High-performance web applications with Preact

Maurice de Beijer - @mauricedb

Workshop goal

- Learn what Preact is
- Create a new application using the Preact CLI
- Use best practices to build the Preact application
- Use lazy loading to load components when first needed
- Use Preact-Compat to use standard React packages

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Follow along

- Git repository: https://github.com/mauricedb/preact-workshop
- Slides: http://bit.ly/preact-workshop
- Demo: http://bit.ly/preact-demo

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Type it out by hand?

"Typing it drills it into your brain much better than simply copying and pasting it. You're forming new neuron pathways. Those pathways are going to help you in the future. Help them out now!"

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Prerequisites

Install Node & NPM

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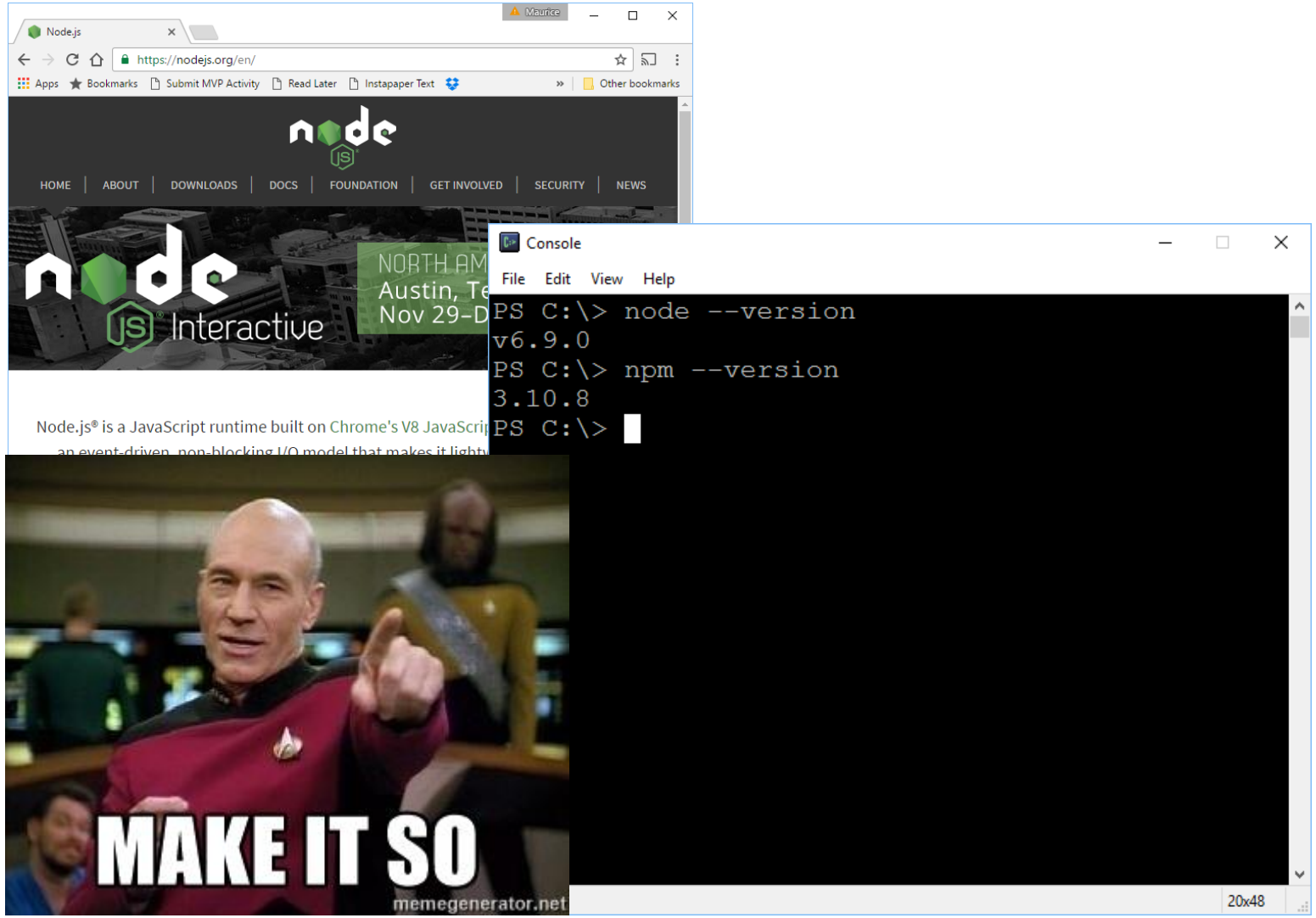
Install Node.js & NPM



What is Preact?

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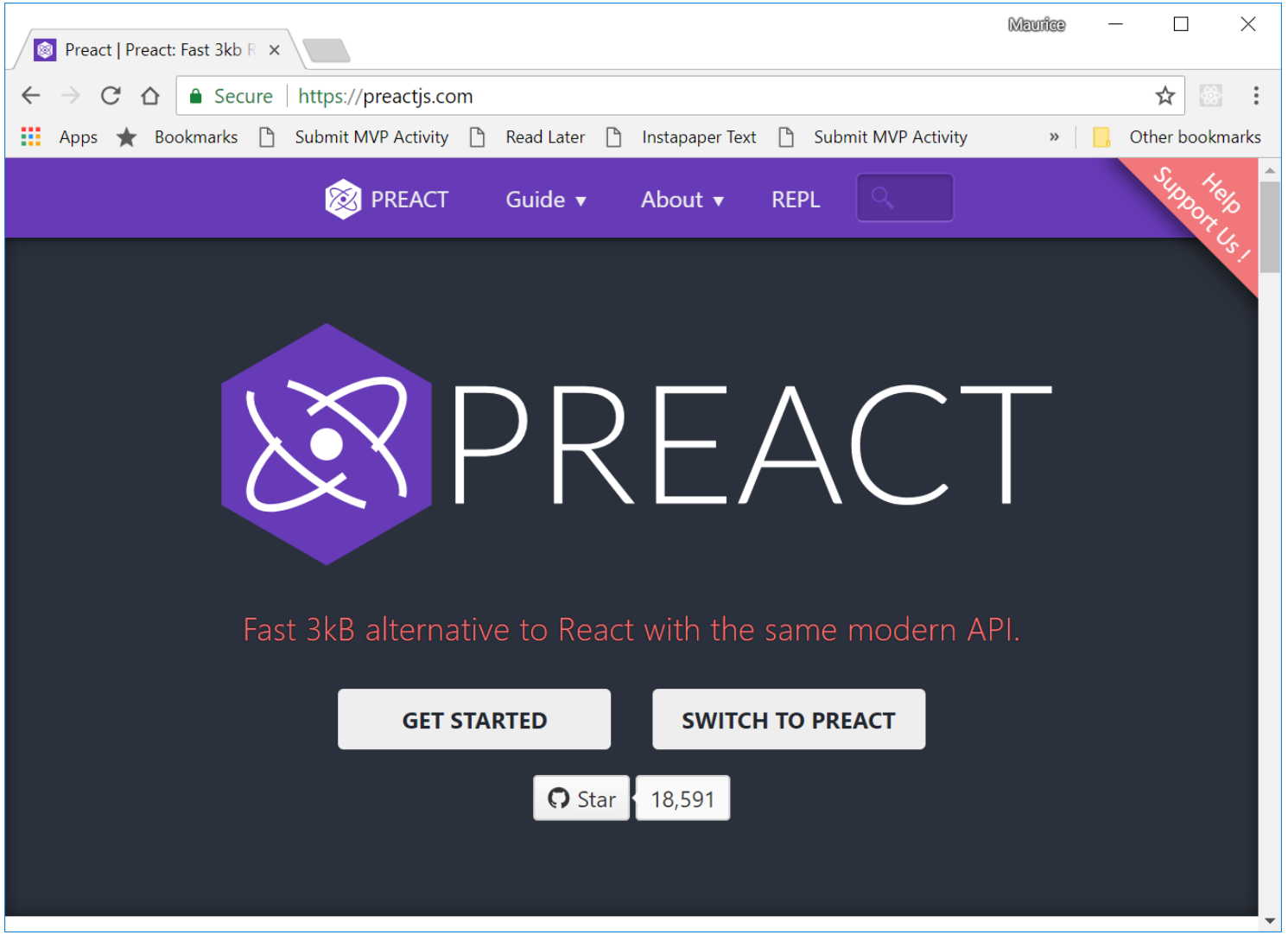
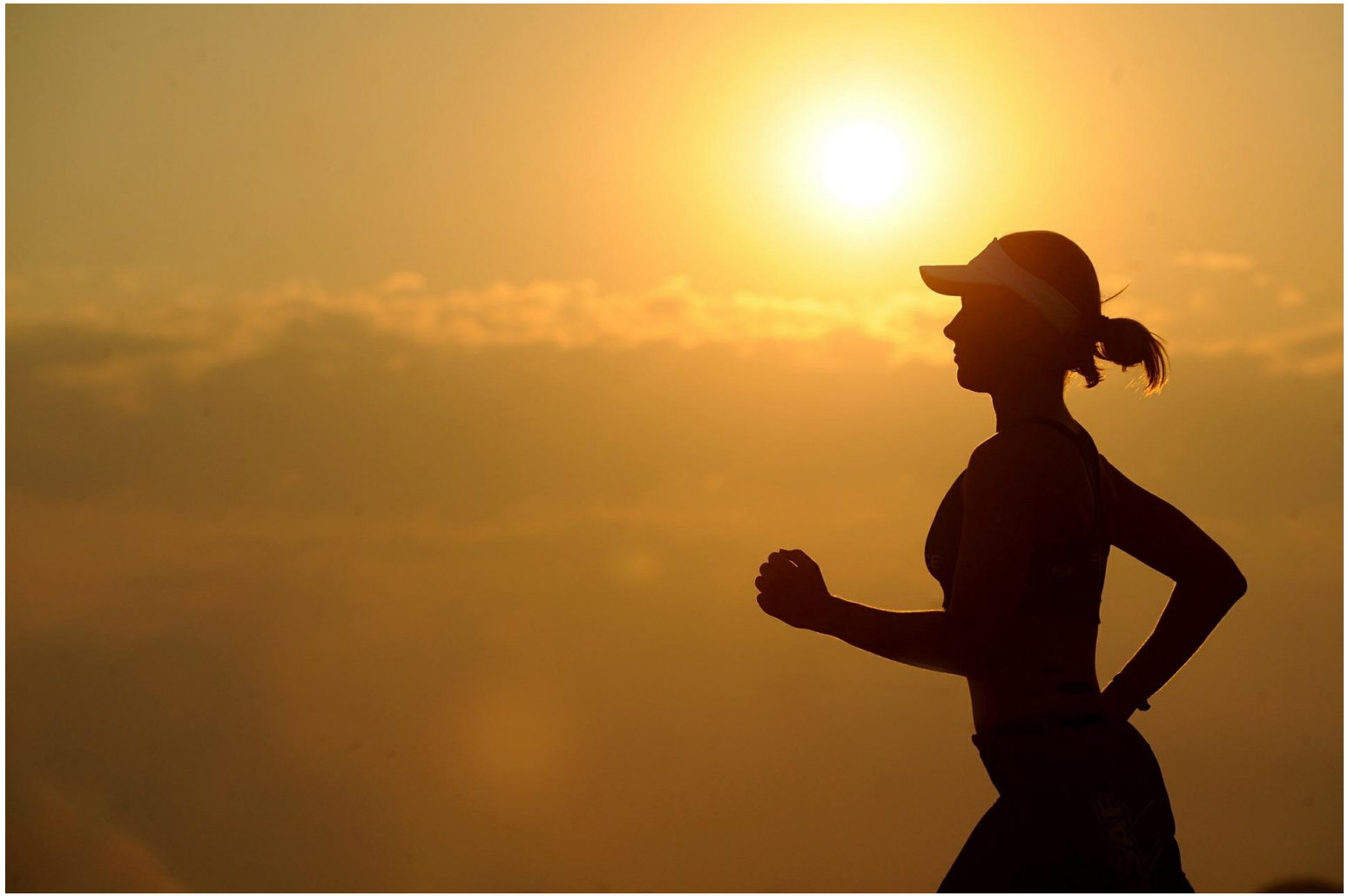
Jason Miller
@_developit



Preact
=
React +
exercise



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Preact Goals

- **Performance**
  - Render quickly & efficiently
- **Size**
  - Small size, lightweight (approximately 3.5kb)
- **Efficiency**
  - Effective memory usage (recycling, avoiding GC thrash)
- **Understandability**
  - Understanding the codebase should take no more than a few hours
- **Compatibility**
  - Preact aims to be largely compatible with the React API. preact-compat attempts to achieve as much compatibility with React as possible.

