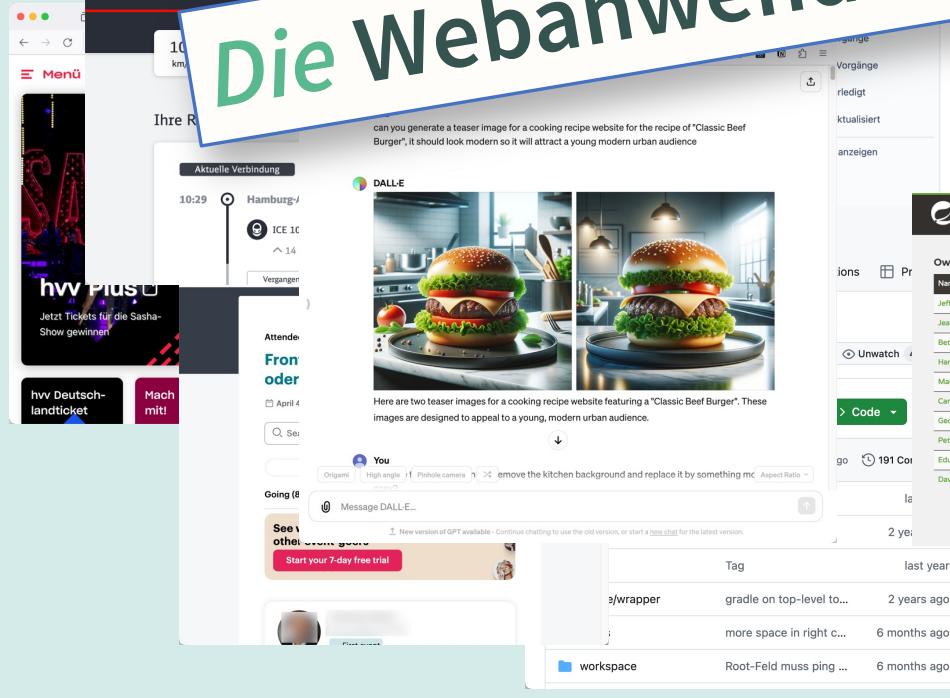
# WEBANWENDUNGEN

# Die Webanwendung gibt es nicht

The image is a collage of several screenshots from various web applications, demonstrating different types of web-based tools and interfaces:

- Booking.com**: A travel booking website showing flight and hotel search results.
- ICE Portal**: A travel-related portal showing flight status (108 km/h) and a map.
- ChatGPT - DALL-E**: A screenshot of a conversation with AI models, showing two generated images of a "Classic Beef Burger".
- Hibernate ORM**: A screenshot of a project management interface for the Hibernate ORM software.
- Vorgänge**: A screenshot of a task or event management system.
- sessionize**: A screenshot of a speaker dashboard for sessionize.com, showing profile information for Nils Hartmann.
- spring**: Two screenshots from the Spring framework's developer portal, one showing owners and another showing a code editor.
- Google Sheets**: A screenshot of a Google Sheets spreadsheet with multiple tabs and data.

# WEBANWENDUNGEN



# WEBANWENDUNGEN

Die Webanwendung gibt es nicht

...aber: (fast) alle brauchen JavaScript



A screenshot of a Mac OS X desktop environment showing several open windows:

- Booking.com**: A travel booking website.
- ICE Portal**: A train information portal showing the next stop in 6 minutes.
- Hibernate Atlassian.net Jira**: A project management tool.
- Microsoft Teams**: A communication platform.
- Sessionize Speaker Dashboard**: A speaker dashboard for a conference.
- DALL-E**: An AI image generation interface.
- GitHub Issues**: A list of issues for a Java project.
- Google Sheets**: A spreadsheet application.



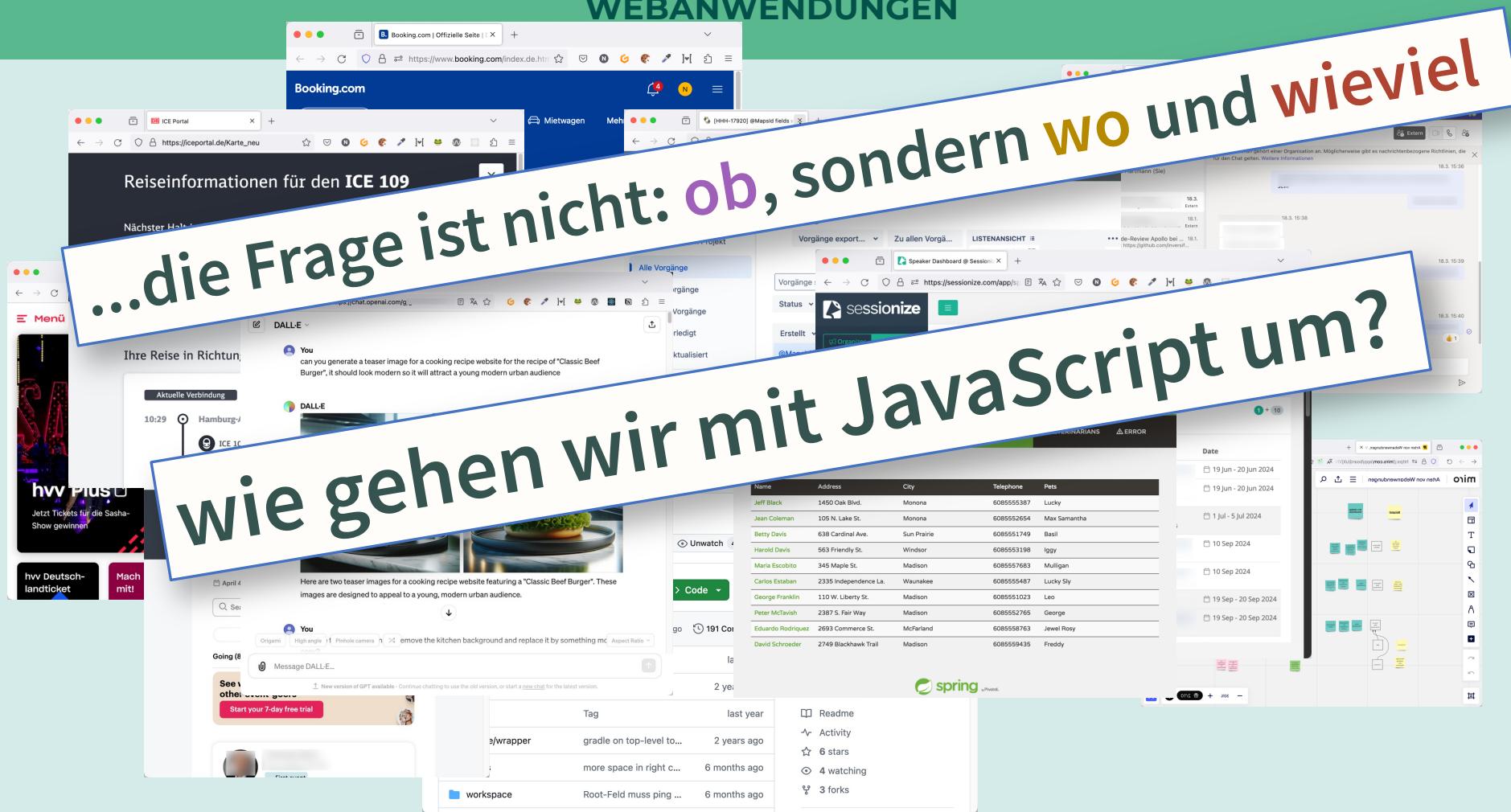
Framework

# WEBANWENDUNGEN

...die Frage ist nicht: ob, sondern wo und wieviel

The image is a collage of several web application screenshots, each showing a different interface or feature. At the top left is a screenshot of the Booking.com homepage. Below it is a screenshot of the ICE Portal showing travel information for the ICE 109. To the right of the ICE Portal is a screenshot of a browser tab titled 'Mietwagen' with a URL like 'https://www.booking.com/index.de.htm'. In the center is a screenshot of a DALL-E interface where a user has requested two images of a classic beef burger. To the right of the DALL-E interface is a screenshot of the Sessionize speaker dashboard for Nils Hartmann. Below the Sessionize dashboard is a screenshot of the Spring website showing a list of owners with columns for Name, Address, City, Telephone, and Pets. At the bottom right is a screenshot of a calendar application showing multiple events and tasks. The overall theme of the collage is the variety and complexity of modern web-based tools and services.

