

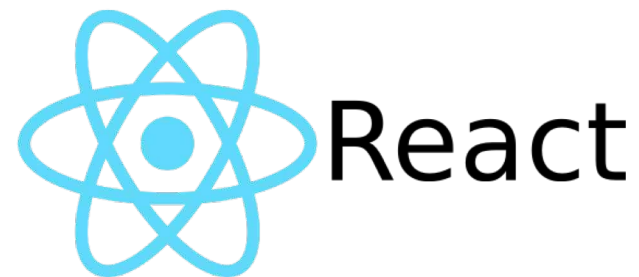
DT162G

Introduktion till React



Vad är React?

- Ett front-end JavaScript-ramverk
- Fritt och open source
- Kan användas för att skapa single-page applications (SPA)
- Baseras på NodeJS och pakethanteraren npm



Två versioner av React?

De båda använder JavaScriptmotor.

- ReactJS

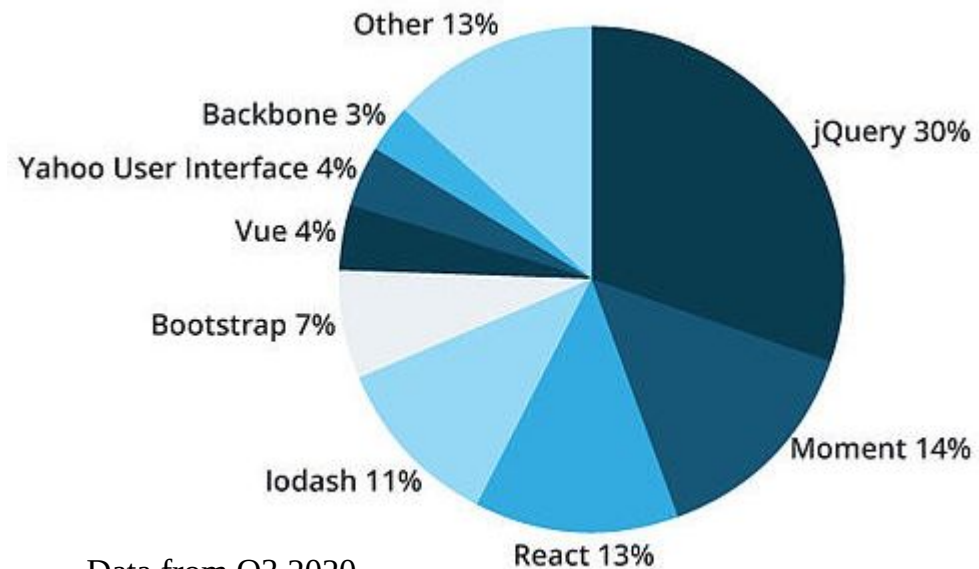
- JavaScriptbibliotek
- Använder en uppdateringsmetod som benämns virtual DOM.
- Används för att skapa användarinterface samt webbapplikationer

- React Native

- Används för att skapa mobilapplikationer på olika plattformar såsom iOS, Android och Windows Mobile. Det går att blanda native kod och JavaScript för att optimera applikationer.