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A Preact component

```
import { h, render, Component } from "preact"; // <= h() replaces React.createElement()

class Clock extends Component { // <= Always ES2015 classes
  constructor() {
    super();
    this.state.now = new Date();
  }
  componentDidMount() {
    this.timer = setInterval(() => this.setState({ now: new Date() }), 1000);
  }
  componentWillUnmount() {
    clearInterval(this.timer);
  }
  render({}, { now }) { // <= props and state passed
    return <span class="time"> // class instead of className
      {now.toLocaleTimeString()}
    </span>;
  }
}

render(<Clock />, document.body); // <= render() instead of ReactDOM.render()
```

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What is the same?

- Create components based on **ES2015 classes**
  - Or use pure stateless functional components
- **Lifecycle** hooks
- Passing **props** to child components
- **State** managements
- **Controlled** and **uncontrolled** components
- Use **ref** to access DOM objects

What is different?

- Preact is **one library**
  - Includes both components and rendering
- Preact only targets the **browser**
  - No Preact Native
- Use the **h()** instead of the **React.createElement()**
  - Based on the original Hyperscript idea
- **DOM updates** are batched using **setTimeout(1)**
- The **props** and **state** are passed as parameters to the **render()**
  - Also available as properties
- Use the **class** prop to specify CSS classes instead of **className**
  - className is also supported
- Children receive all **context** entries

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Configuring Babel to compile to h()

```
{
  "plugins": [
    ["transform-react-jsx", { "pragma":"h" }]
  ]
}
```

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What is missing?

- **PropType** validation
  - Part of preact-compat
- React.Children
  - Part of preact-compat
- **Synthetic Events**
  - Preact only targets the Browser
- **Context** is simplified

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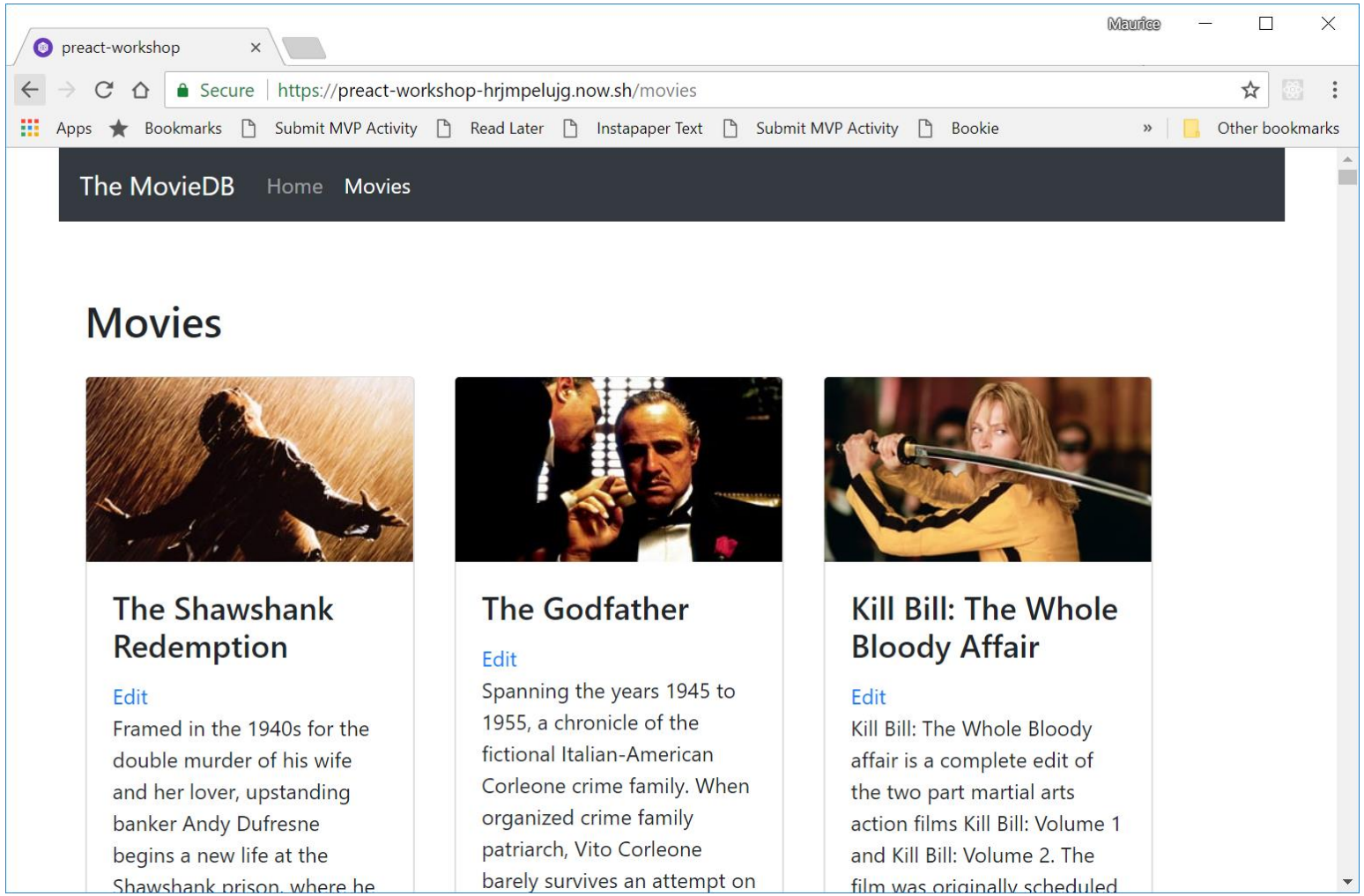
The MovieDB

http://bit.ly/preact-demo

With data from https://www.themoviedb.org

The MovieDB



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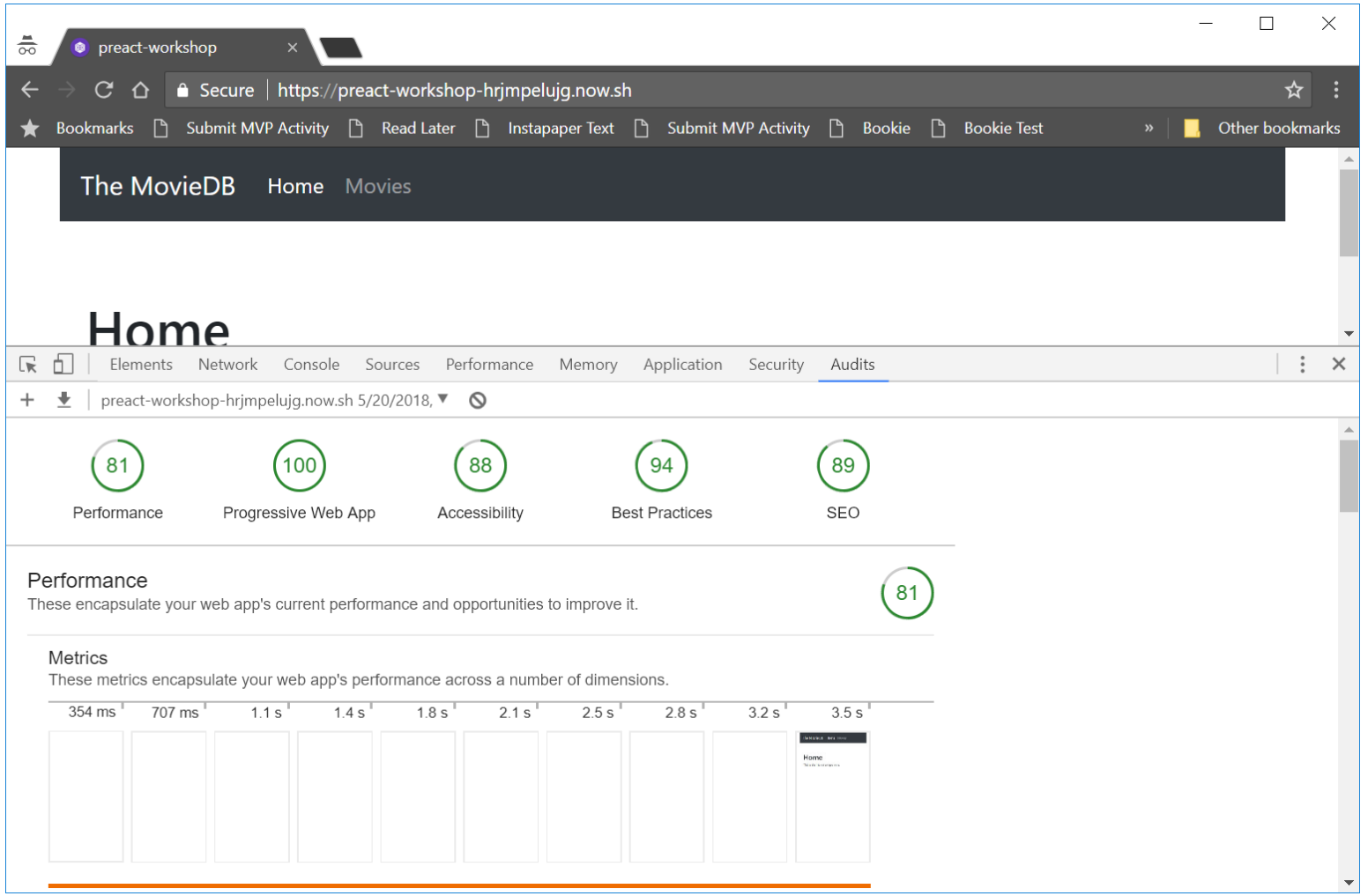
Lighthouse Audit



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Install Preact CLI

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Install Preact CLI

```
PS C:\Repos> npm install -g preact-cli
C:\Users\mauri\AppData\Roaming\npm\preact -> C:\Users\mauri\AppData\Roaming

> preact-cli@2.1.0 postinstall C:\Users\mauri\AppData\Roaming\npm\node_modu
> node -p 'require("./check.js")()'

require(./check.js)()
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.1.3 (node_module
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fseve

+ preact-cli@2.1.0
added 116 packages and updated 5 packages in 55.736s
```

```
PS C:\Repos> preact --version

preact-cli 2.1.0

with a specific command, enter:
help [command]

[template] [dest]  Create a new application.
src] [dest]        Create a production build in build/
src]               Start a development live-reload server.
dir]               Start an HTTP2 static fileserver.
                   List all official templates

-h, --help  Show help                                    [boolean]
```