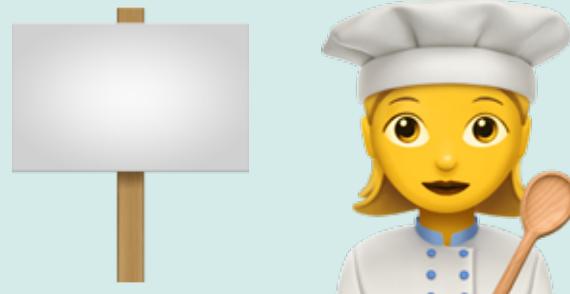
# WEBANWENDUNGEN



# WEBANWENDUNGEN



# Demo



## **Beispiel-Anwendung**

**Source-Code und Slides:**

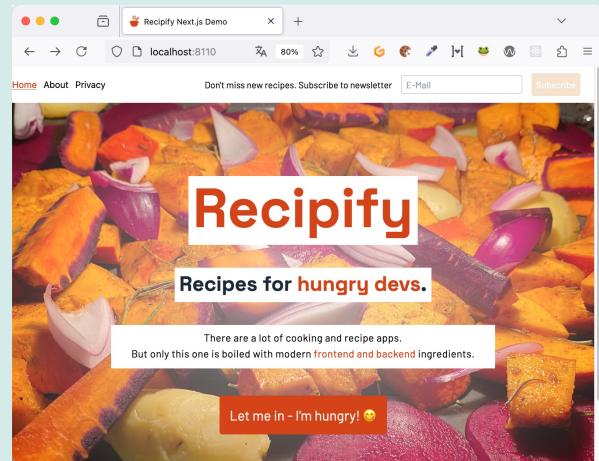
**<https://react.schule/saa-2024>**

Nach dem Vortrag checke ich den geschriebenen "Live-Code" auf einem neuen  
Branch ein

## BEISPIELE

### Eine Webanwendung...

1. 🕵️ Landing-Page
2. 🕵️ Recipes
3. 🕵️ Link mit Sortierung
4. 🕵️ Like-Button
5. 🕵️ Recipe-Seite
6. 🕵️ Recipe-Seite Kommentar schreiben

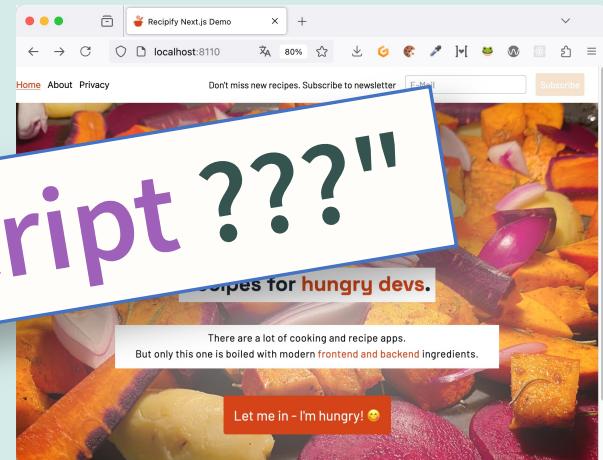


<http://localhost:8110>

## BEISPIELE

### Eine Webanwendung...

1. 🕵️ Landing-Page
2. 🕵️ Recipes
3. 🕵️ Recipe
4. 🕵️ Recipe-Seite
5. 🕵️ Recipe-Seite Kommentar schreiben

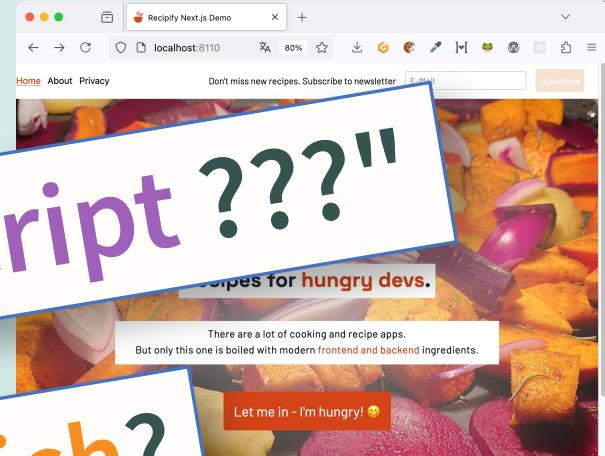


<http://localhost:8110>

## BEISPIELE

### Eine Webanwendung...

1. 🕵️ Landing-Page
2. 🕵️ Recipes
3. 🕵️ Recipe
4. 🕵️ Recipe-Seite
5. 🕵️ Recipe-Seite
6. 🕵️ Recipe-Seite



diese auch? wirklich?

