

High-performance web applications with Preact

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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

Follow along



```
JS index.js ...\movies x style.css JS index.js ...\profile JS
Cannot determine recent change or authors (unsaved changes)
1 import { h, Component } from "preact";
2 import style from './style';

Cannot determine recent change or authors (unsaved changes)
class Movies extends Component {
  render() {
    return (
      <div class={style.movies}>
        <h2>Movies</h2>
      </div>
    );
  }
}

export default Movies;
```

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

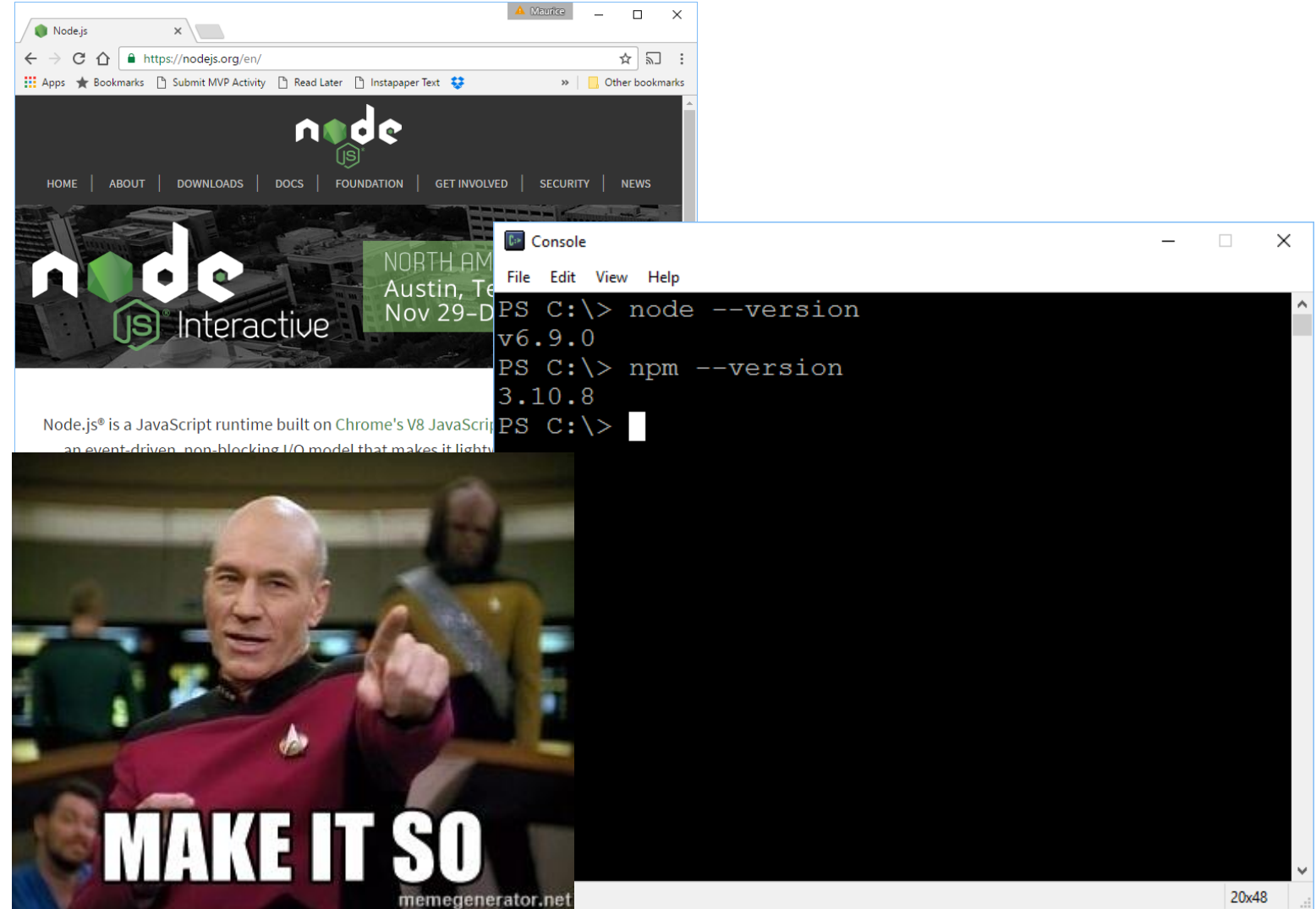
Type it out
by hand?

"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!"

Prerequisites

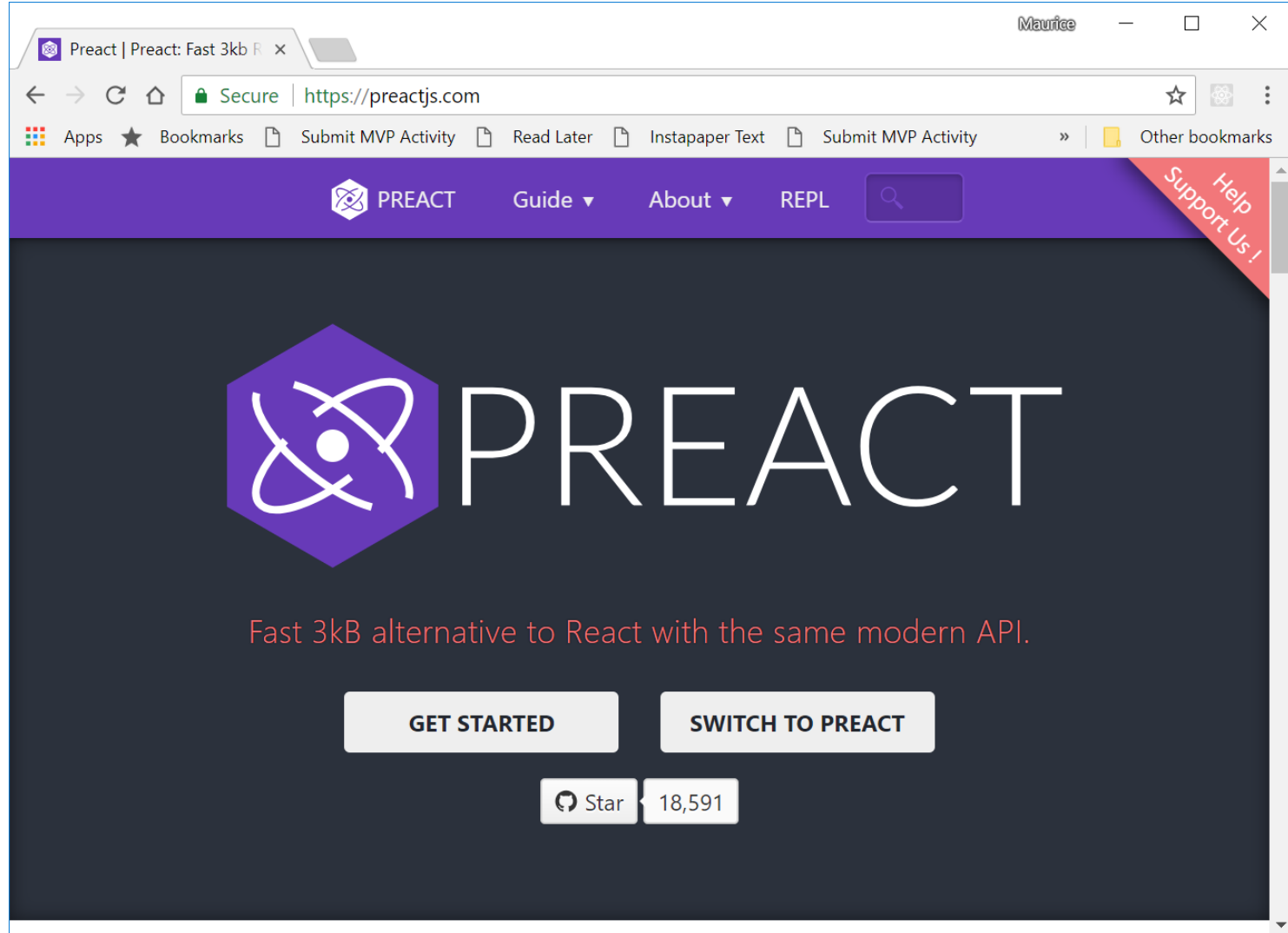
Install Node & NPM

Install Node.js & NPM



What is Preact?

Jason Miller
@_developit



Preact
=
React +
exercise



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.