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Create a basic application

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Create a basic application

```
PS C:\temp> preact create default preact-workshop
i INFO Assuming you meant preactjs-templates/default...
- Creating project
!! WARN Your `short_name` should be fewer than 12 characters.
√ Done!

To get started, cd into the new directory:
  cd preact-workshop

To start a development live-reload server:
  npm run start

To create a production build (in ./build):
  npm run build

rt a production HTTP/2 server:
run serve
```

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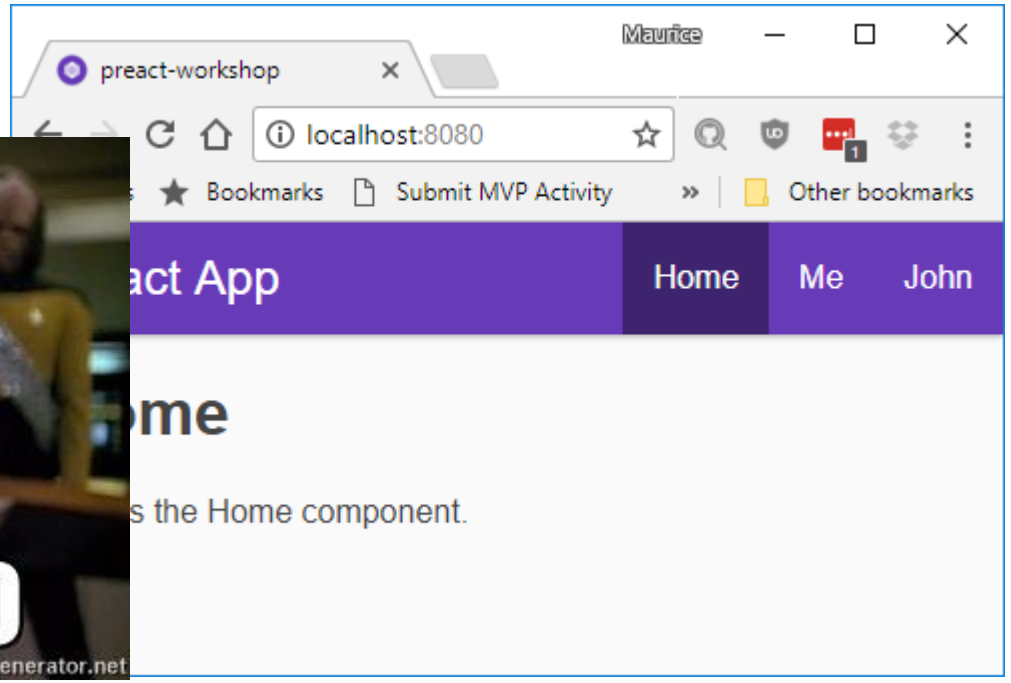
Start the application

```
PS C:\temp> cd .\preact-demo\
PS C:\temp\preact-demo> npm start
```



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Code layout

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Using Prettier?

```
PS C:\Repos\preact-workshop> npm install --save-dev eslint-config-prettier
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.1.3 (node_modules\fsevents):
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.1.3: wanted

+ eslint-config-prettier@2.7.0
added 118 packages in 11.974s
```

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Update the ES-Lint configuration

package.json

You, a few seconds ago | 2 authors (Maurice de Beijer and others)

```
{
  "private": true,
  "name": "preact-workshop",
  "version": "0.0.0",
  "license": "MIT",
  "scripts": {
    "start": "if-env NODE_ENV=production && npm run -s serve || npm run -s dev",
    "build": "preact build",
    "serve": "preact build && preact serve",
    "dev": "preact watch",
    "lint": "eslint src"
  },
  "eslintConfig": {
    "extends": ["eslint-config-synacor", "prettier"]
  },
```

Add a movies route

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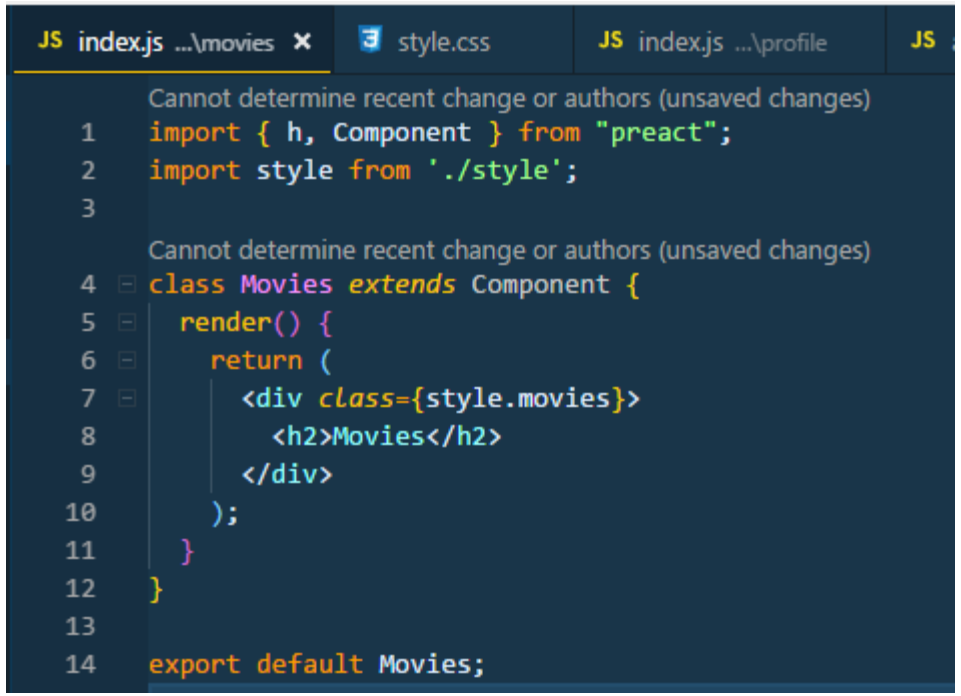
The movies component



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The movies style

style.css × | index.js ...\movies | inde

```
1  .movies {
2      padding: 56px 20px;
3      min-height: 100%;
4      width: 100%;
5  }
6
```

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Routing in app.js

app.js | style.css | index.js ...\movies | index.js ...\header

You, 8 minutes ago | 2 authors (You and others)

```
import { h, Component } from "preact";
import { Router } from "preact-router";

import Header from "./header";
import Home from "../routes/home";
import Profile from "../routes/profile";
import Movies from "../routes/movies";

You, 8 minutes ago | 2 authors (You and others)
export default class App extends Component {
  /** Gets fired when the route changes.
   *  @param {Object} event       "change" event from [preact-router](http://git.io/preact-router)
   *  @param {string} event.url   The newly routed URL
   */
  handleRoute = e => {
    this.currentUrl = e.url;
  };

  render() {
    return (
      <div id="app">
        <Header />
        <Router onChange={this.handleRoute}>
          <Home path="/" />
          <Movies path="/movies" />
          <Profile path="/profile/" user="me" />
          <Profile path="/profile/:user" />
        </Router>
      </div>
    );
  }
}
```

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Updated header

JS index.js ...\header ✖ | JS index.js ...\movies | JS app.js | style.css

You, 7 minutes ago | 2 authors (Maurice de Beijer and others)

```
1  import { h, Component } from 'preact';
2  import { Link } from 'preact-router/match';
3  import style from './style';
4
   You, 7 minutes ago | 2 authors (Maurice de Beijer and others)
5  export default class Header extends Component {
6      render() {
7          return (
8              <header class={style.header}>
9                  <h1>Preact App</h1>
10                 <nav>
11                     <Link activeClassName={style.active} href="/">Home</Link>
12                     <Link activeClassName={style.active} href="/movies">Movies</Link>
13                     <Link activeClassName={style.active} href="/profile">Me</Link>
14                     <Link activeClassName={style.active} href="/profile/john">John</Link>
15                 </nav>
16             </header>
17         );
18     }
19 }
```

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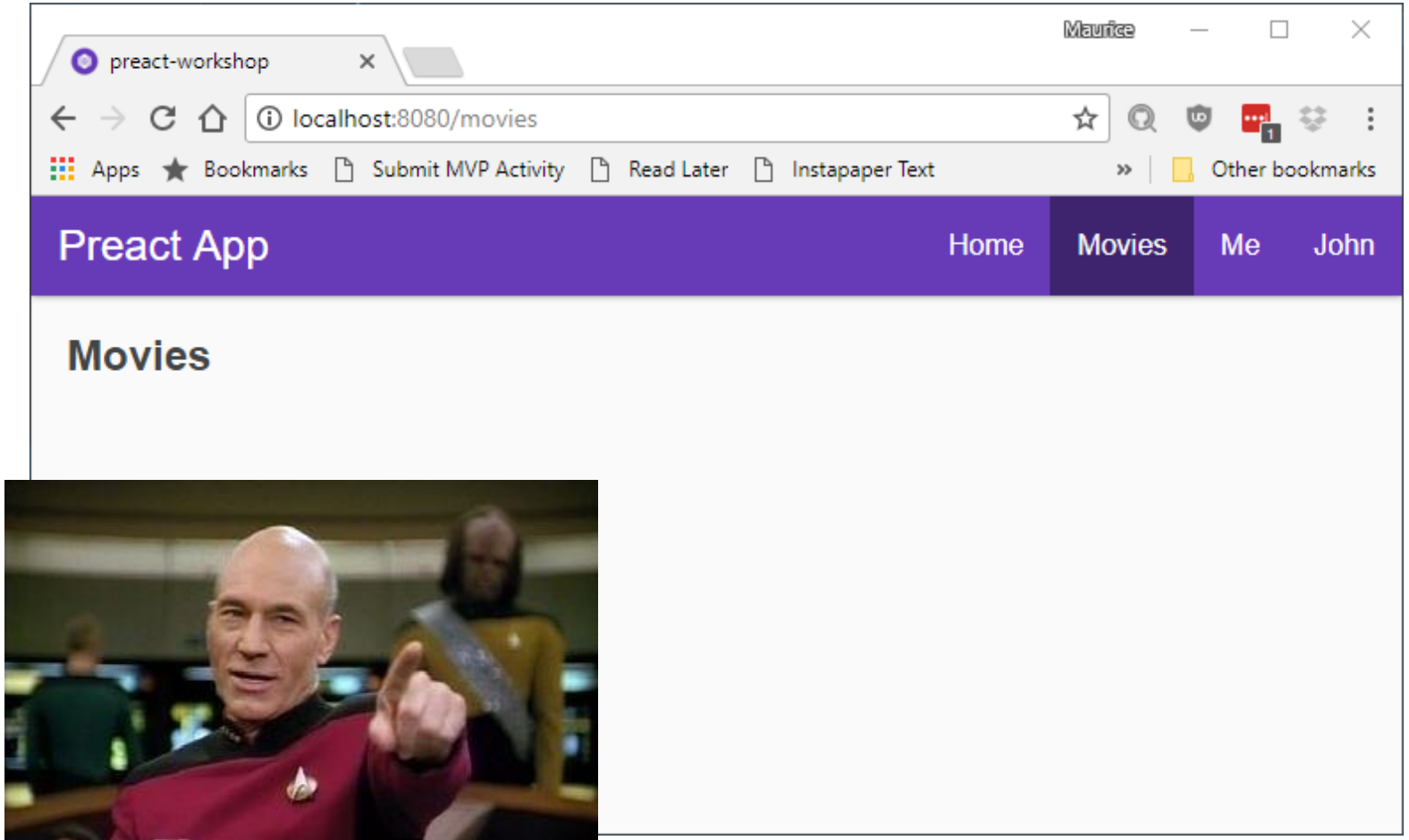

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Removing the profile page

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Remove profile route and component