schreiben  
was meint ihr? 🤔

## BEISPIELE

### Eine Webanwendung...

1. 🕵️ Landing-Page

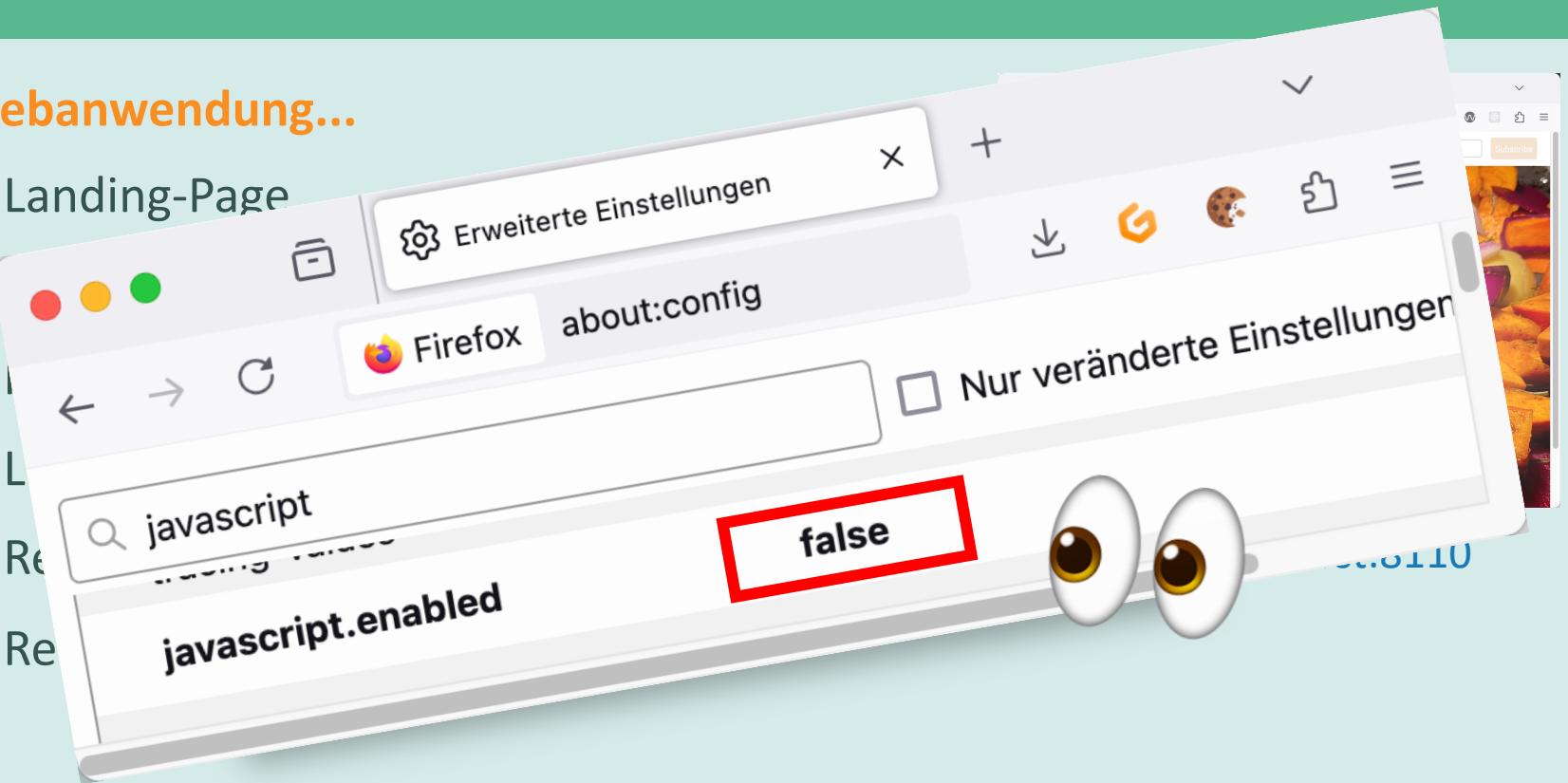
2. 🕵️

3. 🕵️

4. 🕵️ L

5. 🕵️ Re

6. 🕵️ Re



## BEISPIELE

### Eine Webanwendung...

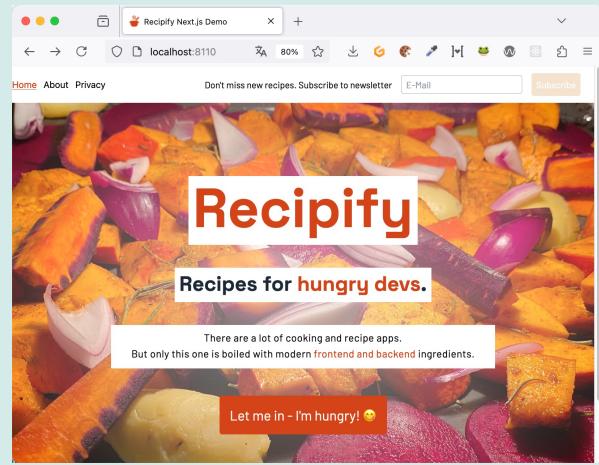
1. 🕵️ Landing-Page
  2. 🕵️
  3. 🕵️ **Kein JavaScript, kein Problem** 😊
  - 4.
  5. 🕵️ Re
  6. 🕵️ Re
- 

### Eine Webanwendung...

1. 🕵️ Landing-Page
  2. 🕵️
  3. 🕵️
  4. 🕵️
  5. 🕵️ Re
  6. 🕵️ Re
- 
- Erweiterte Einstellungen
- Nur veränderte Einstellungen
- javascript
- javascript.enabled
- false
- Kein JavaScript, kein Problem
- Feierabend machen?

## BEISPIELE

Offenbar geht's doch auch ohne

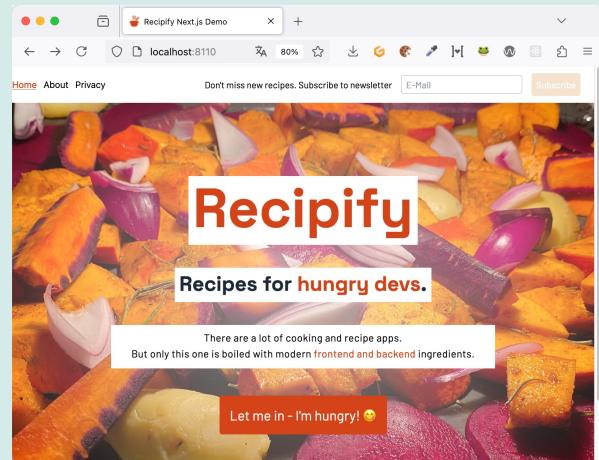


<http://localhost:8110>

## BEISPIELE

### Offenbar geht's doch auch ohne – ABER:

1. 🕵️ Feedback Like-Button 😢
2. 🕵️ Feedback Seitenwechsel zu Recipe 😢
3. 🕵️ Timer 😢
4. 🕵️ Newsletter-Feld Inhalt Seitenwechsel 😢
5. 🕵️ Neuer Kommentar: Zeichenzähler 😢
6. 🕵️ Portionszähler 😢
7. 🕵️ Suche bei Tastendruck 😢

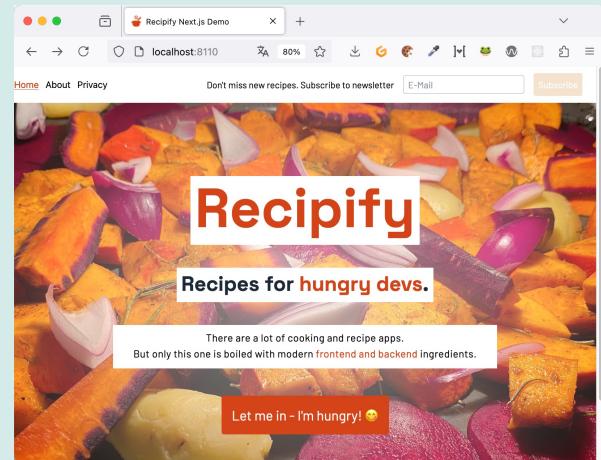


<http://localhost:8110>

Wie sieht es denn mit JavaScript aus?

`demo_config Suspense einschalten!`

1. 🕵️ Feedback Like-Button 😊
2. 🕵️ Feedback Seitenwechsel zu Recipe 😊
3. 🕵️ Timer 😊
4. 🕵️ Newsletter-Feld Inhalt Seitenwechsel 😊
5. 🕵️ Neuer Kommentar: Zeichenzähler 😊
6. 🕵️ Portionszähler 😊
7. 🕵️ Suche bei Tastendruck 😊



<http://localhost:8110>

### Beste UI/UX: oft nur mit JavaScript umsetzbar

- Es gibt Fortschritte in CSS und HTML, die JS an mehr Stellen verzichtbar machen, aber nicht an allen

### Beste UI/UX: oft nur mit JavaScript umsetzbar

- Es gibt Fortschritte in CSS und HTML, die JS an mehr Stellen verzichtbar machen, aber nicht an allen

Man sollte den "Kleinkram" nicht unterschätzen 🙏

# Architekturen

## für

# Webanwendungen

### ***Ansatz 1: "Klassisch": Serverseitiges Rendern + JS-Schnipsel***

- Server erzeugt fertige HTML-Seite
- Für Interaktionen werden Links und Formulare genommen
- Jede Interaktion erfolgt über Server-Roundtrip
- Für Interaktionen wird JavaScript geschrieben

### **Ansatz 1: "Klassisch": Serverseitiges Rendern + JS-Schnipsel**

- Server erzeugt fertige HTML-Seite
- Für Interaktionen werden Links und Formulare genommen
- Jede Interaktion erfolgt über Server-Roundtrip
- Für Interaktionen wird JavaScript geschrieben
- **Typische Vertreter:** Spring MVC, PHP, dotNET, Node.js

### **Ansatz 2: Single-Page-Anwendung (SPA)**

- Darstellung erfolgt komplett über JavaScript im Browser
- HTML spielt untergeordnete Rolle
- Backend liefert **Daten** (z.B. REST/GraphQL), kein HTML