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()
```

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

Configuring Babel to compile to h()

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

What is missing?

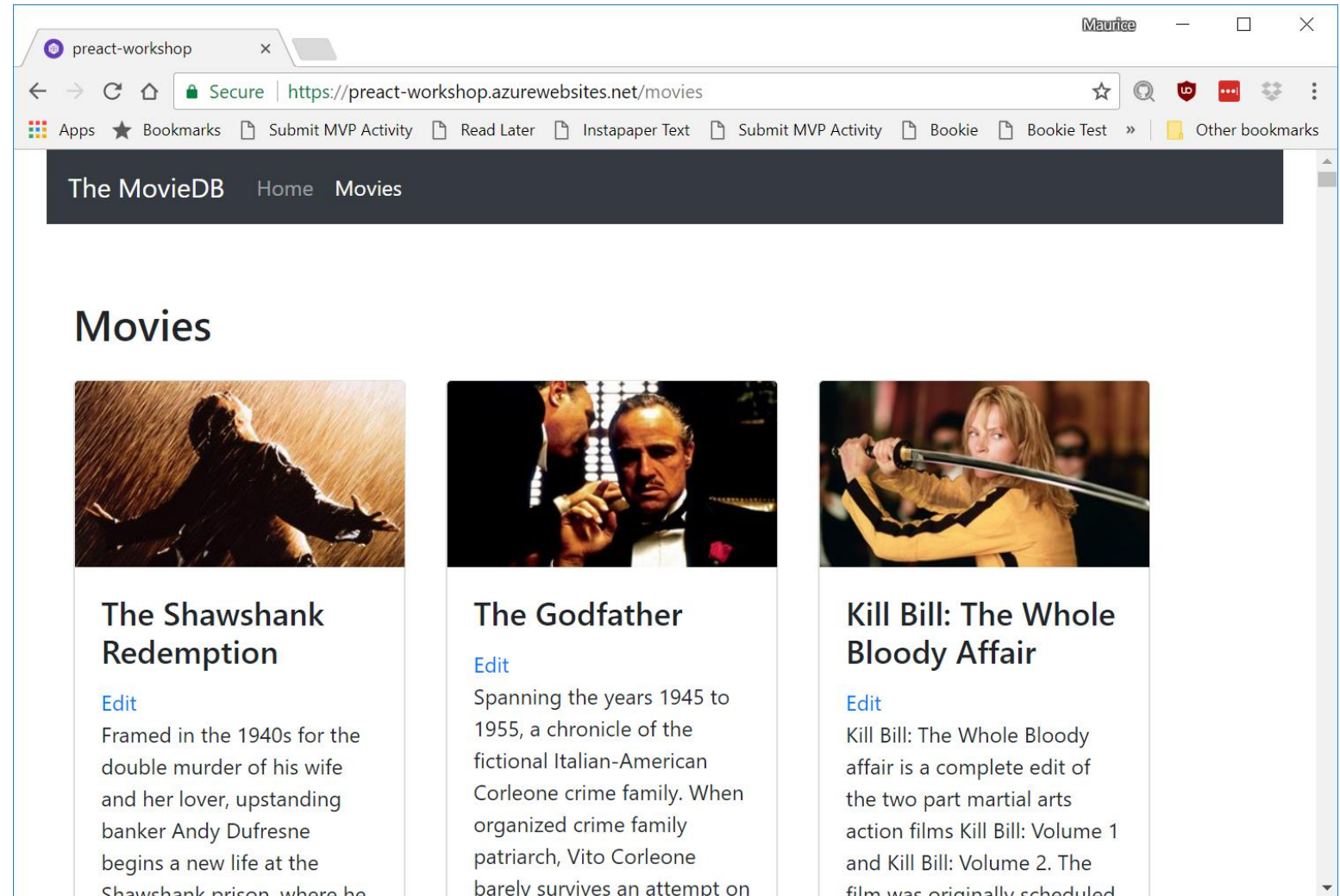
- **PropType** validation
 - Part of preact-compat
- React.Children
 - Part of preact-compat
- **Synthetic Events**
 - Preact only targets the Browser
- **Context** is simplified

The MovieDB

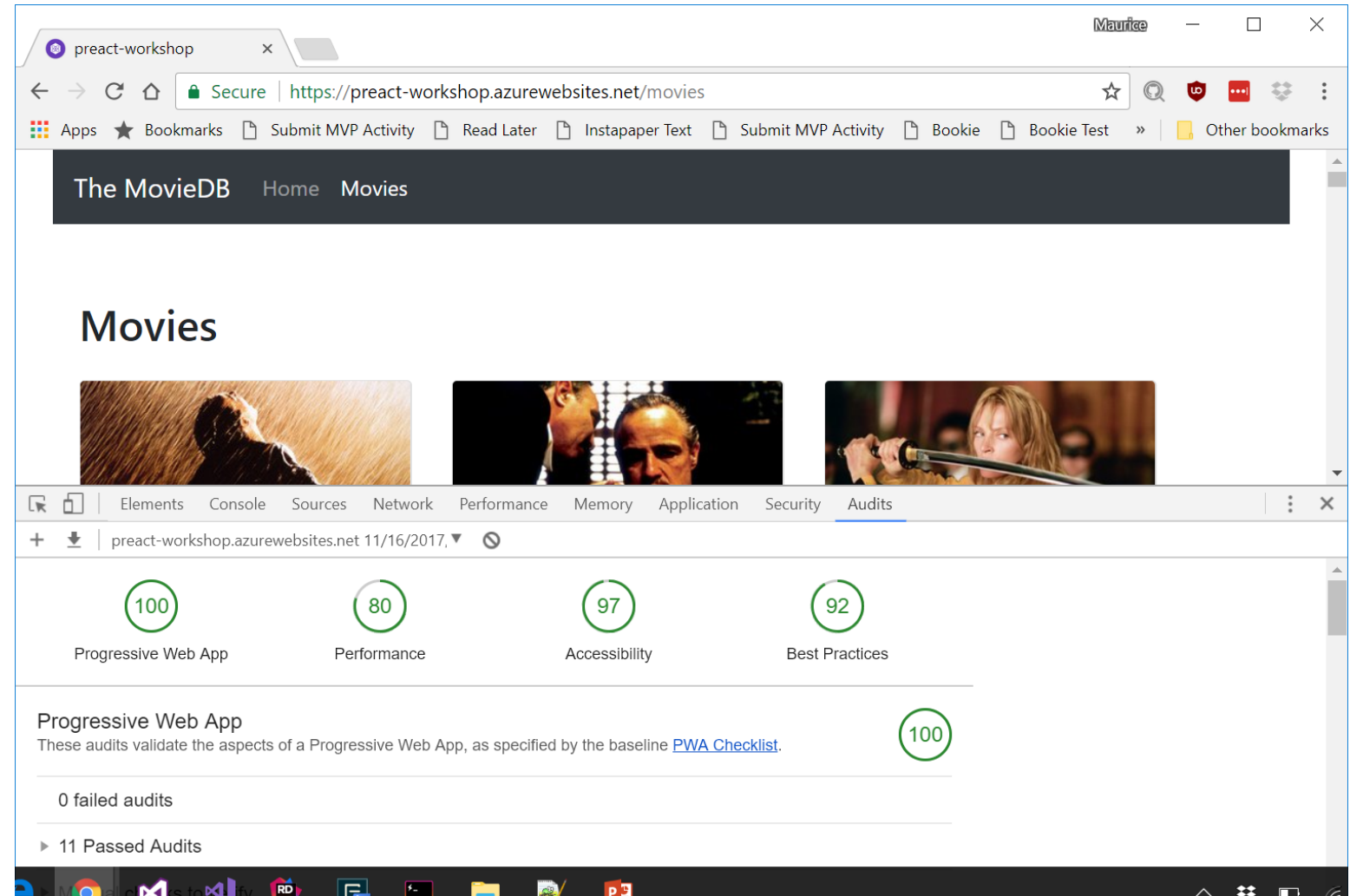
<https://preact-workshop.azurewebsites.net>

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

The MovieDB



Lighthouse Audit





Install Preact CLI

Install Preact CLI

```
PS C:\Repos> npm install -g preact-cli
C:\Users\mauri\AppData\Roaming\npm\preact -> C:\Users\mauri\AppData\Roaming\npm\node_modules\preact-cli\preact-cli.js
> preact-cli@2.1.0 postinstall C:\Users\mauri\AppData\Roaming\npm\node_modules\preact-cli\preact-cli.js
> node -p 'require("./check.js")()'

require(./check.js)()
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.1.3 (node_modules\preact-cli\node_modules\fsevents)
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.1.3
+ 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.
[build] [src] [dest] Create a production build in build/
[dev] [src] Start a development live-reload server.
[serve] [dir] Start an HTTP2 static fileserver.
[help] List all official templates
```

```
-h, --help Show help
```

```
[boolean]
```



Create a basic application

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

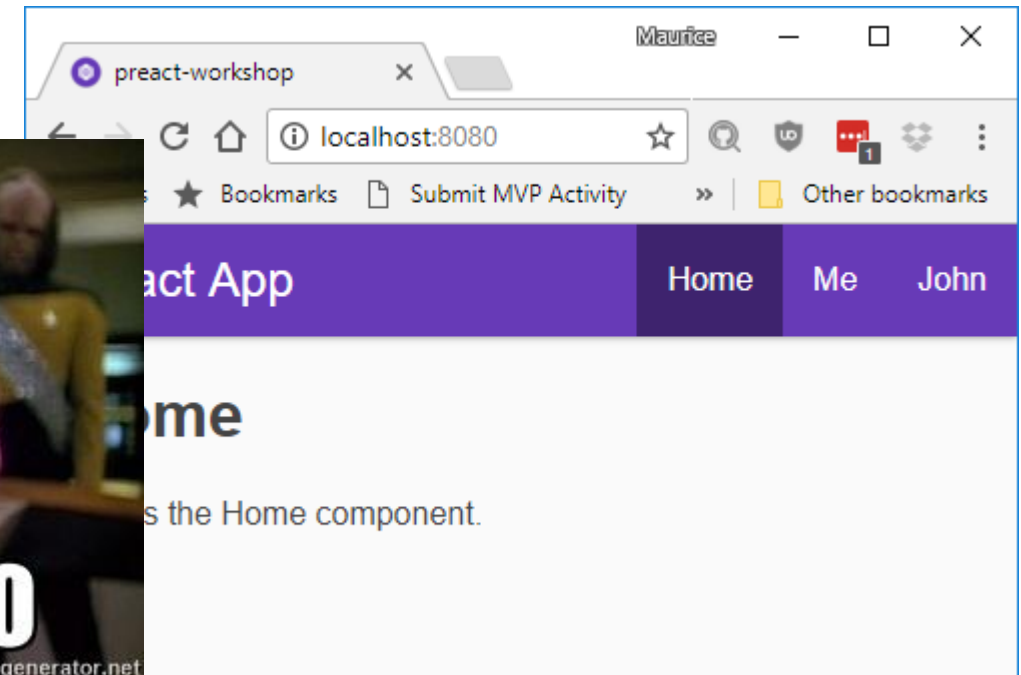
To start a development live-reload server:
  npm run start

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

To start a production HTTP/2 server:
  npm run serve
```