- Delete the .\src\routes\profile\ folder

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Delete profile from App component

app.js | index.js

Maurice de Beijer, 6 minutes ago | 1 author (Maurice de Beijer)

```
import { h, Component } from "preact";
import { Router } from "preact-router";

import Header from "./header";
import Home from "../routes/home";
import Movies from "../routes/movies";

Maurice de Beijer, 6 minutes ago | 1 author (Maurice de Beijer)
export default class App extends Component {
  /** Gets fired when the route changes.
   *  @param {Object} event   "change" event from [preact-router](http://git.io/preact-router)
   *  @param {string} event.url The newly routed URL
   */
  handleRoute = e => {
    this.currentUrl = e.url;
  };

  render() {
    return (
      <div id="app">
        <Header />
        <Router onChange={this.handleRoute}>
          <Home path="/" />
          <Movies path="/movies" />
        </Router>
      </div>
    );
  }
}
```

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Delete profile from Header component

JS index.js × JS app.js

Maurice de Beijer, 7 minutes ago | 1 author (Maurice de Beijer)

```
1  import { h, Component } from 'preact';
2  import { Link } from 'preact-router/match';
3  import style from './style';
4
   Maurice de Beijer, 7 minutes ago | 1 author (Maurice de Beijer)
5  export default class Header extends Component {
6      render() {
7          return (
8              <header class={style.header}>
9                  <h1>Preact App</h1>
10                 <nav>
11                     <Link activeClassName={style.active} href="/">Home</Link>
12                     <Link activeClassName={style.active} href="/movies">Movies</Link>
13                 </nav>
14             </header>
15         );
16     }
17 }
```

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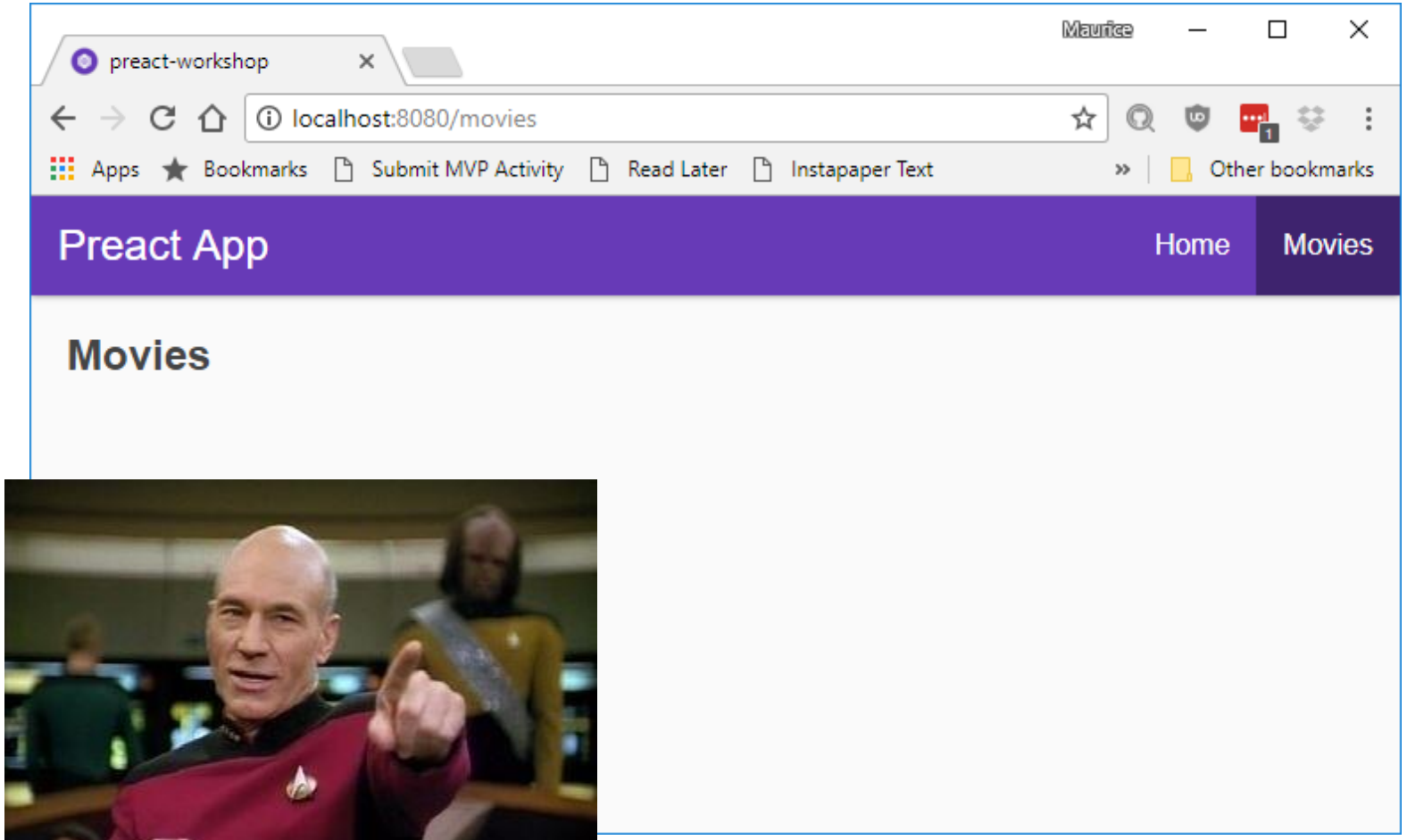

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Displaying a movies list

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Show a list of movies

- Add API folder with movies.json

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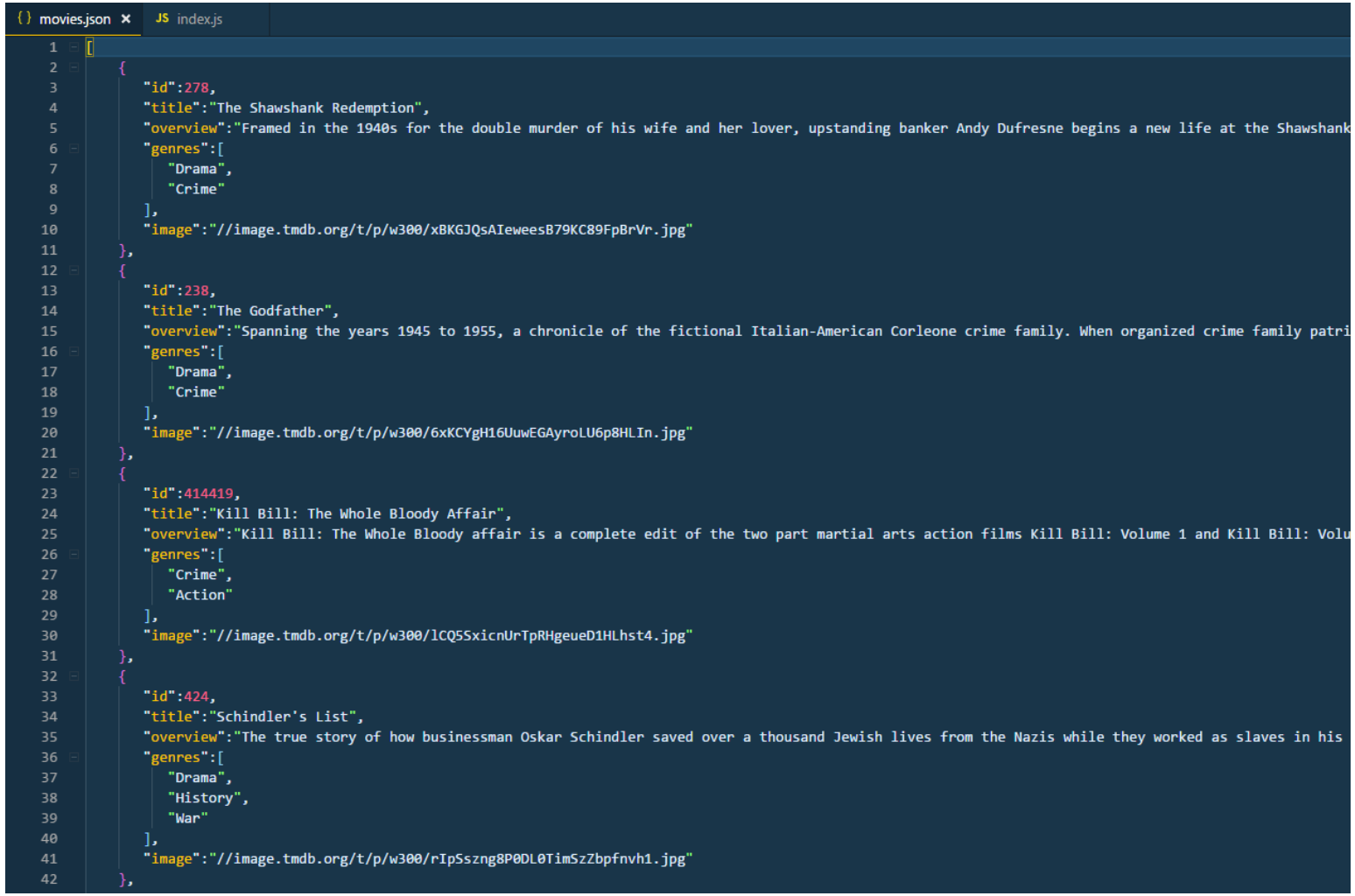
Add API folder with movies.json



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Update the Movies component

JS index.js × { } movies.json

You, a few seconds ago | 2 authors (You and others)

```
1  import { h, Component } from "preact";
2  import style from "./style";
3
   You, a few seconds ago | 2 authors (You and others)
4  class Movies extends Component {
5    state = {
6      movies: []
7    };
8
9    componentDidMount() {
10     fetch("/api/movies.json")
11       .then(rsp => rsp.json())
12       .then(movies => this.setState({ movies }));
13   }
14
15   render({}, { movies }) {
16     return (
17       <div class={style.movies}>
18         <h2>Movies</h2>
19         <ul>{movies.map(movie => <li>{movie.title}</li>)}</ul>
20       </div>
21     );
22   }
23 }
24
25 export default Movies;
```