### **Ansatz 2: Single-Page-Anwendung (SPA)**

- Darstellung erfolgt komplett über JavaScript im Browser
- HTML spielt untergeordnete Rolle
- Backend liefert **Daten** (z.B. REST/GraphQL), kein HTML
- **Typische Vertreter:** **React**, Angular, Vue

### **Ansatz 3: Fullstack-Anwendung (mit JavaScript)**

- Anwendung ist vollständig in JavaScript geschrieben
- Server läuft mit JavaScript
- Server liefert HTML-Code aus
- Server liefert für interaktive Teile JavaScript-Code aus
- Zum Beispiel als "Backend for Frontend"

### **Ansatz 3: Fullstack-Anwendung (mit JavaScript)**

- Anwendung ist vollständig in JavaScript geschrieben
- Server läuft mit JavaScript
- Server liefert HTML-Code aus
- Server liefert für interaktive Teile JavaScript-Code aus
- Zum Beispiel als "Backend for Frontend"
- **Typische Vertreter:** **Next.js**, SvelteKit, Nuxt, Astro, Qvik

**...und HTMX?**

## HTMX ist eine JavaScript-Bibliothek

### introduction

htmx gives you access to [AJAX](#), [CSS Transitions](#), [WebSockets](#) and [Server Sent Events](#) directly in HTML, using [attributes](#), so you can build [modern user interfaces](#) with the [simplicity](#) and [power](#) of [hypertext](#)

htmx is small (~14k min.gz'd), [dependency-free](#), [extendable](#), IE11 compatible & has [reduced](#) code base sizes by 67% when compared with react

<https://htmx.org/>

Versprechen: Aktualisierung der Darstellung ohne selbst JavaScript **schreiben**  
zu müssen  
(stattdessen "hypertext" 🤔)

Passt zur Variante 1 (serverseitige Anwendungen)

## HTMX - Grundlagen

- HTML-Elemente werden mit HTMX-Attributen ergänzt
- Damit wird beschrieben, welche Server Requests bei einem "Trigger" ausgeführt werden sollen
- HTMX kümmert sich um die Ausführung des Requests und die Verarbeitung der Antwort
- Andere Aktualisierungen der UI gehen mit HTMX nicht

```
<html lang="en">
  <body>
    <div hx-get="/hello-world"
          hx-trigger="click"
          hx-target="#result">
      Get Greeting
    </div>

    <div id="result"></div>

    <script
      type="text/javascript"
      th:src="@{/htmx/htmx-1.9.10.min.js}"
    ></script>
  </body>
</html>
```

## HTMX – Der Server

- Der Server nimmt (Ajax-)Requests entgegen
- HTMX-Requests sind per HTTP Header zu identifizieren
- Der Server liefert dann HTML-Schnipsel
- Wie die Schnipsel erzeugt werden, entscheidet der Server frei

```
<html lang="en">
  <body>
    <div hx-get="/hello-world"
          hx-trigger="click"
          hx-target="#result">
      Get Greeting
    </div>

    <div id="result"></div>

    <script
      type="text/javascript"
      th:src="@{/htmx/htmx-1.9.10.min.js}"
    ></script>
  </body>
</html>
```

## HTMX – Grundlagen

- HTML-Elemente werden mit HTMX-Attributen

### Demo: Hello World

- Das Resultat von [localhost:8080/hello](http://localhost:8080/hello)

**hx-trigger, hx-get und hx-target**

- HelloWorldController

("Hypermedia")

```
<html lang="en">
  <body>
    <div hx-get="/hello-world"
          hx-trigger="click"
          hx-target="#result">
      Get Greeting
    </div>

    <div id="result"></div>

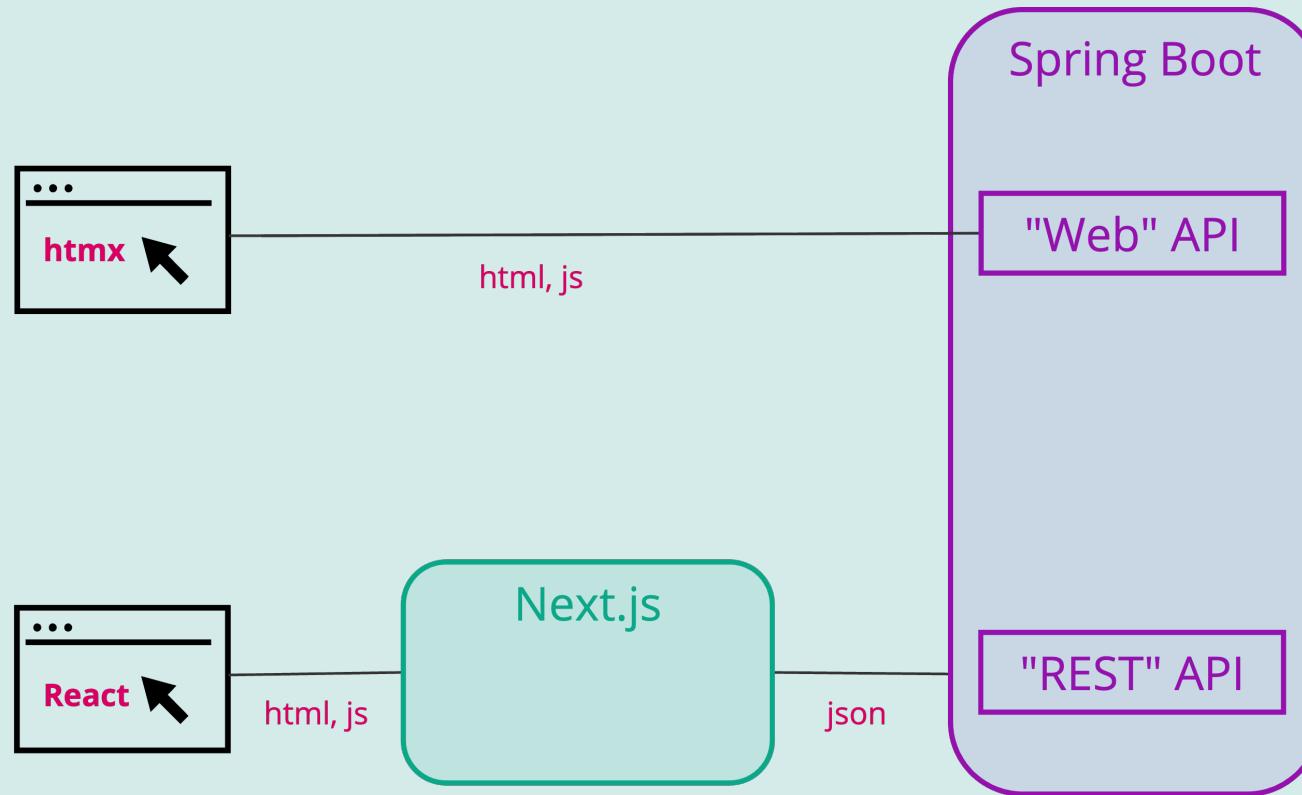
    <script
      type="text/javascript"
      th:src="@{/htmx/htmx-1.9.10.min.js}"
    ></script>
  </body>
</html>
```

# Code Beispiele



[HTTP://LOCALHOST:8080](http://localhost:8080)

### Architektur und Techstack Recipify



### Beispiel: Formulare

- Wie werden die Daten gesendet?
- Was kommt als Antwort?
- Wie disablen wir das Formular?
- Wie setzen wir eine (Fehler-)Meldung zurück
- 🧑‍💻 NewsletterRegistration.jte / .tsx