Start the application

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





Code layout

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
```

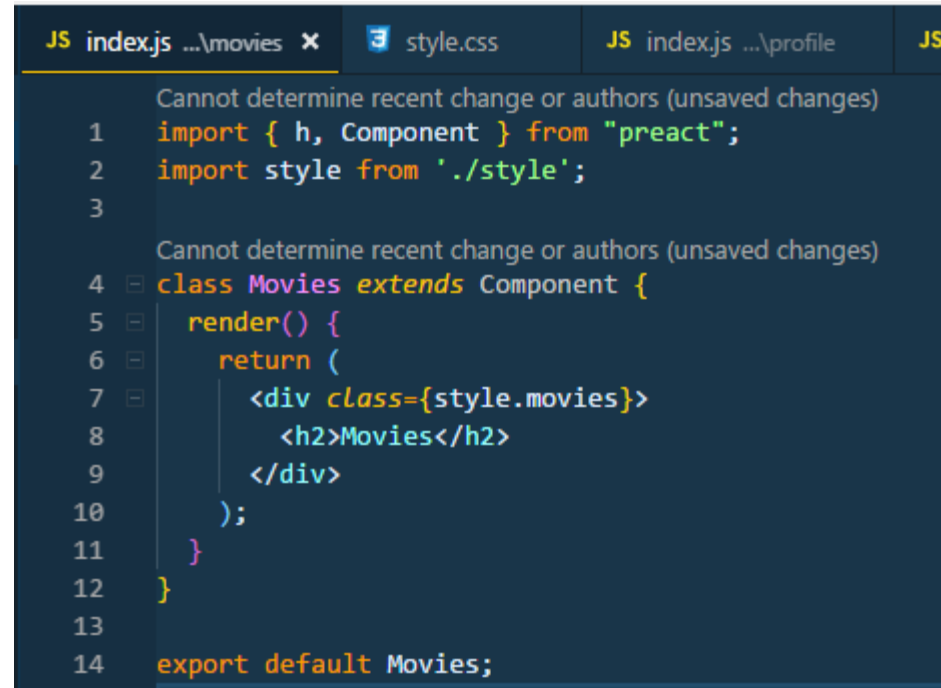
Update the ES-Lint configuration

```
package.json x
You, a few seconds ago | 2 authors (Maurice de Beijer and others)
1  {
2    "private": true,
3    "name": "preact-workshop",
4    "version": "0.0.0",
5    "license": "MIT",
6    "scripts": {
7      "start": "if-env NODE_ENV=production && npm run -s serve || npm run -s dev",
8      "build": "preact build",
9      "serve": "preact build && preact serve",
10     "dev": "preact watch",
11     "lint": "eslint src"
12   },
13   "eslintConfig": {
14     "extends": ["eslint-config-synacor", "prettier"]
15   },
```



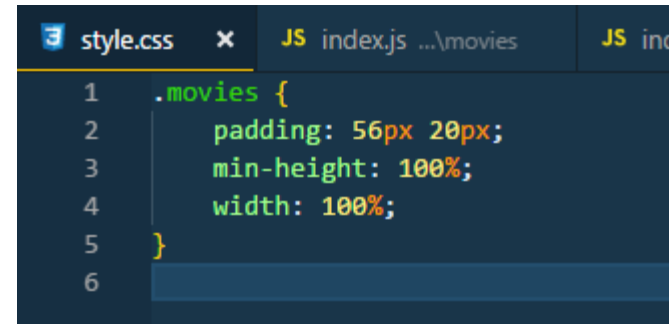
Add a movies route

The movies component



```
JS index.js ...\movies x style.css JS index.js ...\profile JS
Cannot determine recent change or authors (unsaved changes)
1 import { h, Component } from "preact";
2 import style from './style';
3
Cannot determine recent change or authors (unsaved changes)
4 class Movies extends Component {
5   render() {
6     return (
7       <div class={style.movies}>
8         <h2>Movies</h2>
9       </div>
10     );
11   }
12 }
13
14 export default Movies;
```

The movies style



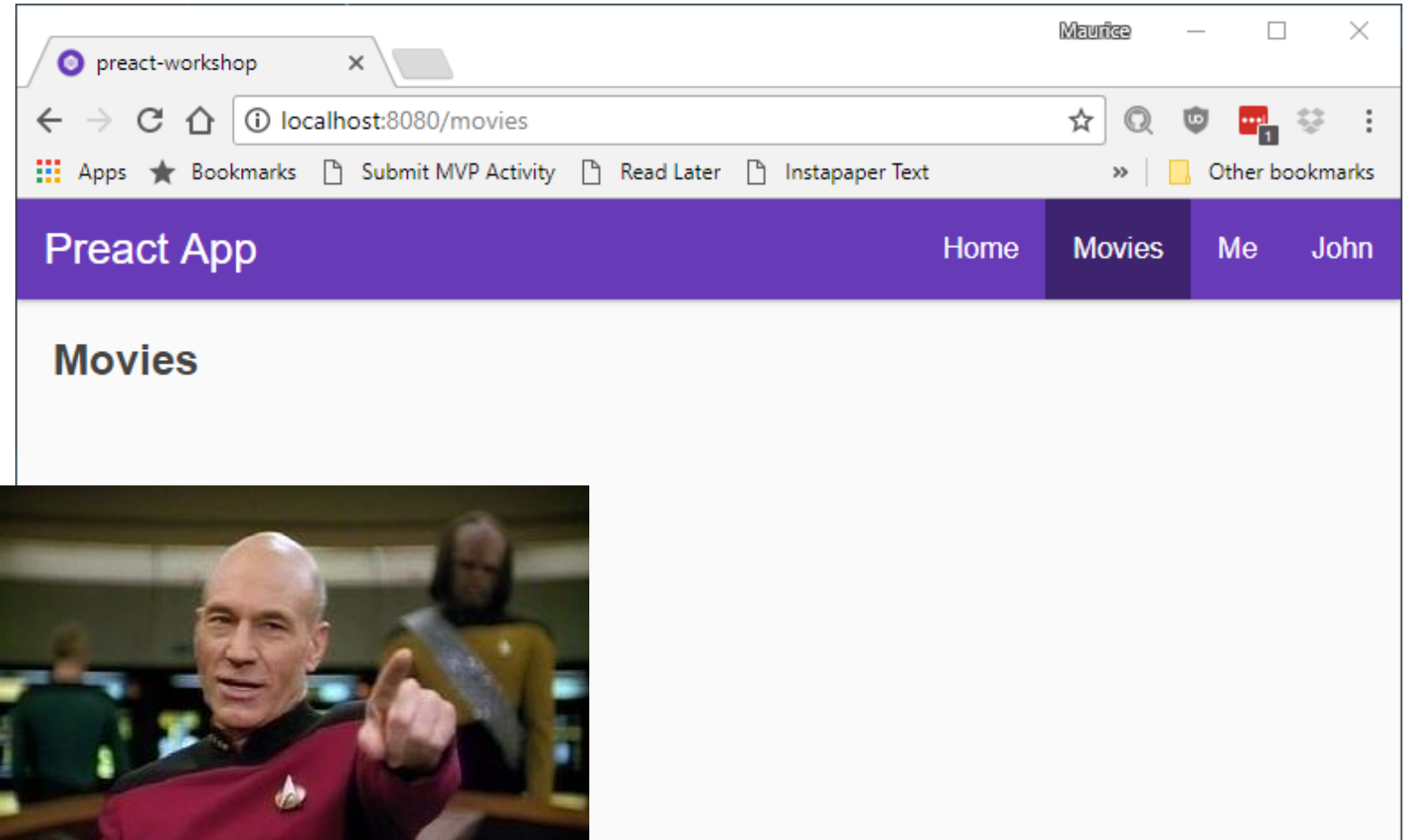
```
style.css x JS index.js ...\movies JS inde
1  .movies {
2      padding: 56px 20px;
3      min-height: 100%;
4      width: 100%;
5  }
6
```

Routing in app.js