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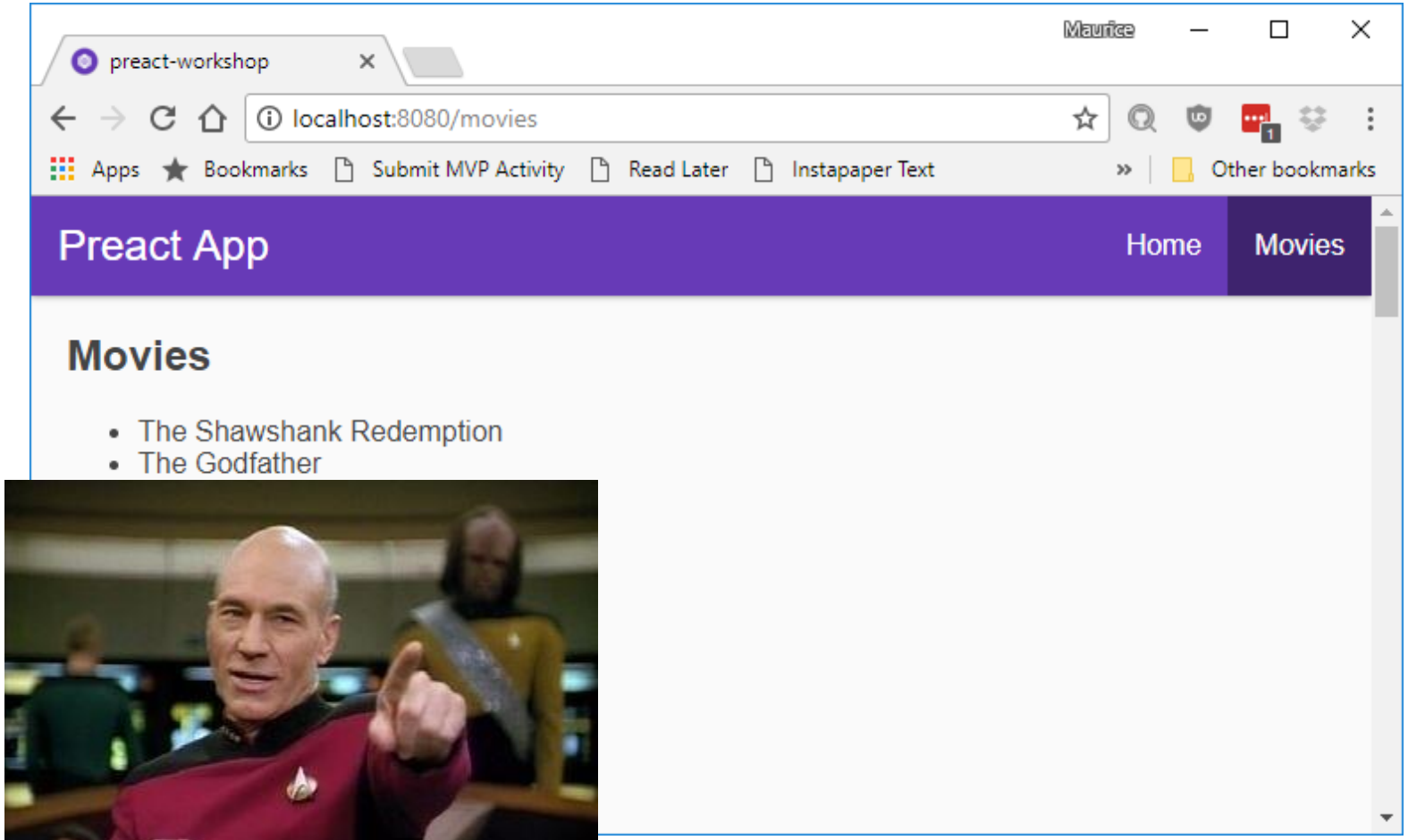

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Component best practice

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Use container & presentation components

- Split Movies component into a container component and presentational component

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Movies Presentation

JS movies-presentation.js × JS index.js JS movies-container.js

```
1   import { h, Component } from "preact";
2   import style from "./style";
3
4   const MoviesPresentation = ({ movies }) => (
5     <div class={style.movies}>
6       <h2>Movies</h2>
7       <ul>{movies.map(movie => <li>{movie.title}</li>)}</ul>
8     </div>
9   );
10
11  export default MoviesPresentation;
```

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Movies Container

JS movies-container.js × JS movies-presentation.js JS index.js

```
1  import { h, Component } from "preact";
2  import MoviesPresentation from "./movies-presentation";
3
4  class MoviesContainer extends Component {
5    state = {
6      movies: []
7    };
8
9    componentDidMount() {
10     fetch("/api/movies.json")
11       .then(rsp => rsp.json())
12       .then(movies => this.setState({ movies }));
13   }
14
15   render({}, { movies }) {
16     return <MoviesPresentation movies={movies} />;
17   }
18 }
19
20 export default MoviesContainer;
```

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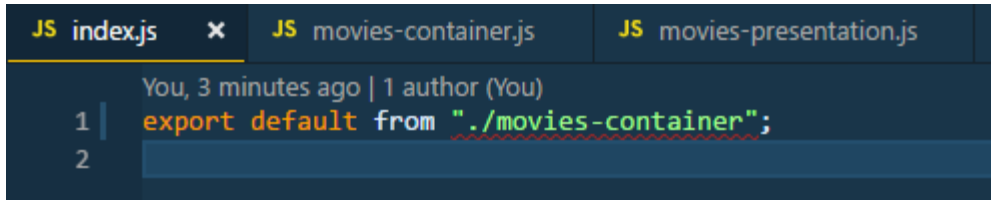
Index.js



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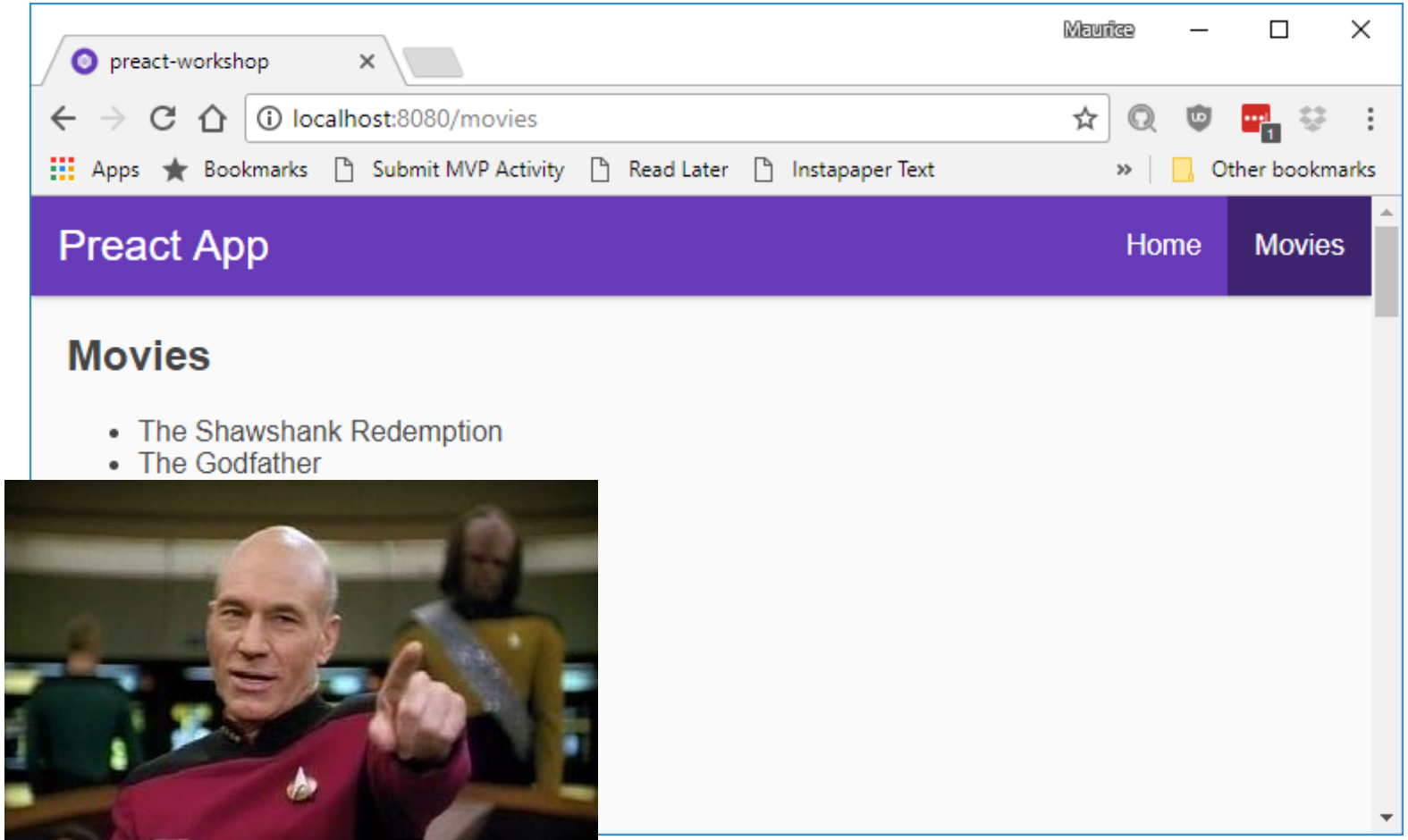
Maurice
preact-workshop
localhost:8080/movies
Apps
Bookmarks
Submit MVP Activity
Read Later
Instapaper Text
Other bookmarks
Preact App
Home
Movies
Movies
The Shawshank Redemption
The Godfather

MAKE IT SO
memegenerator.net

Using Bootstrap 4 for styles

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Install Bootstrap 4

```
PS C:\Repos\preact-workshop> npm install bootstrap
npm WARN bootstrap@4.1.1 requires a peer of jquery@1.9.1 - 3 but none is installed. You must ins
tall peer dependencies yourself.
npm WARN bootstrap@4.1.1 requires a peer of popper.js@^1.14.3 but none is installed. You must in
stall peer dependencies yourself.
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.2.3 (node_modules\fsevents):
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.3: wanted {"
os":"darwin","arch":"any"} (current: {"os":"win32","arch":"x64"})

+ bootstrap@4.1.1
```

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Including the Bootstrap CSS

JS index.js × JS app.js

```
1  import "bootstrap/dist/css/bootstrap.min.css";
2  import App from "./components/app";
3
4  export default App;
```

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Add the container class

JS app.js × JS index.js

```
You, 2 minutes ago | 2 authors (Maurice de Beijer and others)
import { h, Component } from "preact";
import { Router } from "preact-router";

import Header from "./header";
import Home from "../routes/home";
import Movies from "../routes/movies";

You, 2 minutes ago | 2 authors (Maurice de Beijer and others)
export default class App extends Component {
  /** Gets fired when the route changes.
   * @param {Object} event   "change" event from [preact-router](http://git.io/preact-router)
   * @param {string} event.url The newly routed URL
   */
  handleRoute = e => {
    this.currentUrl = e.url;
  };

  render() {
    return (
      <div id="app" class="container">
        <Header />
        <Router onChange={this.handleRoute}>
          <Home path="/" />
          <Movies path="/movies" />
        </Router>
      </div>
    );
  }
}
```