Subscribe to newsletter

E-Mail

Subscribe

## CODE-BEISPIELE

### Beispiel: Bestehende Darstellung aktualisieren

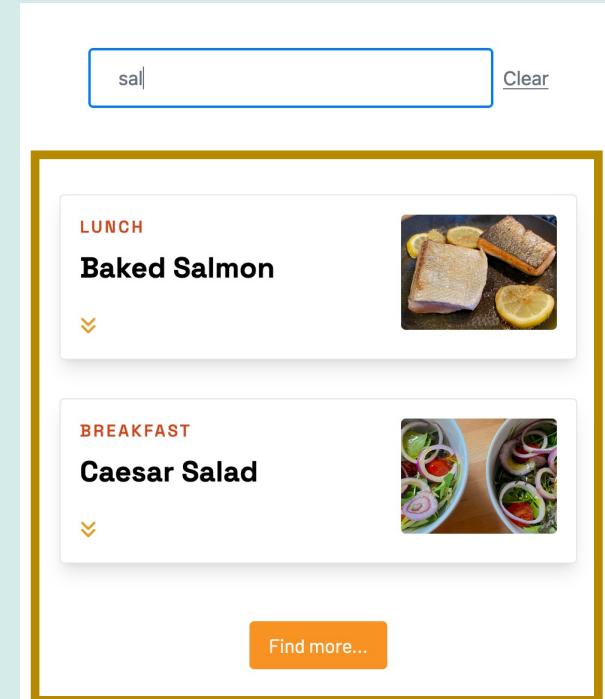
 [Clear](#)

## CODE-BEISPIELE

Beispiel: Bestehende Darstellung aktualisieren

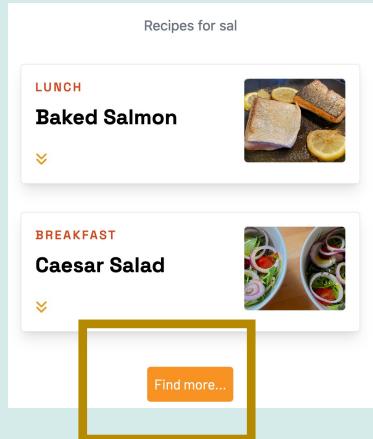
 [Clear](#)

GET /search



## CODE-BEISPIELE

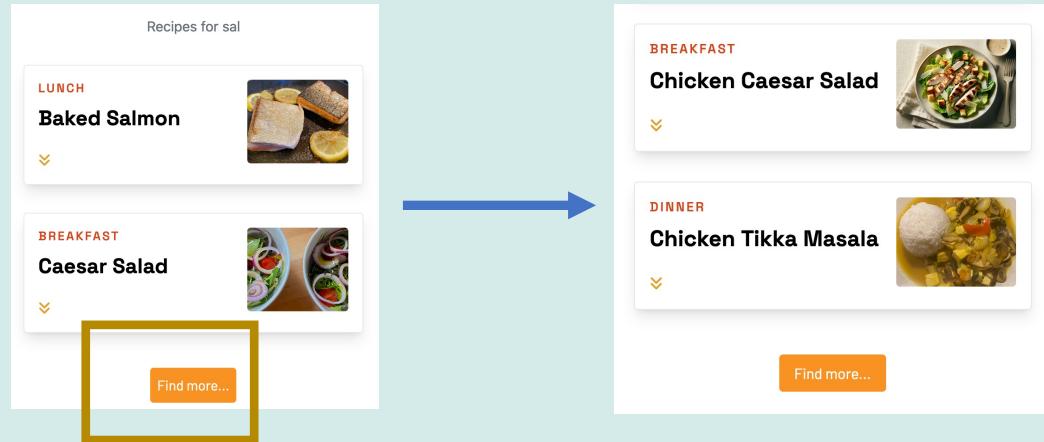
### Beispiel: Bestehende Darstellung aktualisieren



GET /search?page=2

## CODE-BEISPIELE

### Beispiel: Bestehende Darstellung aktualisieren



GET /search?page=2

hx-swap="beforeend"

# CODE-BEISPIELE

## Beispiel: Bestehende Darstellung aktualisieren

Recipes for sal

LUNCH  
**Baked Salmon**  
▼ 

BREAKFAST  
**Caesar Salad**  
▼ 

[Find more...](#)



Recipes for sal

BREAKFAST  
**Chicken Caesar Salad**  
▼ 

DINNER  
**Chicken Tikka Masala**  
▼ 

[Find more...](#)

GET /search?page=2

hx-swap="beforeend"

Recipes for sal

LUNCH  
**Baked Salmon**  
▼ 

BREAKFAST  
**Caesar Salad**  
▼ 

[Find more...](#)

BREAKFAST  
**Chicken Caesar Salad**  
▼ 

DINNER  
**Chicken Tikka Masala**  
▼ 

[Find more...](#)

# CODE-BEISPIELE

## Beispiel: Bestehende Darstellung aktualisieren

Recipes for sal

LUNCH  
**Baked Salmon**

BREAKFAST  
**Caesar Salad**

[Find more...](#)

Recipes for sal

BREAKFAST  
**Chicken Caesar Salad**

DINNER  
**Chicken Tikka Masala**

[Find more...](#)

GET /search?page=2

hx-swap="beforeend"



Recipes for sal

LUNCH  
**Baked Salmon**

BREAKFAST  
**Caesar Salad**

[Find more...](#)

BREAKFAST  
**Chicken Caesar Salad**

DINNER  
**Chicken Tikka Masala**

[Find more...](#)

# CODE-BEISPIELE

## Beispiel: Bestehende Darstellung aktualisieren

Recipes for sal

LUNCH  
**Baked Salmon**  
▼ 

BREAKFAST  
**Caesar Salad**  
▼ 

[Find more...](#)

Recipes for sal

BREAKFAST  
**Chicken Caesar Salad**  
▼ 

DINNER  
**Chicken Tikka Masala**  
▼ 

[Find more...](#)

GET /search?page=2

hx-swap="beforeend"



Recipes for sal

LUNCH  
**Baked Salmon**  
▼ 

BREAKFAST  
**Caesar Salad**  
▼ 

[Find more...](#)

**Chicken Caesar Salad**  
▼ 

DINNER  
**Chicken Tikka Masala**  
▼ 

[Find more...](#)

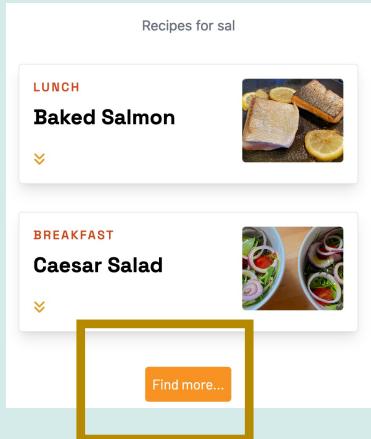
GET /search?page=2

GET /search?page=3

Find more...

## CODE-BEISPIELE

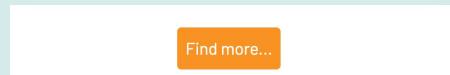
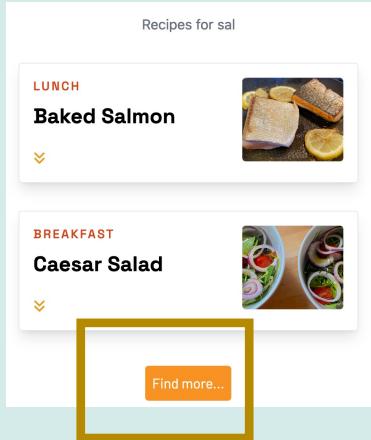
### Beispiel: Bestehende Darstellung aktualisieren



GET /search?page=2

## CODE-BEISPIELE

### Beispiel: Bestehende Darstellung aktualisieren



```
id="moreButton"  
hx-swap-oob="true"
```

GET /search?page=2

## CODE-BEISPIELE

### Beispiel: Bestehende Darstellung aktualisieren

Recipes for sal

LUNCH

Baked Salmon



▼

BREAKFAST

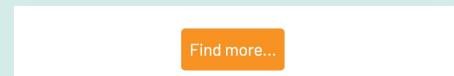
Caesar Salad



▼

[Find more...](#)

GET /search?page=2



```
id="moreButton"  
hx-swap-oob="true"
```

BREAKFAST

Chicken Caesar Salad



▼

DINNER

Chicken Tikka Masala



▼

```
hx-target="result"  
hx-swap="beforeend"
```

# CODE-BEISPIELE

## Beispiel: Bestehende Darstellung aktualisieren

Recipes for sal

LUNCH  
**Baked Salmon**  
▼ 

BREAKFAST  
**Caesar Salad**  
▼ 

[Find more...](#)

GET /search?page=2



Find more...