```
JS app.js x style.css JS index.js ...\movies JS index.js ...\header
You, 8 minutes ago | 2 authors (You and others)
1 import { h, Component } from "preact";
2 import { Router } from "preact-router";
3
4 import Header from "../header";
5 import Home from "../routes/home";
6 import Profile from "../routes/profile";
7 import Movies from "../routes/movies";
8
You, 8 minutes ago | 2 authors (You and others)
9 export default class App extends Component {
10   /** Gets fired when the route changes.
11    * @param {Object} event "change" event from [preact-router](http://git.io/preact-router)
12    * @param {string} event.url The newly routed URL
13    */
14   handleRoute = e => {
15     this.currentUrl = e.url;
16   };
17
18   render() {
19     return (
20       <div id="app">
21         <Header />
22         <Router onChange={this.handleRoute}>
23           <Home path="/" />
24           <Movies path="/movies" />
25           <Profile path="/profile/" user="me" />
26           <Profile path="/profile/:user" />
27         </Router>
28       </div>
29     );
30   }
31 }
```

Updated header

```
JS index.js ...header x 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 }
```





Removing the profile page

Remove profile route and component

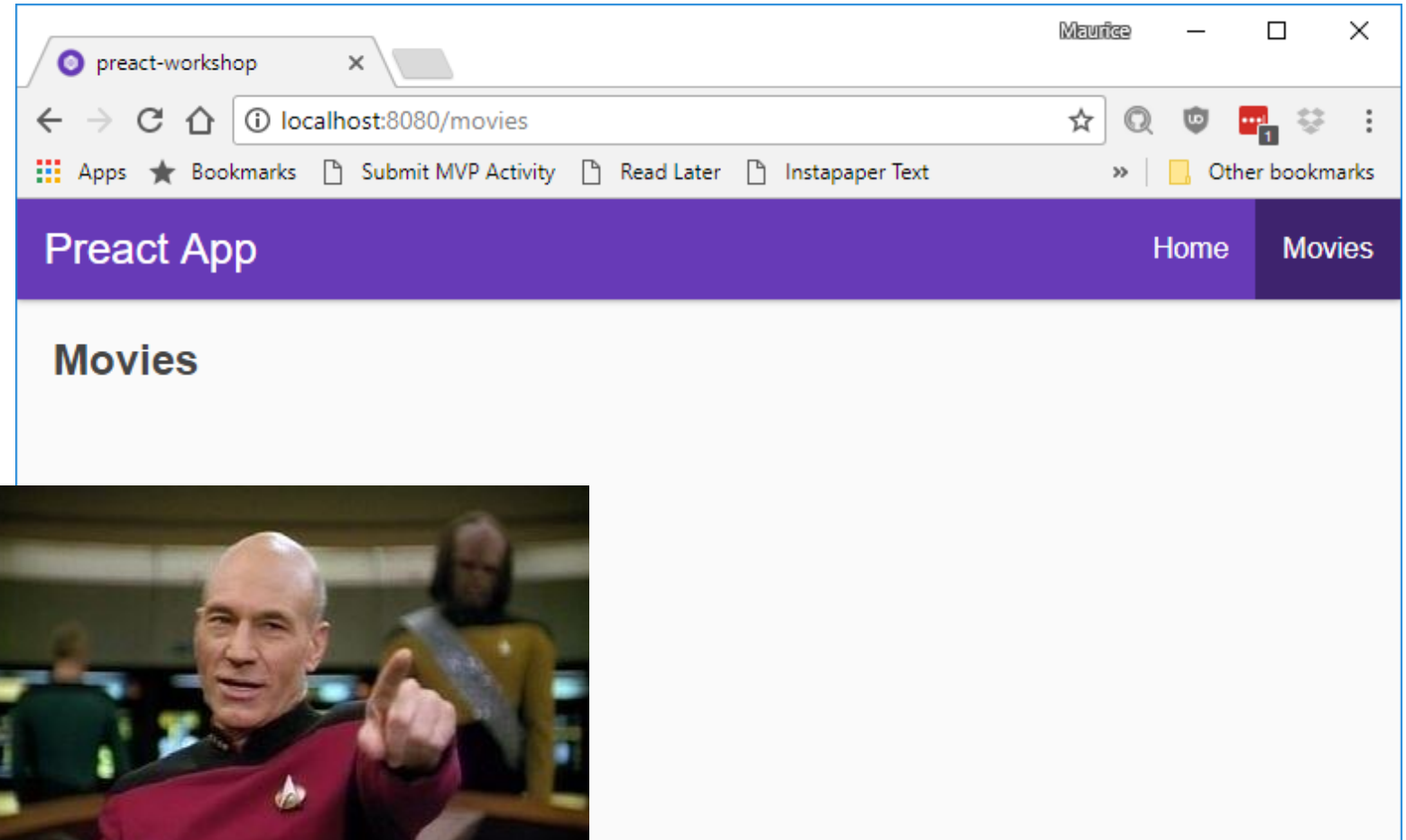
- Delete the `.\src\routes\profile\` folder

Delete profile from App component

```
JS app.js x JS index.js
Maurice de Beijer, 6 minutes ago | 1 author (Maurice de Beijer)
1 import { h, Component } from "preact";
2 import { Router } from "preact-router";
3
4 import Header from "../header";
5 import Home from "../routes/home";
6 import Movies from "../routes/movies";
7
Maurice de Beijer, 6 minutes ago | 1 author (Maurice de Beijer)
8 export default class App extends Component {
9   /** Gets fired when the route changes.
10    * @param {Object} event "change" event from [preact-router](http://git.io/preact-router)
11    * @param {string} event.url The newly routed URL
12    */
13   handleRoute = e => {
14     this.currentUrl = e.url;
15   };
16
17   render() {
18     return (
19       <div id="app">
20         <Header />
21         <Router onChange={this.handleRoute}>
22           <Home path="/" />
23           <Movies path="/movies" />
24         </Router>
25       </div>
26     );
27   }
28 }
```

Delete profile from Header component

```
JS index.js x 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 }
```



Displaying a movies list

Show a list of movies

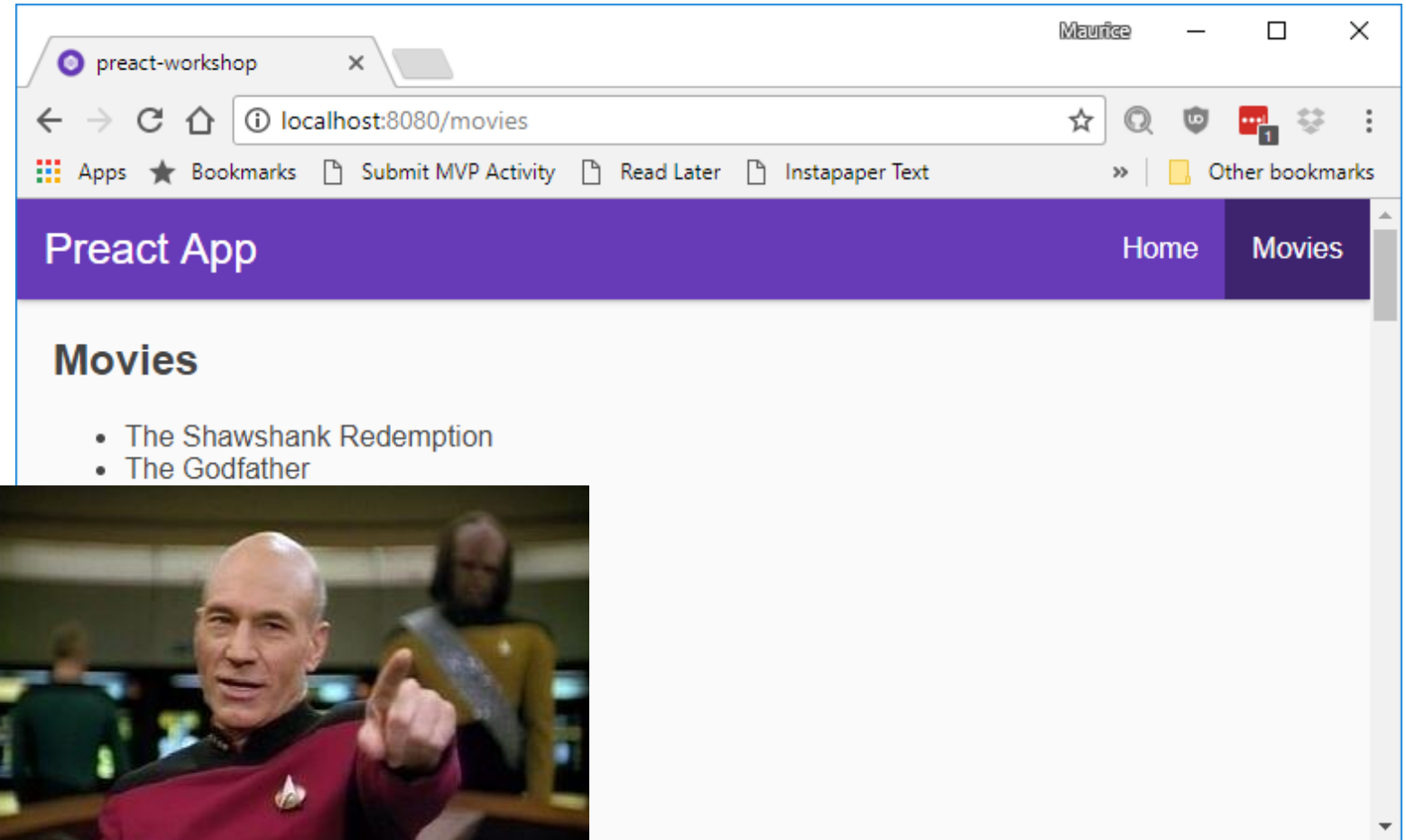
- Add API folder with [movies.json](#)


Add API folder with movies.json