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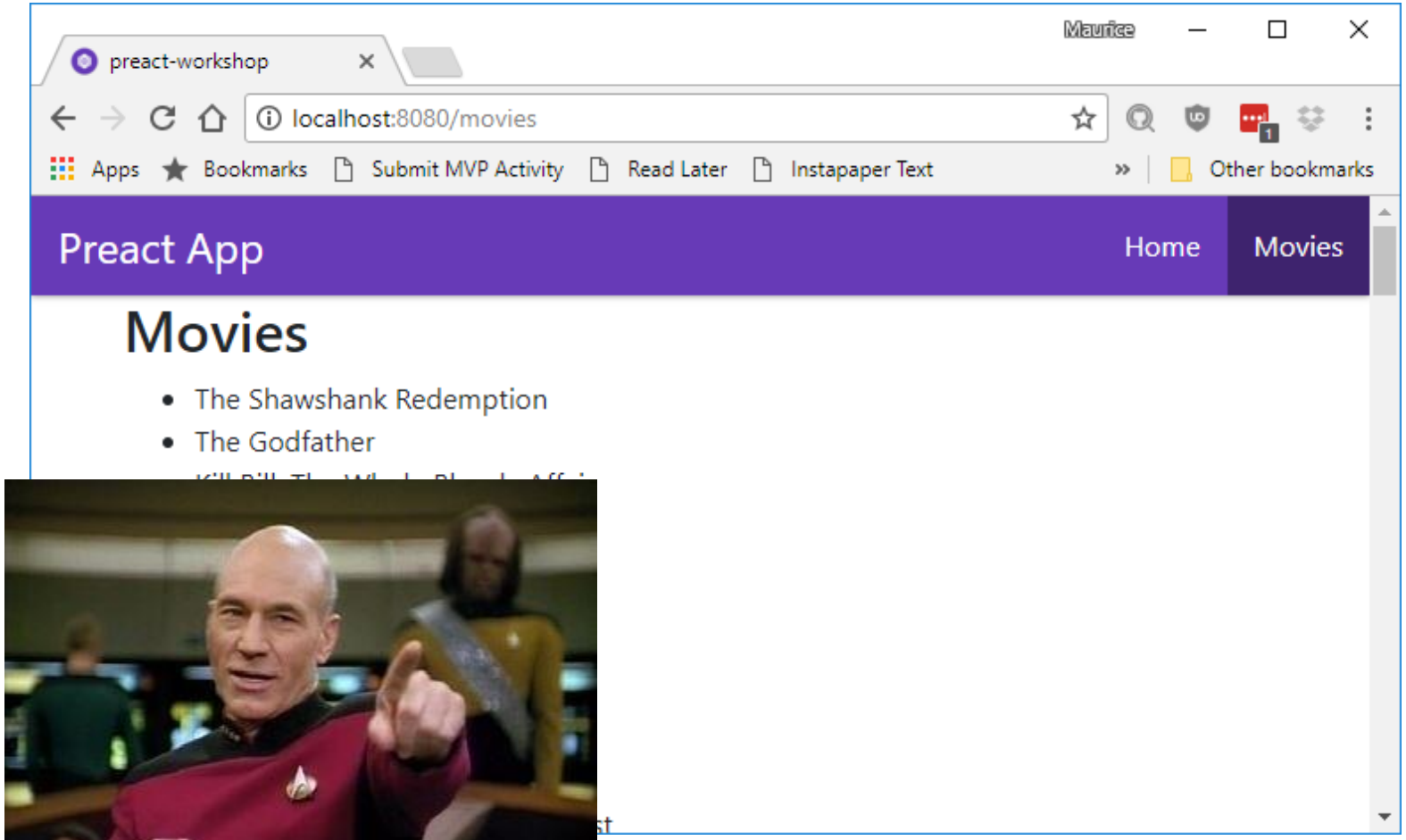
Maurice
preact-workshop
localhost:8080/movies
Apps
Bookmarks
Submit MVP Activity
Read Later
Instapaper Text
Other bookmarks
Preact App
Home
Movies
Movies
The Shawshank Redemption
The Godfather

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Bootstrap NavBar

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Create Boostrap 4 Navbar

- Delete .\src\components\header\styles.css

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The header component

JS index.js

You, 3 minutes ago | 2 authors (You and others)

```
import { h } from "preact";
import { Link } from "preact-router/match";

export default () => (
  <nav class="navbar navbar-expand-lg navbar-dark bg-dark">
    <Link class="navbar-brand" href="/">
      The MovieDB
    </Link>
    <ul class="navbar-nav mr-auto">
      <li class="nav-item">
        <Link class="nav-link" activeClassName="active" href="/">
          Home
        </Link>
      </li>
      <li class="nav-item">
        <Link class="nav-link" activeClassName="active" href="/movies">
          Movies
        </Link>
      </li>
    </ul>
  </nav>
);
```

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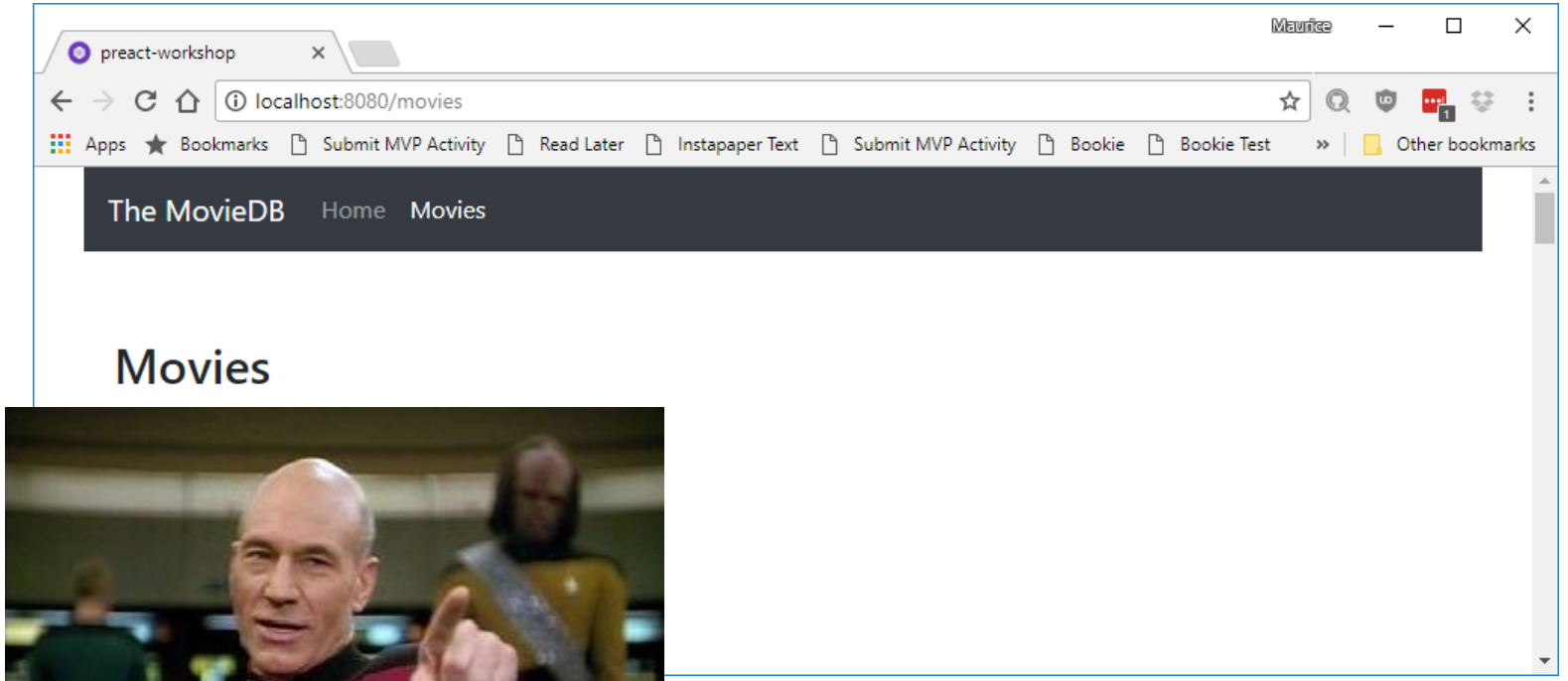

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Create a movie component

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A movie card

JS index.js × | style.css | JS movies-presentation.js

```
1  import { h, Component } from "preact";
2  import style from "./style";
3
4  export default ({ movie }) => {
5    return (
6      <div class={["card", style.movieCard].join(" ")}>
7        <img
8          class="card-img-top"
9          src={movie.image}
10         alt="Card image cap"
11       />
12       <div class="card-body">
13         <h4 class="card-title">{movie.title}</h4>
14         <p class="card-text">{movie.overview}</p>
15       </div>
16       <div class="card-footer text-cente">
17         {movie.genres.map(genre => (
18           <span
19             class={["badge", "badge-pill", "badge-info", style.genreBadge].join(
20               " "
21             )}
22           >
23             {genre}
24           </span>
25         ))}
26       </div>
27     </div>
28   );
29 };
```

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CSS for the movie card

JS index.js | style.css × | JS mov

```
1  .movieCard {
2    min-width: 250px;
3    max-width: 250px;
4    margin-top: 15px;
5    margin-bottom: 15px;
6  }
7
8  .genreBadge {
9    margin-right: 3px;
10 }
```

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Updated Movies Presentation

JS movies-presentation.js × JS index.js style.css

You, a few seconds ago | 2 authors (Maurice de Beijer and others)

```
1  import { h, Component } from "preact";
2  import style from "./style";
3
4  import Movie from "../../components/movie";
5
6  export default ({ movies }) => (
7    <div class={style.movies}>
8      <h2>Movies</h2>
9      <div class="card-deck">
10       {movies.map(movie => <Movie movie={movie} />)}
11     </div>
12   </div>
13 );
```

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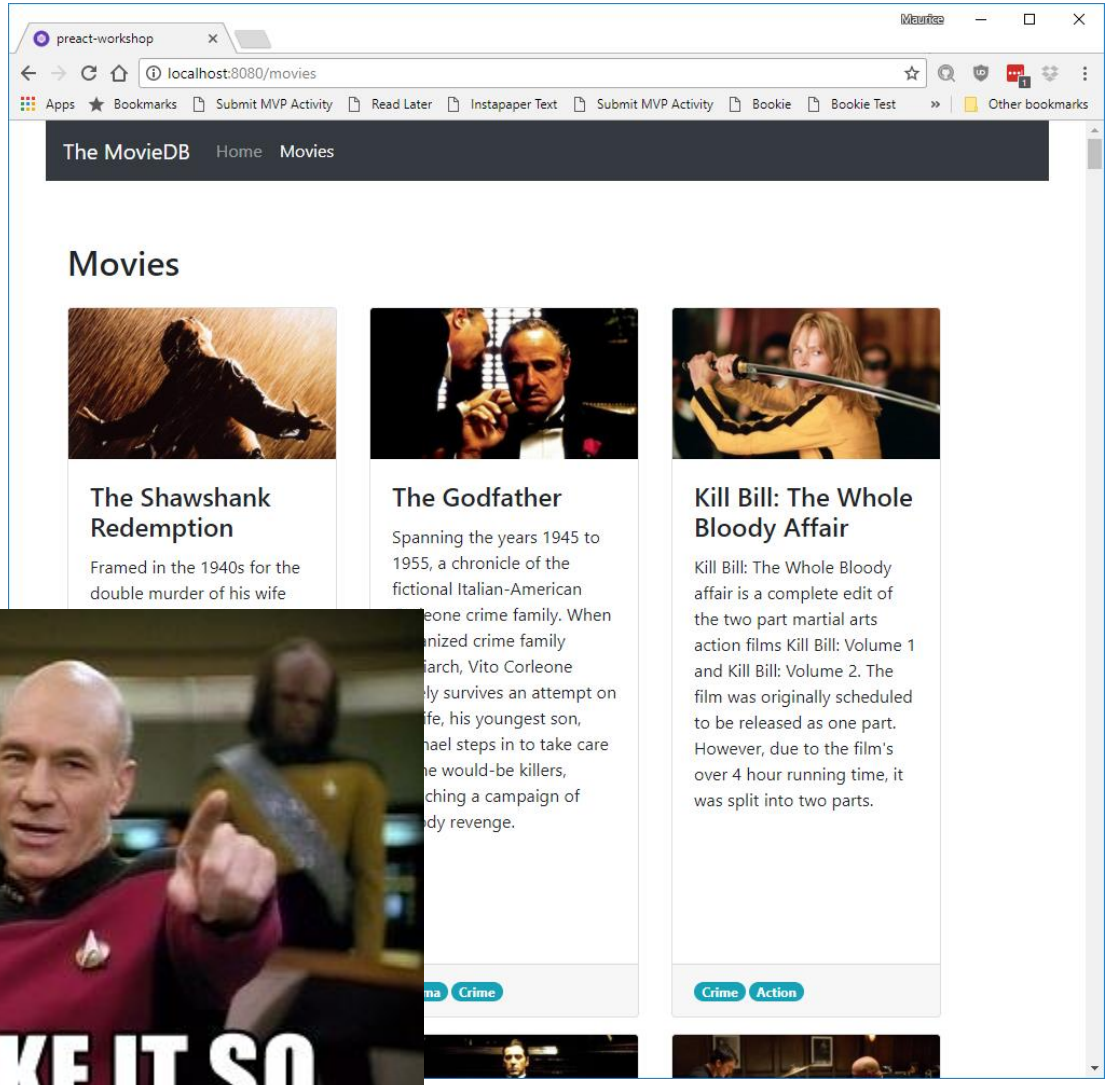
preact-workshop
localhost:8080/movies
Apps Bookmarks Submit MVP Activity Read Later Instapaper Text Submit MVP Activity Bookie Bookie Test Other bookmarks
The MovieDB Home Movies
Movies
The Shawshank Redemption
Framed in the 1940s for the double murder of his wife
The Godfather
Spanning the years 1945 to 1955, a chronicle of the fictional Italian-American
Kill Bill: The Whole Bloody Affair
Kill Bill: The Whole Bloody affair is a complete edit of the two part martial arts action films Kill Bill: Volume 1 and Kill Bill: Volume 2. The film was originally scheduled to be released as one part. However, due to the film's over 4 hour running time, it was split into two parts.
Crime
Crime Action