`id="moreButton"  
hx-swap-oob="true"`

BREAKFAST  
**Chicken Caesar Salad**  
▼ 

DINNER  
**Chicken Tikka Masala**  
▼ 

`hx-target="result"  
hx-swap="beforeend"`



Recipes for sal

LUNCH  
**Baked Salmon**  
▼ 

BREAKFAST  
**Caesar Salad**  
▼ 

BREAKFAST  
**Chicken Caesar Salad**  
▼ 

DINNER  
**Chicken Tikka Masala**  
▼ 

[Find more...](#)

GET /search?page=3

# CODE-BEISPIELE

## Beispiel: Bestehende Darstellung aktualisieren

Recipes for sal

LUNCH  
**Baked Salmon**  
▼ 

BREAKFAST  
**Caesar Salad**  
▼ 

[Find more...](#)

GET /search?page=2

Find more...

`id="moreButton"  
hx-swap-oob="true"`

BREAKFAST  
**Chicken Caesar Salad**  
▼ 

DINNER  
**Chicken Tikka Masala**  
▼ 

`hx-target="result"  
hx-swap="beforeend"`



Find more...

Recipes for sal

LUNCH  
**Baked Salmon**  
▼ 

BREAKFAST  
**Caesar Salad**  
▼ 

BREAKFAST  
**Chicken Caesar Salad**  
▼ 

DINNER  
**Chicken Tikka Masala**  
▼ 

Find more...

GET /search?page=3

# CODE-BEISPIELE

## Beispiel: Bestehende Darstellung aktualisieren

Recipes for sal

LUNCH  
**Baked Salmon**  
▼ 

BREAKFAST  
**Caesar Salad**  
▼ 

[Find more...](#)

GET /search?page=2

FindMoreButton.jte

RecipeSearch.tsx

Find more...

`id="moreButton"  
hx-swap-oob="true"`

BREAKFAST  
**Chicken Caesar Salad**  
▼ 

DINNER  
**Chicken Tikka Masala**  
▼ 

`hx-target="result"  
hx-swap="beforeend"`



Recipes for sal

LUNCH  
**Baked Salmon**  
▼ 

BREAKFAST  
**Caesar Salad**  
▼ 

BREAKFAST  
**Chicken Caesar Salad**  
▼ 

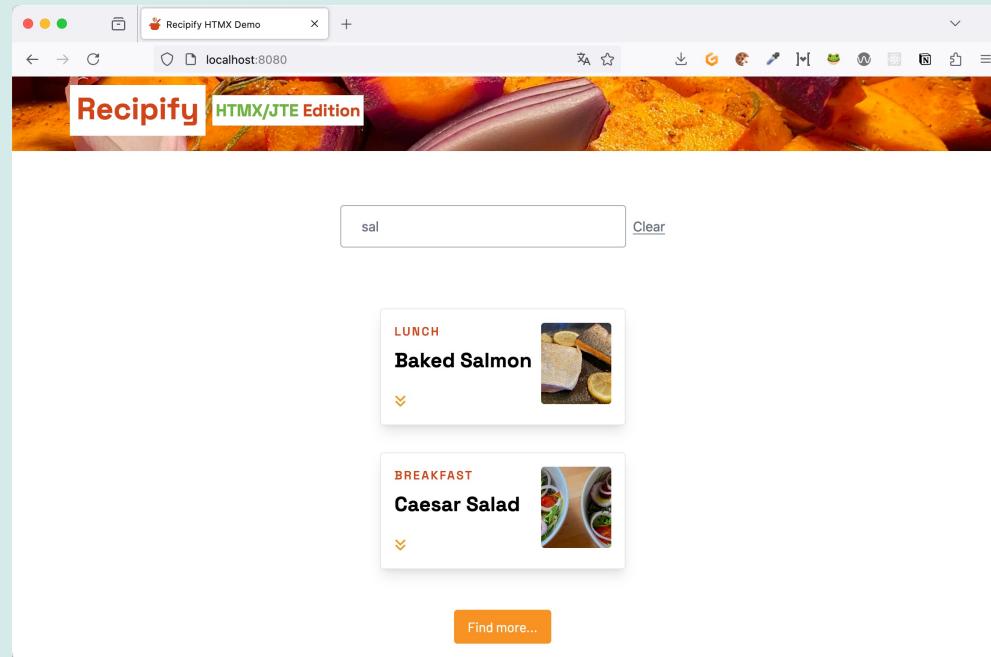
DINNER  
**Chicken Tikka Masala**  
▼ 

[Find more...](#)

GET /search?page=3

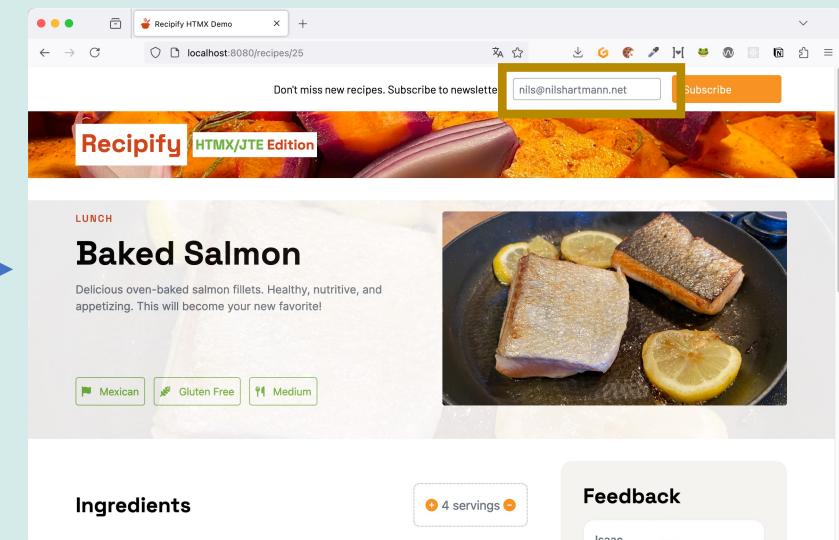
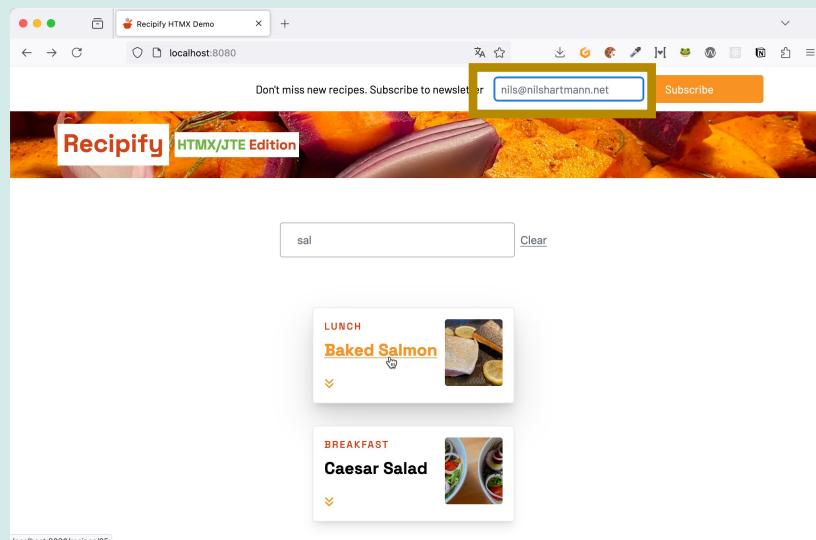
## Beispiel: Parallel Requests