```
{ } movies.json x JS index.js
1  [
2  {
3    "id":278,
4    "title":"The Shawshank Redemption",
5    "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 Shawshank
6    "genres":[
7      "Drama",
8      "Crime"
9    ],
10   "image":"//image.tmdb.org/t/p/w300/x8KGJQsAIeweesB79KC89FpBrVr.jpg"
11 },
12 {
13   "id":238,
14   "title":"The Godfather",
15   "overview":"Spanning the years 1945 to 1955, a chronicle of the fictional Italian-American Corleone crime family. When organized crime family patri
16   "genres":[
17     "Drama",
18     "Crime"
19   ],
20   "image":"//image.tmdb.org/t/p/w300/6xKCYgH16UuwEGAyroLU6p8HLIn.jpg"
21 },
22 {
23   "id":414419,
24   "title":"Kill Bill: The Whole Bloody Affair",
25   "overview":"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: Volu
26   "genres":[
27     "Crime",
28     "Action"
29   ],
30   "image":"//image.tmdb.org/t/p/w300/lcQ5SxicnUrTpRHgeueD1HLhst4.jpg"
31 },
32 {
33   "id":424,
34   "title":"Schindler's List",
35   "overview":"The true story of how businessman Oskar Schindler saved over a thousand Jewish lives from the Nazis while they worked as slaves in his
36   "genres":[
37     "Drama",
38     "History",
39     "War"
40   ],
41   "image":"//image.tmdb.org/t/p/w300/rIpSszng8P0DL0TimSzZbpfnvh1.jpg"
42 },
43 ]
```


Update the Movies component

```
JS index.js x {} movies.json
1 You, a few seconds ago | 2 authors (You and others)
  import { h, Component } from "preact";
2  import style from "./style";
3
4 You, a few seconds ago | 2 authors (You and others)
  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;
```





Component best practice

Use container & presentation components

- Split Movies component into a container component and presentational component

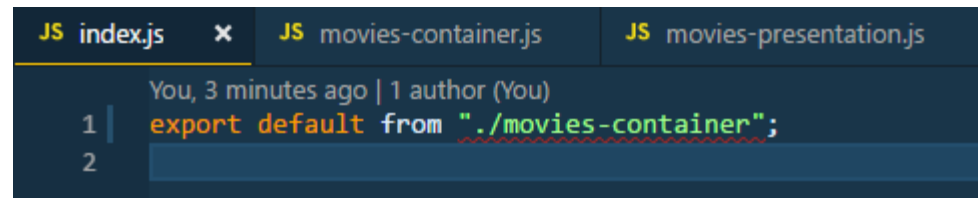
Movies Presentation

```
JS movies-presentation.js x 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;
```

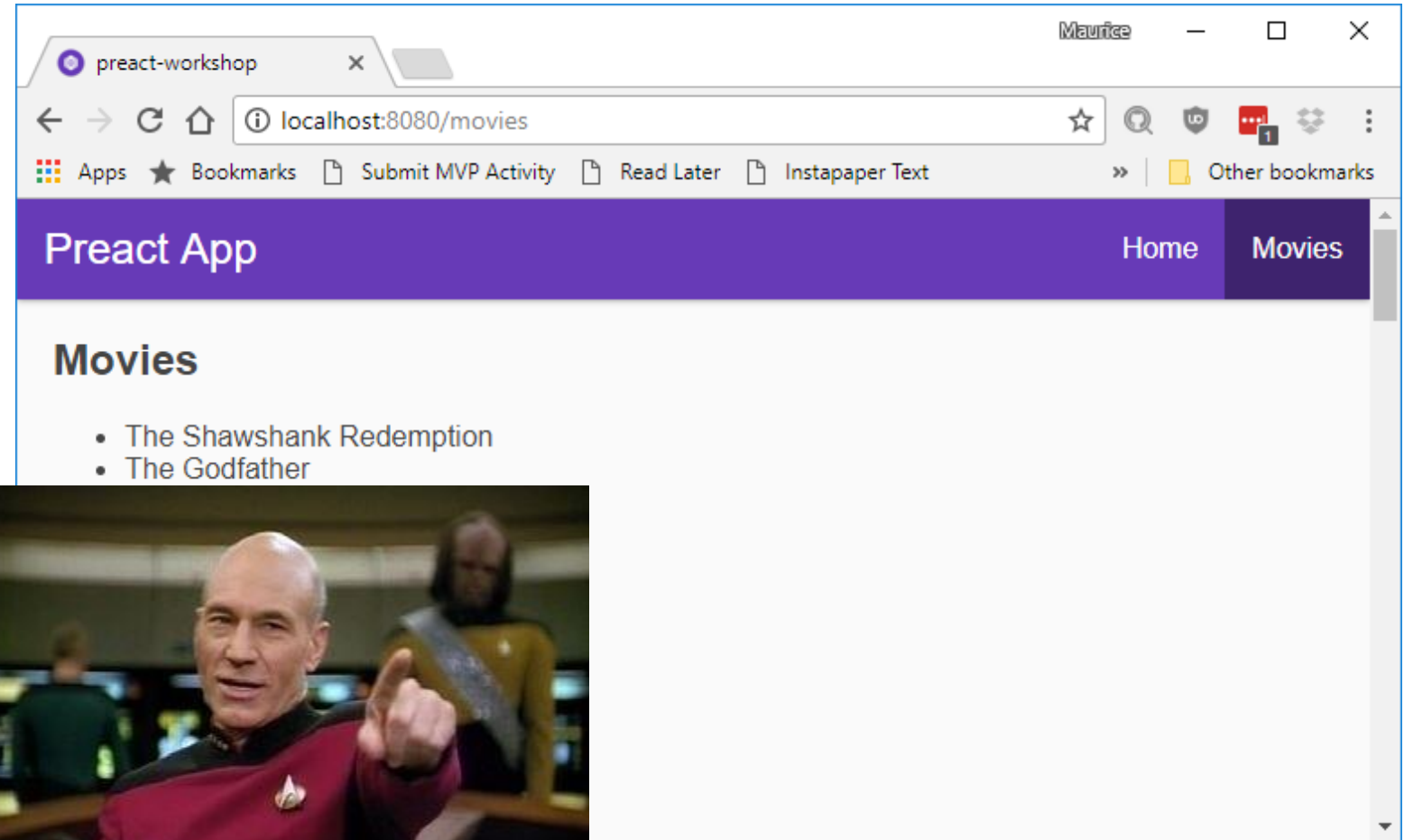
Movies Container

```
JS movies-container.js x 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;
```

Index.js



```
JS index.js x JS movies-container.js JS movies-presentation.js
You, 3 minutes ago | 1 author (You)
1 export default from './movies-container';
2
```



Using Bootstrap 4 for styles

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"})

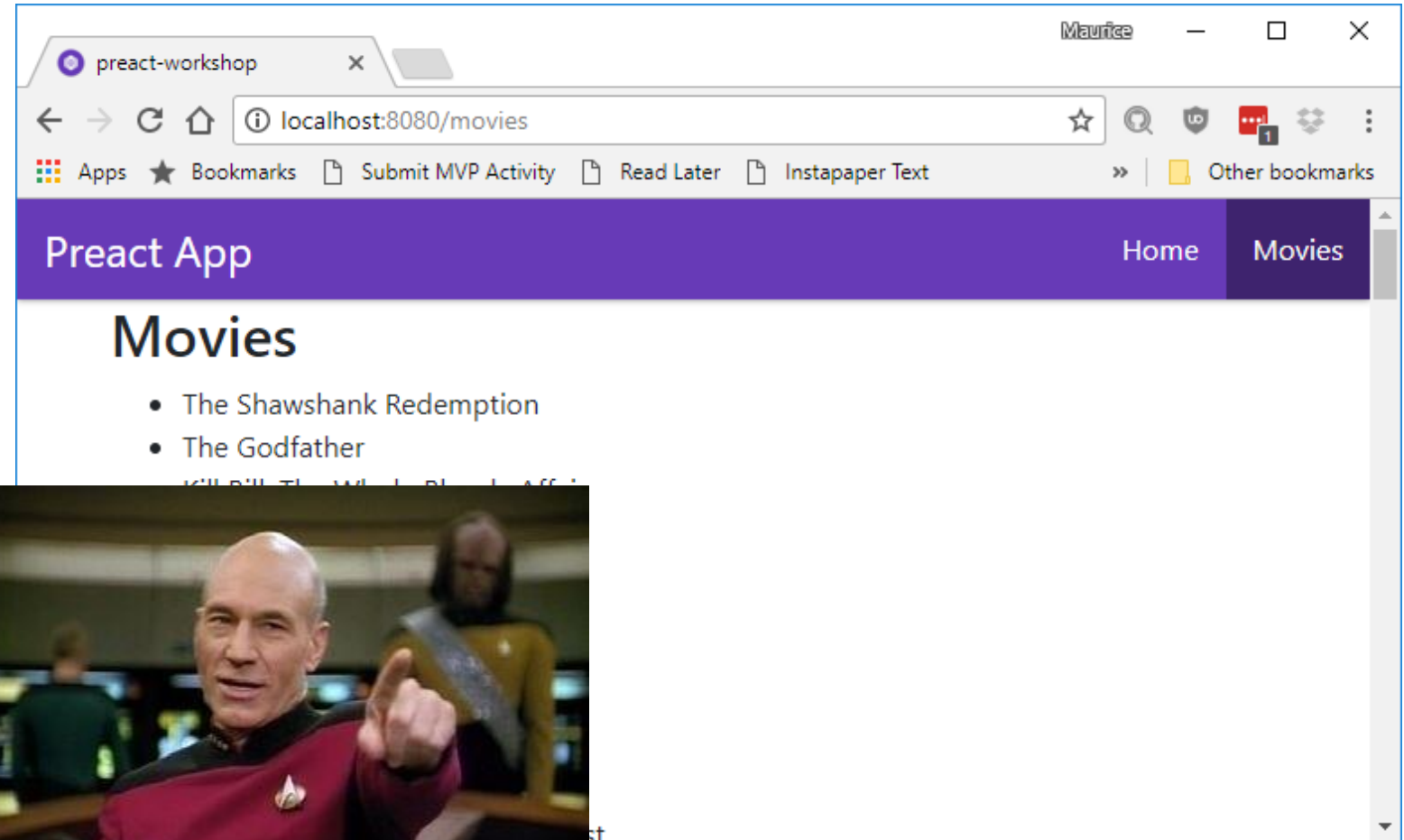
+ bootstrap@4.1.1
```