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Add a route to view/edit movie details

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The Input component

JS index.js ...\input ✕ | JS index.js ...\textarea | JS movie-presentation.js | JS

```
1  import { h } from "preact";
2
3  export default ({ value, name, children, onChange }) => (
4    <div class="form-group">
5      <label for={name}>{children}</label>
6      <input
7        type="text"
8        class="form-control"
9        id={name}
10       value={value}
11       onChange={e => onChange(e.target.value, name)}
12     />
13   </div>
14 );
```

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The TextArea component

JS index.js ...\textarea ✕ | JS index.js ...\input | JS movie-presentation.js

```
1  import { h } from "preact";
2
3  export default ({ value, name, children, onChange }) => (
4    <div class="form-group">
5      <label for={name}>{children}</label>
6      <textarea
7        type="text"
8        class="form-control"
9        id={name}
10       value={value}
11       rows="5"
12       onChange={e => onChange(e.target.value, name)}
13     />
14   </div>
15 );
```

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The Movie Presentation component

JS movie-presentation.js × | JS movie-container.js | JS index.js ...\input | JS index.js ...\componen

```
1   import { h } from "preact";
2   import { Link } from "preact-router";
3
4   import Input from "../../components/input";
5   import TextArea from "../../components/textarea";
6
7   export default ({ movie, onChange, onSave }) => (
8     <form>
9       <Input value={movie.title} name="title" onChange={onChange}>
10        Title
11      </Input>
12      <TextArea value={movie.overview} name="overview" onChange={onChange}>
13        Overview
14      </TextArea>
15      <div class="btn-group">
16        <button type="button" className="btn btn-primary" onClick={onSave}>
17          Save changes
18        </button>
19        <Link className="btn btn-warning" href="/movies">
20          Cancel
21        </Link>
22      </div>
23    </form>
24  );
```

The Movie Container

JS movie-container.js × | JS movie-presentation.js | JS index.js ...\textarea | JS in

Cannot determine recent change or authors (unsaved changes)

```
import { h, Component } from "preact";
import MoviePresentation from "./movie-presentation";

export default class MovieContainer extends Component {
  state = { movie: null };

  onChange = (value, name) => {
    const movie = { ...this.state.movie, [name]: value };

    this.setState({ movie });
  };

  onSave = () => {
    alert("Saving " + this.state.movie.title);
  };

  componentDidMount() {
    const id = +this.props.id;

    fetch("/api/movies.json")
      .then(rsp => rsp.json())
      .then(movies => movies.find(m => m.id === id))
      .then(movie => this.setState({ movie }));
  }

  render(props, { movie }) {
    if (!movie) return null;

    return (
      <MoviePresentation
        movie={movie}
        onChange={this.onChange}
        onSave={this.onSave}
      />
    );
  }
}
```

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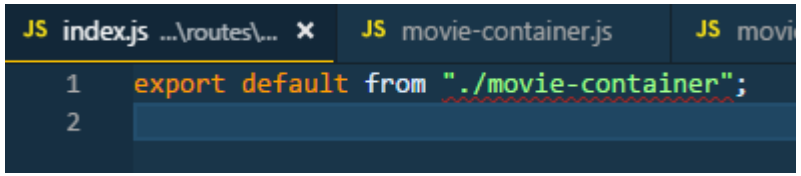
The index.js


JS index.js ...\routes\...
JS movie-container.js
JS movi
1 export default from "./movie-container";
2

Updated Movie card

JS index.js ...\components\movie × | JS index.js ...\routes\... | JS movie-container.js | JS movie-presentatic

You, 7 minutes ago | 2 authors (You and others)

```
1  import { h } from "preact";
2  import { Link } from "preact-router";
3  import style from "./style";
4
5  export default ({ movie }) => (
6    <div class={["card", style.movieCard].join(" ")}>
7      <img class="card-img-top" src={movie.image} alt="Card image cap" />
8      <div class="card-body">
9        <h4 class="card-title">{movie.title}</h4>
10       <Link href={`/movie/${movie.id}`}>Edit</Link>
11       <p class="card-text">{movie.overview}</p>
12     </div>
13     <div class="card-footer text-cente">
14       {movie.genres.map(genre => (
15         <span
16           class={["badge", "badge-pill", "badge-info", style.genreBadge].join(
17             " "
18           )}
19         >
20           {genre}
21         </span>
22       ))}
23     </div>
24   </div>
25 );
```

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Updated App with movie route

JS app.js × | JS index.js ...\components\movie | JS index.js ...\routes\... | JS movie-container.js | JS movie-presentat

You, a few seconds ago | 2 authors (Maurice de Beijer and others)

```
import { h, Component } from "preact";
import { Router } from "preact-router";

import Header from "./header";
import Home from "../routes/home";
import Movies from "../routes/movies";
import Movie from "../routes/movie";

You, a few seconds ago | 2 authors (Maurice de Beijer and others)
export default class App extends Component {
  /** Gets fired when the route changes.
   *  @param {Object} event   "change" event from [preact-router](http://git.io/preact-router)
   *  @param {string} event.url The newly routed URL
   */
  handleRoute = e => {
    this.currentUrl = e.url;
  };

  render() {
    return (
      <div id="app" class="container">
        <Header />
        <Router onChange={this.handleRoute}>
          <Home path="/" />
          <Movies path="/movies" />
          <Movie path="/movie/:id" />
        </Router>
      </div>
    );
  }
}
```

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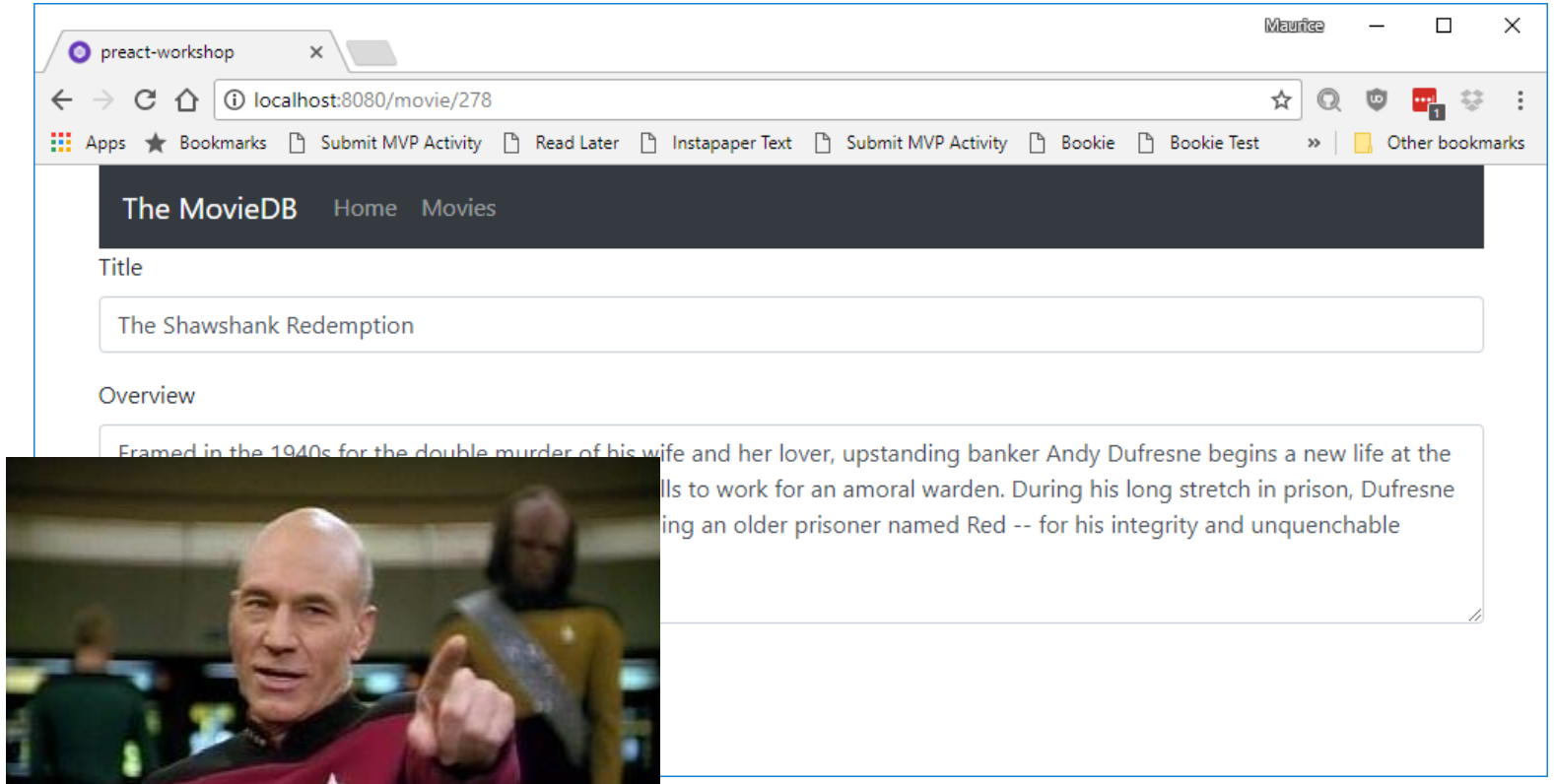
Maurice
preact-workshop
localhost:8080/movie/278
Apps
Bookmarks
Submit MVP Activity
Read Later
Instapaper Text
Submit MVP Activity
Bookie
Bookie Test
Other bookmarks
The MovieDB
Home
Movies
Title
The Shawshank Redemption
Overview
Framed in the 1940s for the double murder of his wife and her lover, upstanding banker Andy Dufresne begins a new life at the
lls to work for an amoral warden. During his long stretch in prison, Dufresne
ing an older prisoner named Red -- for his integrity and unquenchable