-  Netzwerk-Tab



## Beispiel: SPA-like Seitenwechsel

- Beim Aufruf der Rezept-Seite soll der Rahmen unverändert bleiben



### Beispiel: SPA-like Seitenwechsel in Next.js

- **Link** verhält sich automatisch richtig:

- mit und ohne JS
- Ganze Seite vs. nur Content
- Aktualisieren der URL

```
<Link
  href={`/recipes/${recipe.id}`}
>
  {recipe.title}
</Link>
```

(RecipeSummaryCard.tsx)

### Beispiel: SPA-like Seitenwechsel in Next.js

- Link verhält sich automatisch richtig:

- mit und ohne JS
- Ganze Seite vs. nur Content
- Aktualisieren der URL

```
<Link  
  href={`/recipes/${recipe.id}`}  
>  
  {recipe.title}  
</Link>
```

(RecipeSummaryCard.tsx)

- "Controller": Identischer Code
  - Fullpage Request
  - Incremental Update

[recipeId]/page.tsx

recipes/layout.tsx

## CODE-BEISPIELE

Beispiel: SPA-like Seitenwechsel in HTMX

### Beispiel: SPA-like Seitenwechsel in HTMX

- Link muss entsprechend ausgezeichnet werden
  - mit und ohne JS
  - Ganze Seite vs. nur Content
  - Aktualisieren der URL

```
RecipeSummaryCard.jte
```

### Beispiel: SPA-like Seitenwechsel in HTMX

- Link muss entsprechend ausgezeichnet werden

- mit und ohne JS
- Ganze Seite vs. nur Content
- Aktualisieren der URL

```
RecipeSummaryCard.jte
```

- "Controller": Eventuell zwei Endpunkte
  - ganze Seite vs. Teil-Update

# CODE-BEISPIELE

## Beispiel: Seite priorisieren

The screenshot shows a recipe card for "Classic Caesar Salad" on a website called Recipify. The card is structured with priority levels:

- Header:** "Recipify" logo at the top right, above the title.
- Title:** "Classic Caesar Salad" in large bold letters.
- Catagory:** "BREAKFAST" in small text above the title.
- Description:** "Crispy romaine lettuce with creamy Caesar dressing. Bon Appétit! Food that feels like home."
- Image:** A large, appetizing photo of the salad.
- Meta Data:** Buttons for "92 ❤️", "Asian", "Vegan", and "Easy".
- Time:** "Cooking time" (clock icon), "Preparation 10 minutes" (clock icon), and "Total 10 minutes" (clock icon).
- Ingredients:** A list of ingredients: "1 Head Romaine Lettuce", "100 ml Caesar Dressing", "100 Grams Croutons", and "50 Grams Parmesan".
- Instructions:** A section labeled "Instructions" with a list of steps.
- Feedback:** A section labeled "Feedback" with the placeholder text "Loading feedback..." and three orange circular progress indicators.
- Opinion:** A section labeled "Your opinion?" with fields for "Your name:" (empty input field) and "Your rating:" (a row of five empty star icons).

# CODE-BEISPIELE

# Beispiel: Seite priorisieren in Next.js

slowDown GetFeedbacks=3000

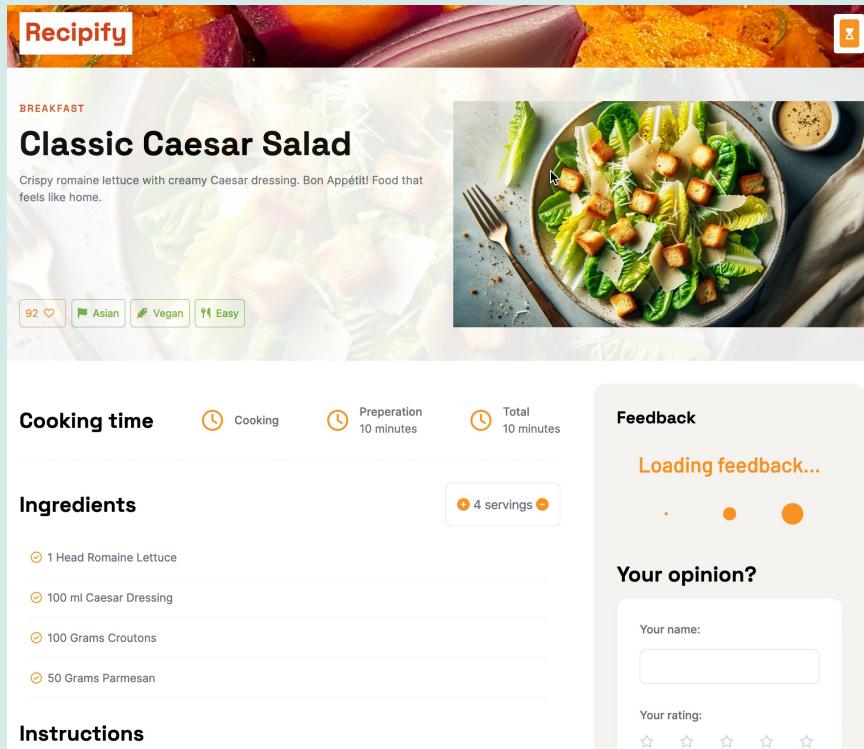
 slowDown\_GetRecipe=2000

# Spring Controller Debug

## Netzwerk-Tab Gesamtdauer

 [recipeId]/page.tsx

## RecipePageContent.tsx



# CODE-BEISPIELE

## Beispiel: Seite priorisieren in HTMX

The screenshot displays a cooking recipe page for "Classic Caesar Salad" on the Recipify website. The page is structured to prioritize content through HTMX, allowing parts of the page to update without a full page reload.

**Header:** Recipify logo and a search bar with an 'X' icon.

**Section Headers:** BREAKFAST, Classic Caesar Salad.

**Description:** Crispy romaine lettuce with creamy Caesar dressing. Bon Appétit! Food that feels like home.

**Meta Data:** 92 hearts, Asian, Vegan, Easy.

**Cooking Time:** Cooking time (clock icon), Preparation 10 minutes, Total 10 minutes.

**Feedback:** Loading feedback...

**Ingredients:** 1 Head Romaine Lettuce, 100 ml Caesar Dressing, 100 Grams Croutons, 50 Grams Parmesan. A note indicates 4 servings.

**Instructions:**

**Form Fields:** Your name: (input field), Your rating: (rating scale from 1 to 5).

# CODE-BEISPIELE

## Beispiel: Seite priorisieren in HTMX



Feedback.jte



<http://localhost:8080/recipes/25?slowdown=2000>



Netzwerk-Tab

The screenshot shows a recipe card for "Classic Caesar Salad" from the website Recipify. At the top, there's a banner with a close button. Below it, the title "Classic Caesar Salad" is displayed in bold. A description follows: "Crispy romaine lettuce with creamy Caesar dressing. Bon Appétit! Food that feels like home." To the right is a large image of the salad. Below the title, there are four small cards: "92 ❤️", "Asian", "Vegan", and "Easy". Under the title, there are three time-related sections: "Cooking time" (with a clock icon), "Preparation" (10 minutes), and "Total" (10 minutes). On the left, under "Ingredients", there's a list: "1 Head Romaine Lettuce", "100 ml Caesar Dressing", "100 Grams Croutons", and "50 Grams Parmesan". On the right, there's a "Feedback" section with a placeholder "Loading feedback..." and a rating scale from 1 to 5 stars. At the bottom, there's a "Your opinion?" section with fields for "Your name:" and "Your rating:".