Including the Bootstrap CSS

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

Add the container class

```
JS app.js x JS index.js
You, 2 minutes ago | 2 authors (Maurice de Beijer and others)
1 import { h, Component } from "preact";
2 import { Router } from "preact-router";
3
4 import Header from "../header";
5 import Home from "../routes/home";
6 import Movies from "../routes/movies";
7
You, 2 minutes ago | 2 authors (Maurice de Beijer and others)
8 export default class App extends Component {
9   /** Gets fired when the route changes.
10    * @param {Object} event "change" event from [preact-router](http://git.io/preact-router)
11    * @param {string} event.url The newly routed URL
12    */
13   handleRoute = e => {
14     this.currentUrl = e.url;
15   };
16
17   render() {
18     return (
19       <div id="app" class="container">
20         <Header />
21         <Router onChange={this.handleRoute}>
22           <Home path="/" />
23           <Movies path="/movies" />
24         </Router>
25       </div>
26     );
27   }
28 }
```



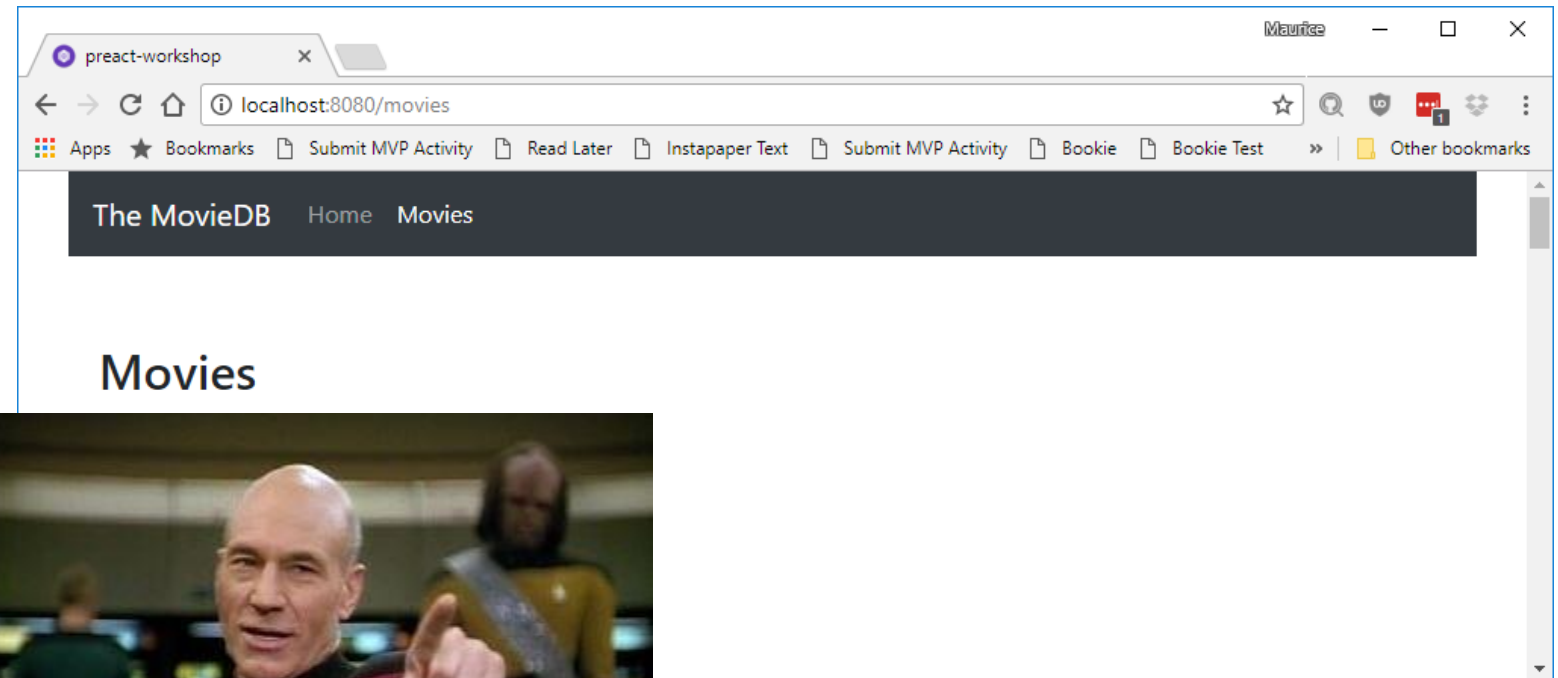
Bootstrap NavBar


Create Bootstrap 4 Navbar

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

The header component

```
JS index.js x
You, 3 minutes ago | 2 authors (You and others)
1 import { h } from "preact";
2 import { Link } from "preact-router/match";
3
4 export default () => (
5   <nav class="navbar navbar-expand-lg navbar-dark bg-dark">
6     <Link class="navbar-brand" href="/">
7       The MovieDB
8     </Link>
9     <ul class="navbar-nav mr-auto">
10      <li class="nav-item">
11        <Link class="nav-link" activeClassName="active" href="/">
12          Home
13        </Link>
14      </li>
15      <li class="nav-item">
16        <Link class="nav-link" activeClassName="active" href="/movies">
17          Movies
18        </Link>
19      </li>
20    </ul>
21  </nav>
22 );
```



Create a movie component

A movie card

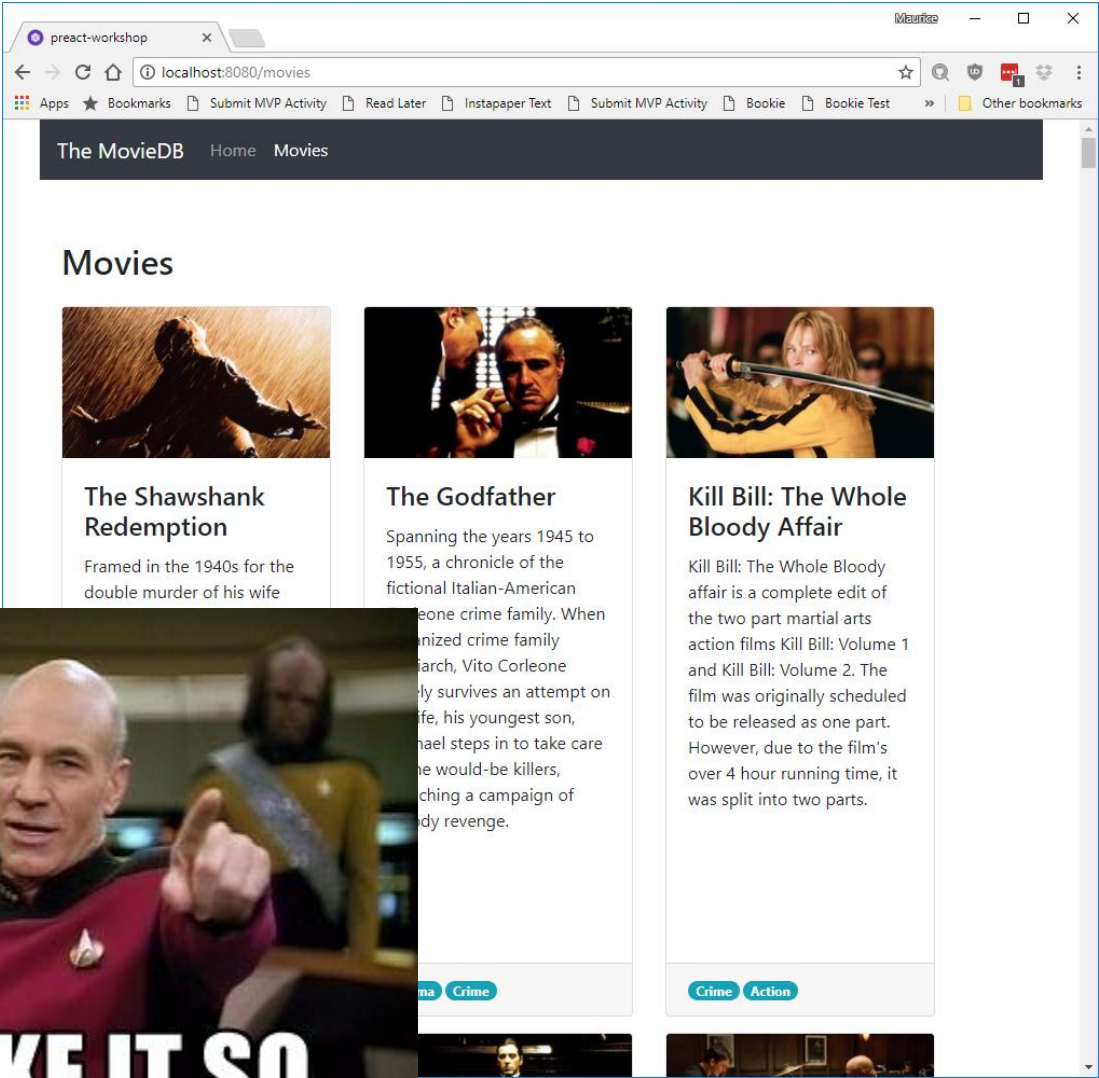
```
JS index.js x style.css JS movies-presentation.js
1 import { h, Component } from "preact";
2 import style from "./style";
3
4 export default ({ movie }) => {
5   return (
6     <div class=["card", style.movieCard].join(" ")>
7       <img
8         class="card-img-top"
9         src={movie.image}
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 };
```