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Optimizing the application

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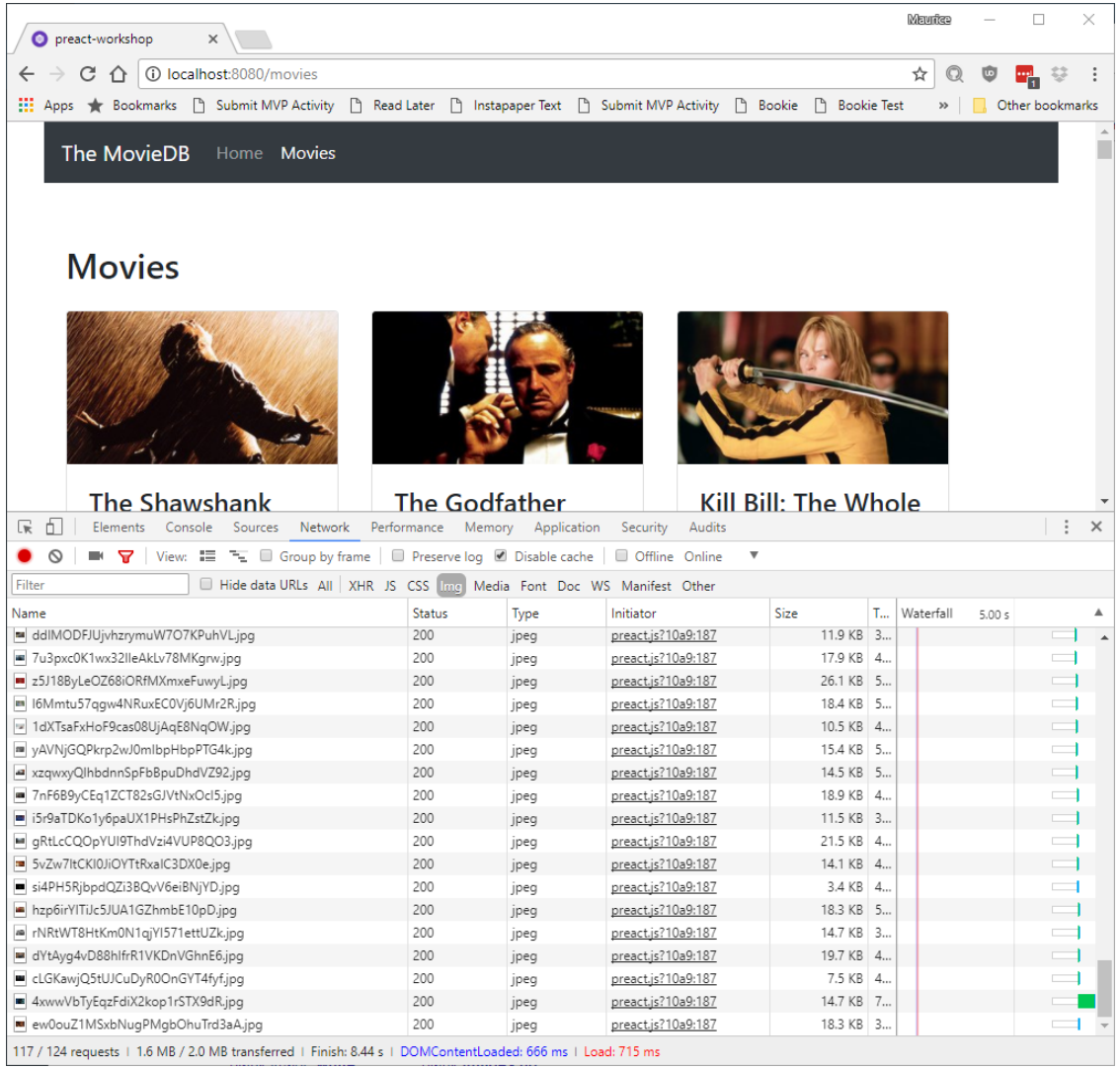
Only render visible images



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Adding an intersection-observer polyfill

```
PS C:\Repos\preact-workshop> npm install intersection-observer
npm WARN bootstrap@4.0.0-beta.2 requires a peer of jquery@1.9.1 - 3 but none is installed.
npm WARN bootstrap@4.0.0-beta.2 requires a peer of popper.js@^1.12.3 but none is installed.
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.1.3 (node_modules\fsevents):
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.1.3: want

+ intersection-observer@0.4.3
added 117 packages in 29.056s
```

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Adding the observer

```
import { h, Component } from 'preact';
import MoviesPresentation from './movies-presentation';

You, 6 months ago | 1 author (You)
export default class MoviesObserver extends Component {
  constructor() {
    super();
    this.observer = new IntersectionObserver(this.onIntersection);
    this.observer.POLL_INTERVAL = 100; // Time in milliseconds for the polyfill.
  }

  onIntersection = entries => {
    const { movies } = this.props;

    entries.forEach(entry => {
      const id = +entry.target.dataset.id;
      const movie = movies.find(m => m.id === id);
      if (movie) {
        movie.isVisible = movie.isVisible || entry.isIntersecting;
      }
    });

    this.forceUpdate();
  };

  render({ movies }) {
    return <MoviesPresentation movies={movies} observer={this.observer} />;
  }
}
```

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```
1  import { h, Component } from 'preact';
2  import MoviesObserver from './movies-observer';
3
   You, a few seconds ago | 1 author (You)
4  export default class MoviesContainer extends Component {
5    state = {
6      movies: []
7    };
8
9
10   componentDidMount() {
11     fetch("/api/movies.json")
12       .then(rsp => rsp.json())
13       .then(movies => this.setState({ movies }));
14   }
15
16   render({}, { movies }) {
17     return <MoviesObserver movies={movies} />;
18   }
19 }
```

JS movies-presentation.js × JS movies-container.js JS index.js

You, 12 minutes ago | 2 authors (Maurice de Beijer and others)

```
1  import { h, Component } from "preact";
2  import style from "./style";
3
4  import Movie from "../../components/movie";
5
6  export default ({ movies, observer }) => (
7    <div class={style.movies}>
8      <h2>Movies</h2>
9      <div class="card-deck">
10       {movies.map(movie => <Movie movie={movie} observer={observer} />)}
11     </div>
12   </div>
13 );
```

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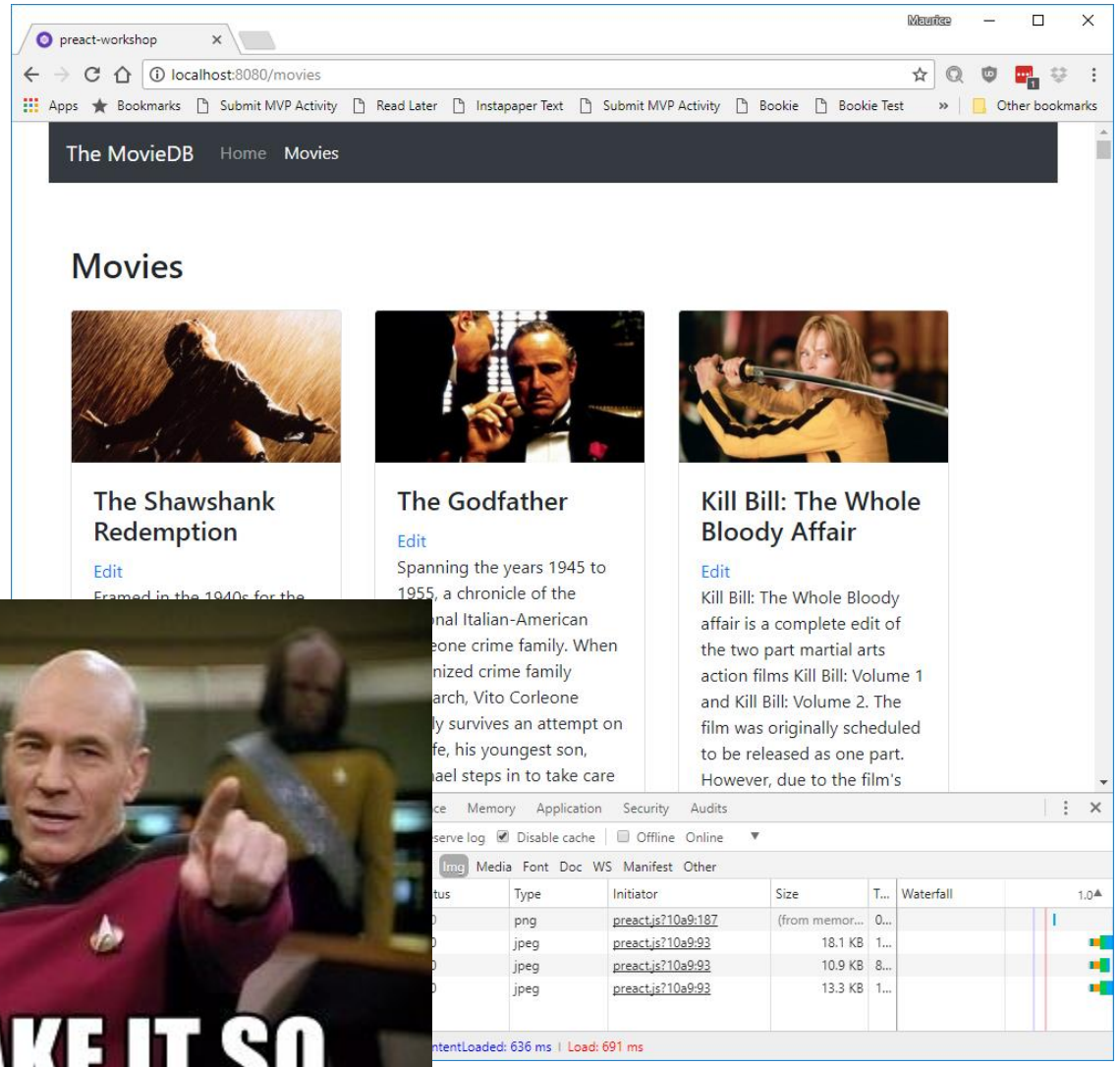
Observing visible movies

index.js | movies-presentation.js | movies-container.js

You, 4 minutes ago | 2 authors (You and others)

```
import { h, Component } from "preact";
import { Link } from "preact-router";
import style from "./style";

You, 4 minutes ago | 1 author (You)
export default class Movie extends Component {
  element = null;

  componentDidMount() {
    this.props.observer.observe(this.element);
  }

  componentWillUnmount() {
    this.props.observer.unobserve(this.element);
  }

  render({ movie }) {
    return (
      <div
        class={["card", style.movieCard].join(" ")}
        ref={el => (this.element = el)}
        data-id={movie.id}
      >
        <img
          class="card-img-top"
          src={
            movie.isVisible
              ? movie.image
              : ""
          }
          alt="Card image cap"
          height="140"
        />
        <div class="card-body">
          <h4 class="card-title">{movie.title}</h4>
          <Link href={`/movie/${movie.id}`}>Edit</Link>
          <p class="card-text">{movie.overview}</p>
        </div>
        <div class="card-footer text-cente">
          {movie.genres.map(genre => (
            <span
              class={[
                "badge",
                "badge-pill",
                "badge-info",
                style.genreBadge
              ].join(" ")}
            >
              {genre}
            </span>
          ))}
        </div>
      </div>
    );
  }
```

The result


preact-workshop
localhost:8080/movies
Apps Bookmarks Submit MVP Activity Read Later Instapaper Text Submit MVP Activity Bookie Bookie Test Other bookmarks
The MovieDB Home Movies
Movies
The Shawshank Redemption
Edit
The Godfather
Edit
Spanning the years 1945 to
Kill Bill: The Whole Bloody Affair
Edit
Kill Bill: The Whole Bloody affair is a complete edit of the two part martial arts action films Kill Bill: Volume 1 and Kill Bill: Volume 2. The film was originally scheduled to be released as one part. However, due to the film's
Memory Application Security Audits
Disable cache Offline Online
Img Media Font Doc WS Manifest Other
Type Initiator Size Waterfall
png preact.js?10a9:187 (from memor...
jpeg preact.js?10a9:93 18.1 KB
jpeg preact.js?10a9:93 10.9 KB
jpeg preact.js?10a9:93 13.3 KB
ntentLoaded: 636 ms | Load: 691 ms

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Bonus Exercises

- Use Linked State to simplify state management
- Add Redux for state management
- Use React-Router-Dom instead of Preact-Router

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