## Beispiel: Clientseitige Interaktion

- Clientseitige Interaktion

### Ingredients

+ 4 servings -

✓ 1.0 Piece Chicken Breast

✓ 1.0 Head Romaine Lettuce

✓ 100.0 ml Caesar Dressing

✓ 100.0 Grams Croutons

✓ 50.0 Grams Parmesan

## Beispiel: Clientseitige Interaktion in Next.js



IngredientsSection.tsx

### Ingredients

+ 4 servings -

- 1.0 Piece Chicken Breast
- 1.0 Head Romaine Lettuce
- 100.0 ml Caesar Dressing
- 100.0 Grams Croutons
- 50.0 Grams Parmesan

## Beispiel: Clientseitige Interaktion in HTMX

- Wir brauchen spätestens hier JavaScript



Ingredients.jte

### Ingredients

+ 4 servings -

✓ 1.0 Piece Chicken Breast

✓ 1.0 Head Romaine Lettuce

✓ 100.0 ml Caesar Dressing

✓ 100.0 Grams Croutons

✓ 50.0 Grams Parmesan

## Beispiel: Clientseitige Interaktion in HTMX

- Wir brauchen spätestens hier JavaScript



SearchPageContent.jte

The screenshot shows a search interface. At the top right is a small icon of a person wearing a hat and coat. To its right is the text "SearchPageContent.jte". Below this is a search bar with a placeholder text "Type three letters to start search" enclosed in a yellow rectangular border. To the right of the search bar is a "Clear" button.

# Fazit

## FAZIT: SINGLE-PAGE-ANWENDUNG ODER HTMX?

### Single-Page-Anwendung oder HTMX

- It depends (natürlich 😐)

## FAZIT: SINGLE-PAGE-ANWENDUNG ODER HTMX?

### Single-Page-Anwendung oder HTMX

- It depends (natürlich 😐)
- Will ich eine "Hypertext"-Anwendung bauen  
oder
- eine Anwendung, die die Anforderungen meiner Benutzer:innen erfüllt? 😊

## FAZIT: SINGLE-PAGE-ANWENDUNG ODER HTMX?

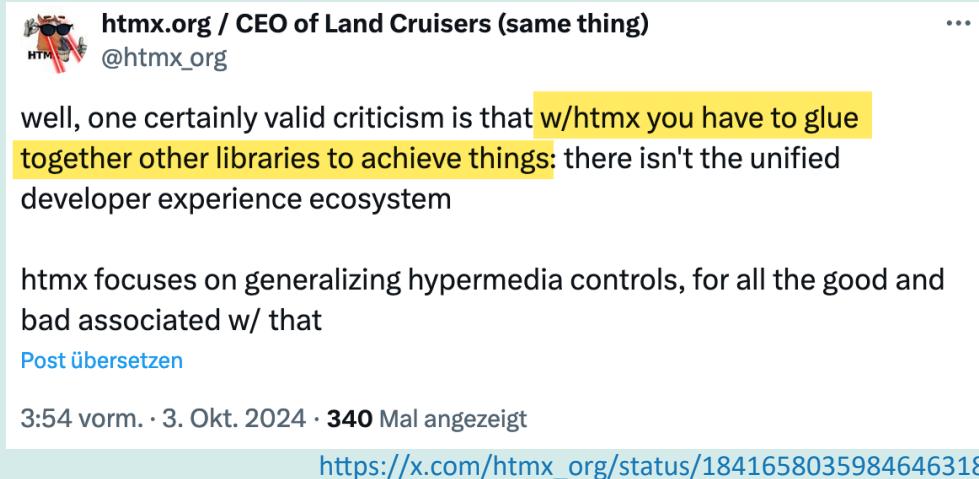
### Single-Page-Anwendung oder HTMX

- Für mich ist "wir machen nur HTML plus bisschen JS" zu kurz gesprungen
- Das sieht man auch an der Vielzahl der HTMX-Attribute

## FAZIT: SINGLE-PAGE-ANWENDUNG ODER HTMX?

### Single-Page-Anwendung oder HTMX

- Für mich ist "wir machen nur HTML plus bisschen JS" zu kurz gesprungen
- Das sieht man auch an der Vielzahl der HTMX-Attribute
- Früher oder später braucht man doch JavaScript



htmx.org / CEO of Land Cruisers (same thing) @htmx\_org ...

well, one certainly valid criticism is that w/htmx you have to glue together other libraries to achieve things: there isn't the unified developer experience ecosystem

htmx focuses on generalizing hypermedia controls, for all the good and bad associated w/ that

[Post übersetzen](#)

3:54 vorm. · 3. Okt. 2024 · 340 Mal angezeigt

[https://x.com/htmx\\_org/status/1841658035984646318](https://x.com/htmx_org/status/1841658035984646318)

### # Executive Summary

- The effort took about 2 months (with a 21K LOC code base, mostly JavaScript)
- No reduction in the application's user experience (UX)
- They reduced the code base size by 67% (21,500 LOC to 7200 LOC)
- They **increased python code by 140%** (500 LOC to 1200 LOC), a good thing if you prefer python to JS
- They reduced their total JS dependencies by 96% (255 to 9)
- They reduced their web build time by 88% (40 seconds to 5)

### # Executive Summary

These:

Wenn "if you prefer YOUR-BACKEND-LANGUAGE-HERE to JS" zutrifft,

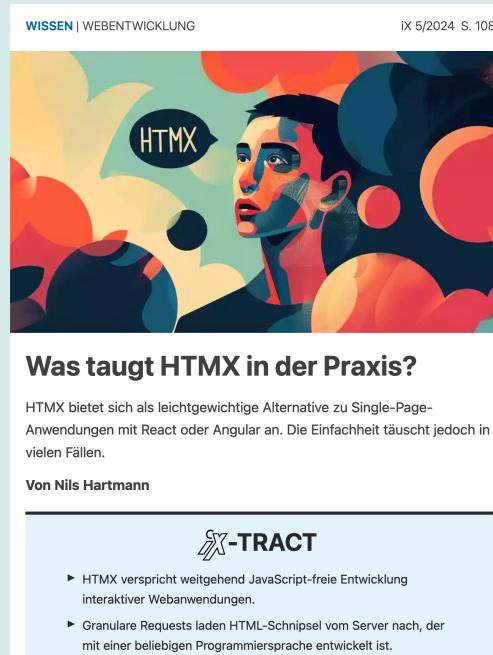
dann ist man vielleicht falsch in der Frontend-Entwicklung



reduced python code by 140% (500 LOC to 1200 LOC), a good thing if  
you prefer python to JS

- They reduced their total JS dependencies by 96% (255 to 9)
- They reduced their web build time by 88% (40 seconds to 5)

# Mein Artikel (heise / iX) zum Thema: <https://react.schule/heise-htmx>



The screenshot shows a magazine spread from 'WISSEN | WEBENTWICKLUNG' issue IX 5/2024, page S. 108. The top half features a colorful abstract illustration of a person's face surrounded by large, stylized, overlapping shapes in shades of red, orange, yellow, and blue. A speech bubble above the head contains the text 'HTMX'. The bottom half contains the following text:

**Was taugt HTMX in der Praxis?**

HTMX bietet sich als leichtgewichtige Alternative zu Single-Page-Anwendungen mit React oder Angular an. Die Einfachheit täuscht jedoch in vielen Fällen.

Von Nils Hartmann

---

**iX-TRACT**

- ▶ HTMX verspricht weitgehend JavaScript-freie Entwicklung interaktiver Webanwendungen.
- ▶ Granulare Requests laden HTML-Schnipsel vom Server nach, der mit einer beliebigen Programmiersprache entwickelt ist.

**NILS HARTMANN**  
<https://nilshartmann.net>



# vielen Dank!

Slides & Code: <https://react.schule/saa-2024>

Fragen und Kontakt

[nils@nilshartmann.net](mailto:nils@nilshartmann.net)

<https://nilshartmann.net/kontakt>