CSS for the movie card

```
JS index.js  style.css x 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 }
```

Updated Movies Presentation

```
JS movies-presentation.js x 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 );
```



Add a route to view/edit movie details

The Input component

```
JS index.js ...input x 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 );
```


The TextArea component

```
JS index.js ...\textarea x 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 );
```

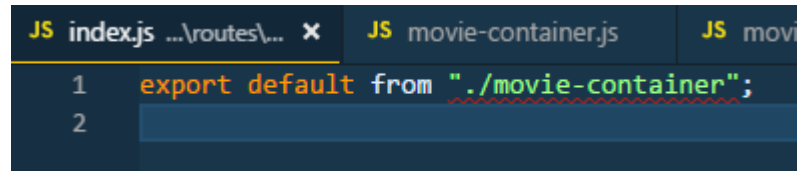
The Movie Presentation component

```
JS movie-presentation.js x JS movie-container.js JS index.js ...input JS index.js ...componer
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 className="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 x JS movie-presentation.js JS index.js ...\textarea JS in
Cannot determine recent change or authors (unsaved changes)
1 import { h, Component } from "preact";
2 import MoviePresentation from "../movie-presentation";
3
Cannot determine recent change or authors (unsaved changes)
4 export default class MovieContainer extends Component {
5   state = { movie: null };
6
7   onChange = (value, name) => {
8     const movie = { ...this.state.movie, [name]: value };
9
10    this.setState({ movie });
11  };
12
13  onSave = () => {
14    alert("Saving " + this.state.movie.title);
15  };
16
17  componentDidMount() {
18    const id = +this.props.id;
19
20    fetch("/api/movies.json")
21      .then(rsp => rsp.json())
22      .then(movies => movies.find(m => m.id === id))
23      .then(movie => this.setState({ movie }));
24  }
25
26  render(props, { movie }) {
27    if (!movie) return null;
28
29    return (
30      <MoviePresentation
31        movie={movie}
32        onChange={this.onChange}
33        onSave={this.onSave}
34      />
35    );
36  }
37 }
```

The index.js



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

Updated Movie card

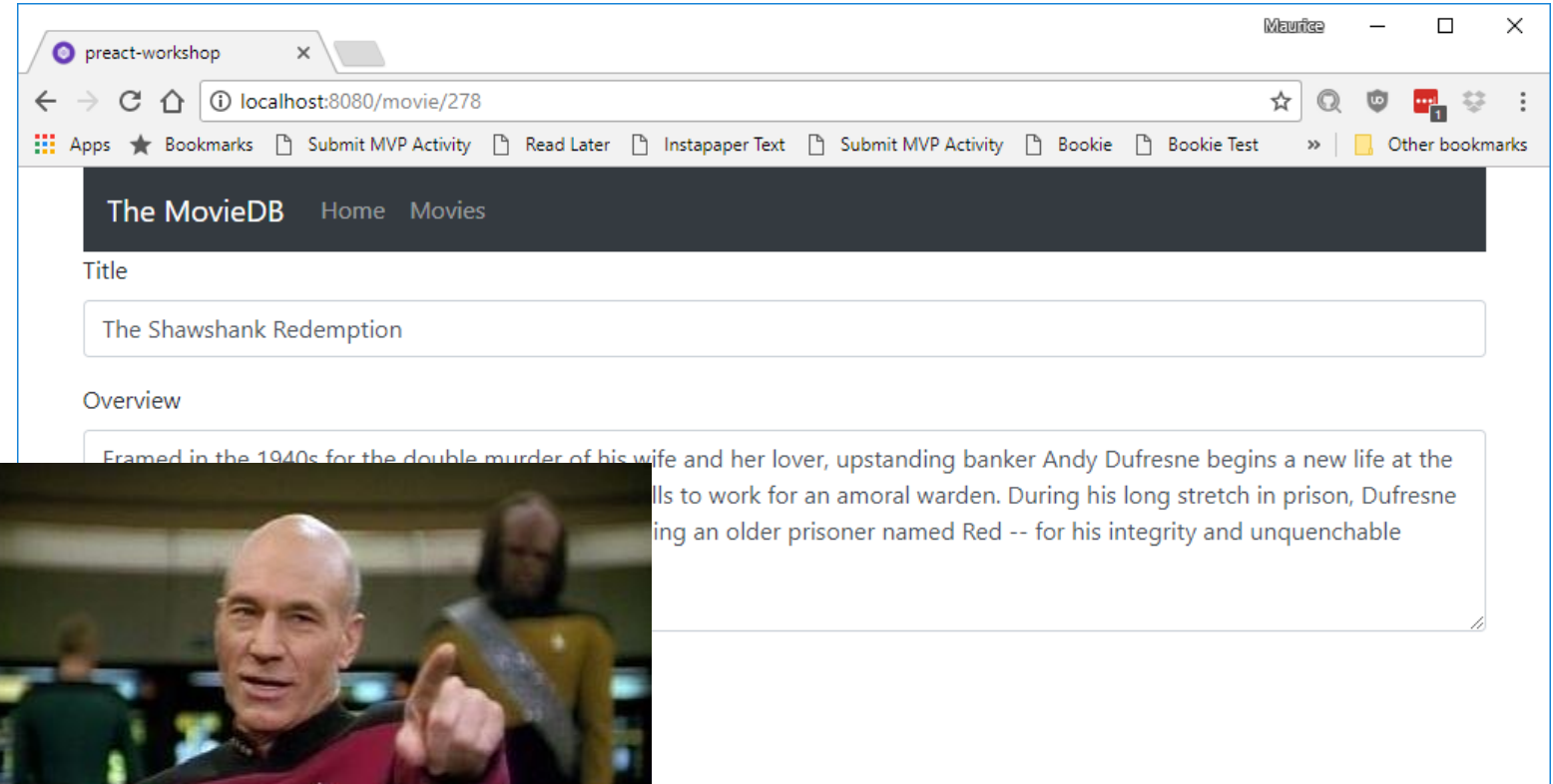
```
JS index.js ...\components\movie x JS index.js ...\routes\... JS movie-container.js JS movie-presentatio

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-cen">
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 );
```

Updated App with movie route

```
JS app.js x 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)
1 import { h, Component } from "preact";
2 import { Router } from "preact-router";
3
4 import Header from "../header";
5 import Home from "../routes/home";
6 import Movies from "../routes/movies";
7 import Movie from "../routes/movie";
8
You, a few seconds ago | 2 authors (Maurice de Beijer and others)
9 export default class App extends Component {
10   /** Gets fired when the route changes.
11    * @param {Object} event "change" event from [preact-router](http://git.io/preact-router)
12    * @param {string} event.url The newly routed URL
13    */
14   handleRoute = e => {
15     this.currentUrl = e.url;
16   };
17
18   render() {
19     return (
20       <div id="app" class="container">
21         <Header />
22         <Router onChange={this.handleRoute}>
23           <Home path="/" />
24           <Movies path="/movies" />
25           <Movie path="/movie/:id" />
26         </Router>
27       </div>
28     );
29   }
30 }
```





Optimizing the application

Only render
visible images

The screenshot shows a web browser window displaying a movie database application. The browser's address bar shows the URL `localhost:8080/movies`. The application's header includes the title "The MovieDB" and navigation links for "Home" and "Movies". The main content area, titled "Movies", displays three movie posters: "The Shawshank", "The Godfather", and "Kill Bill: The Whole".

Below the browser window, the Chrome DevTools Network tab is open, showing a list of 124 requests. The table below represents the data visible in the Network tab:

Name	Status	Type	Initiator	Size	T...	Waterfall	5.00 s
ddIMODFJUjvhzrymuW707KPuhVL.jpg	200	jpeg	preactjs?10a9:187	11.9 KB	3...		
7u3pxc0K1wx32lleAkLv78MKgrw.jpg	200	jpeg	preactjs?10a9:187	17.9 KB	4...		
z5J18ByLeQZ68iORfMXmxeFuwyL.jpg	200	jpeg	preactjs?10a9:187	26.1 KB	5...		
l6Mmtu57qgw4NRuxEC0Vj6UMr2R.jpg	200	jpeg	preactjs?10a9:187	18.4 KB	5...		
1dXTsaFxF9cas08UjAqE8NqOW.jpg	200	jpeg	preactjs?10a9:187	10.5 KB	4...		
yAVNjGQKrp2wJ0mlbpHbpPTG4k.jpg	200	jpeg	preactjs?10a9:187	15.4 KB	5...		
xzqwxyQlhbdnnSpFb8puDhdVZ92.jpg	200	jpeg	preactjs?10a9:187	14.5 KB	5...		
7nF689yCEq1ZCT82sGJVtNxOcl5.jpg	200	jpeg	preactjs?10a9:187	18.9 KB	4...		
i5r9aTDKo1y6paUX1PHsPhZstZk.jpg	200	jpeg	preactjs?10a9:187	11.5 KB	3...		
gRtLcCQQOpYUI9ThdVz4VUP8QO3.jpg	200	jpeg	preactjs?10a9:187	21.5 KB	4...		
5vZw7ltCKl0iOYTtRxaLC3D0e.jpg	200	jpeg	preactjs?10a9:187	14.1 KB	4...		
si4PH5RjbpDQZ3BQvV6ei8NJYD.jpg	200	jpeg	preactjs?10a9:187	3.4 KB	4...		
hZp6irYITu5JUA1GZhmbe10pD.jpg	200	jpeg	preactjs?10a9:187	18.3 KB	5...		
rNRtWT8HTKmON1qjYI571ettUZk.jpg	200	jpeg	preactjs?10a9:187	14.7 KB	3...		
dYtAyg4vD88hfrR1VKDnVGhnE6.jpg	200	jpeg	preactjs?10a9:187	19.7 KB	4...		
cLGKawjQ5tUJCuDyR0OnGYT4fyf.jpg	200	jpeg	preactjs?10a9:187	7.5 KB	4...		
4xwwVbTyEqzFdiX2kop1r5TX9dR.jpg	200	jpeg	preactjs?10a9:187	14.7 KB	7...		
ew0ouZ1MSxbNugPMgbOhuTrd3aA.jpg	200	jpeg	preactjs?10a9:187	18.3 KB	3...		

At the bottom of the Network tab, a summary bar indicates: 117 / 124 requests | 1.6 MB / 2.0 MB transferred | Finish: 8.44 s | DOMContentLoaded: 666 ms | Load: 715 ms.

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

Adding the observer

```
1 import { h, Component } from 'preact';
2 import MoviesPresentation from './movies-presentation';
3
4 You, 6 months ago | 1 author (You)
5 export default class MoviesObserver extends Component {
6   constructor() {
7     super();
8     this.observer = new IntersectionObserver(this.onIntersection);
9     this.observer.POLL_INTERVAL = 100; // Time in milliseconds for the polyfill.
10   }
11
12   onIntersection = entries => {
13     const { movies } = this.props;
14
15     entries.forEach(entry => {
16       const id = +entry.target.dataset.id;
17       const movie = movies.find(m => m.id === id);
18       if (movie) {
19         movie.isVisible = movie.isVisible || entry.isIntersecting;
20       }
21     });
22
23     this.forceUpdate();
24   };
25
26   render({ movies }) {
27     return <MoviesPresentation movies={movies} observer={this.observer} />;
28   }
29 }
```

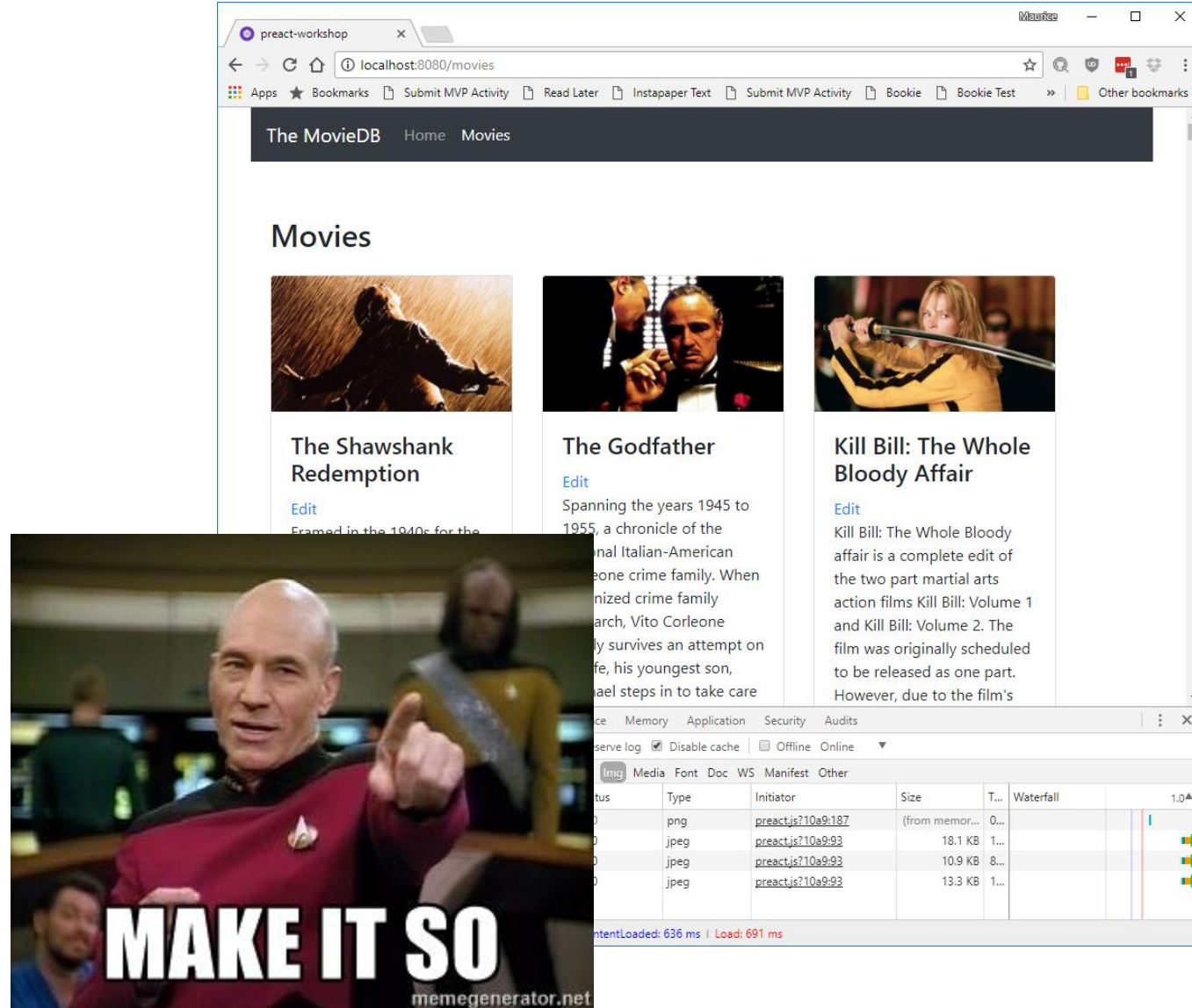
```
1  import { h, Component } from 'preact';
2  import MoviesObserver from './movies-observer';
3
   You, a few seconds ago | 1 author (You)
4  export default class MoviesContainer extends Component {
5    state = {
6      movies: []
7    };
8
9
10   componentDidMount() {
11     fetch("/api/movies.json")
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 x 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 );
```

Observing visible movies

```
JS index.js x JS movies-presentation.js JS movies-container.js
You, 4 minutes ago | 2 authors (You and others)
1 import { h, Component } from "preact";
2 import { Link } from "preact-router";
3 import style from "../style";
4
You, 4 minutes ago | 1 author (You)
5 export default class Movie extends Component {
6   element = null;
7
8   componentDidMount() {
9     this.props.observer.observe(this.element);
10  }
11
12  componentWillUnmount() {
13    this.props.observer.unobserve(this.element);
14  }
15
16  render({ movie }) {
17    return (
18      <div
19        class={["card", style.movieCard].join(" ")}
20        ref={el => (this.element = el)}
21        data-id={movie.id}
22      >
23        <img
24          class="card-img-top"
25          src={
26            movie.isVisible
27              ? movie.image
28              : "data:image/png;base64,iVBORw0KGgoAAAANSUHEUgAAAAEAAAACAAQAAAC1HawCAAAAC01EQVR42mP8Xw8AAoMBgDTD2qgAAAAASUVORK5CYII="
29          }
30          alt="Card image cap"
31          height="140"
32        />
33        <div class="card-body">
34          <h4 class="card-title">{movie.title}</h4>
35          <Link href="/movie/${movie.id}">Edit</Link>
36          <p class="card-text">{movie.overview}</p>
37        </div>
38        <div class="card-footer text-cen">
39          {movie.genres.map(genre => (
40            <span
41              class=[
42                "badge",
43                "badge-pill",
44                "badge-info",
45                style.genreBadge
46              ].join(" ")
47            >
48              {genre}
49            </span>
50          ))}
51        </div>
52      </div>
53    );
54  }
```

The result



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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