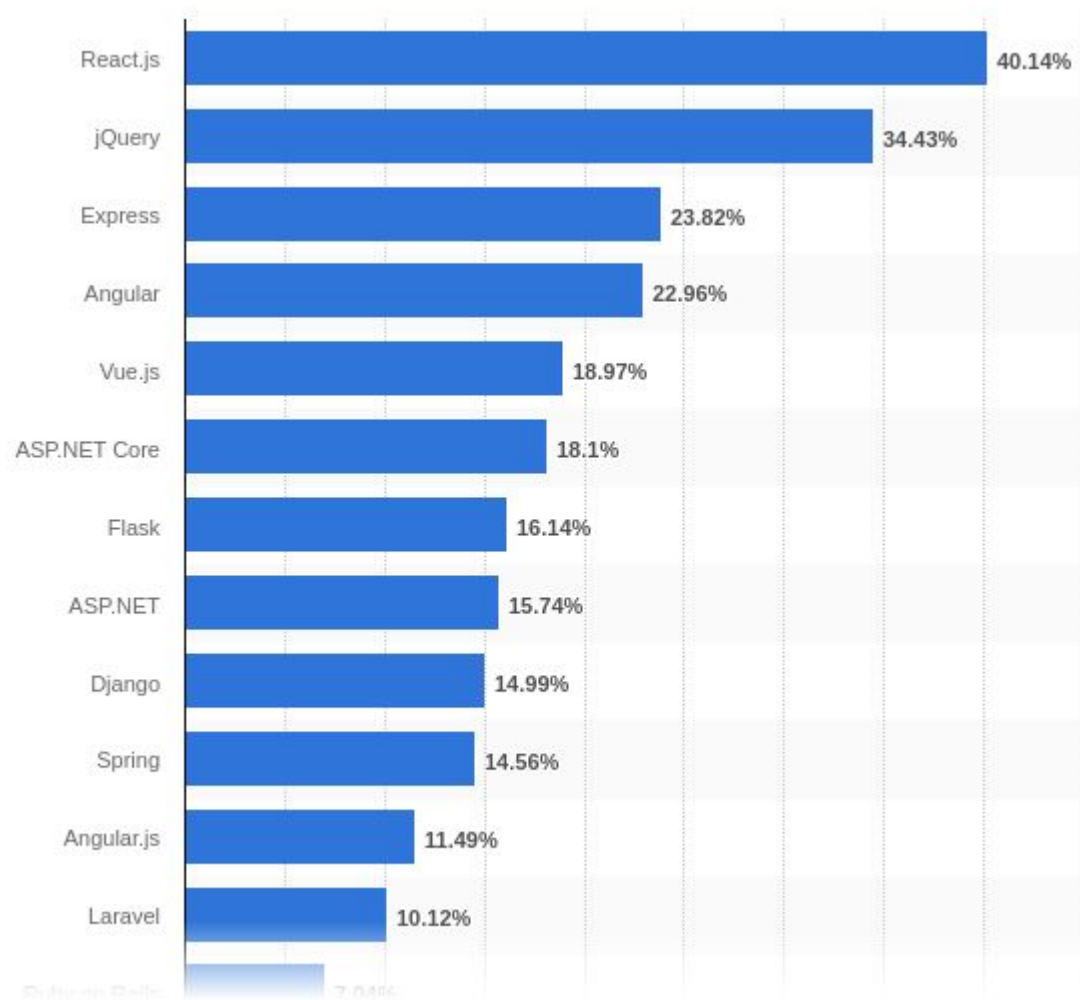
Historia

- Utvecklat av Jordan Walke från Meta
- Första release 29 maj 2013.
- Stabil version 17 (2021)
- Utvecklat i JavaScript



Data from Q3 2020

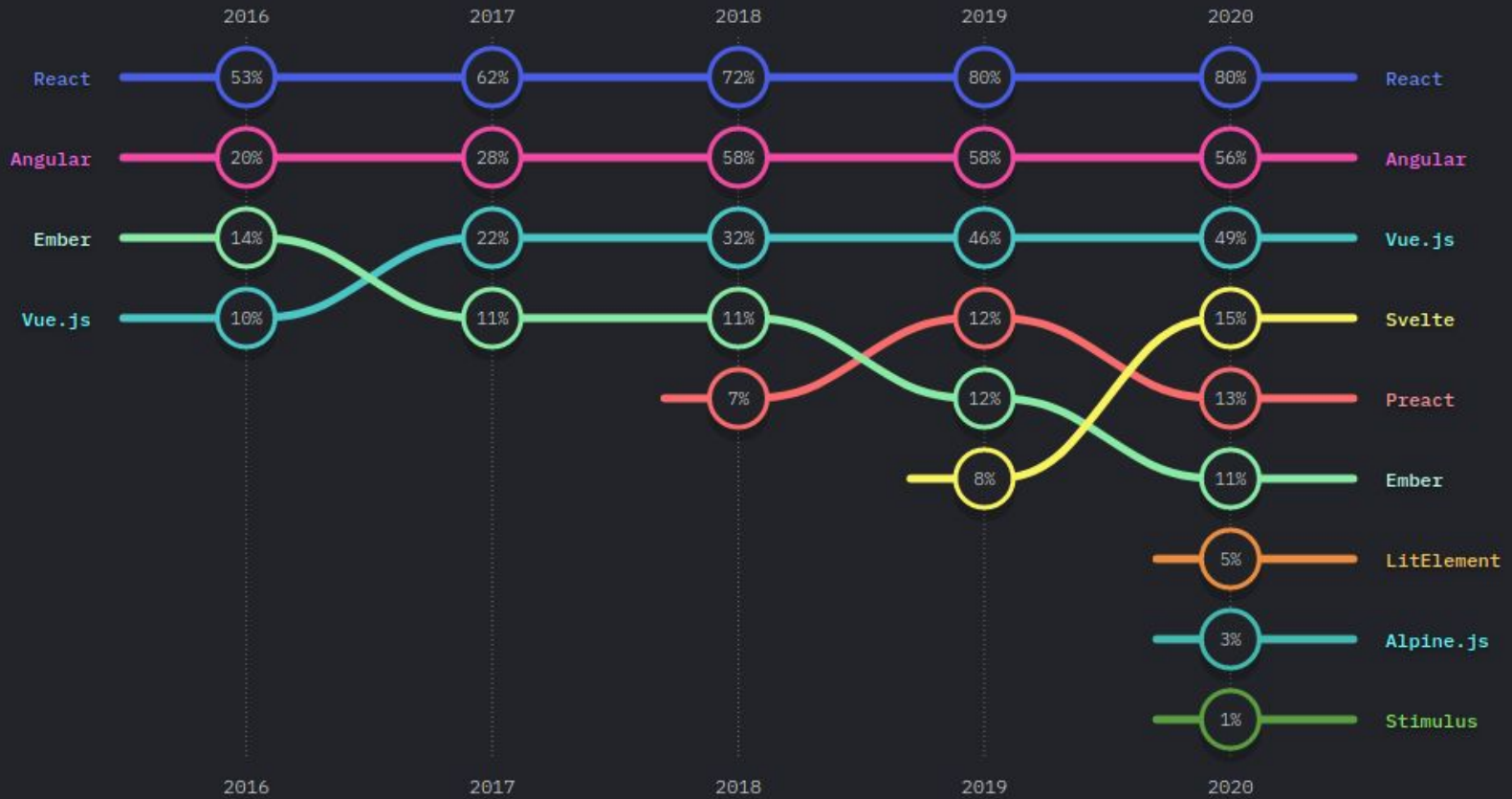
<https://www.thinslices.com/blog/infographic-react.js-statistics>



<https://www.statista.com/statistics/1124699/worldwide-developer-survey-most-used-frameworks-web/>



Satisfaction, interest, usage, and awareness ratio rankings.

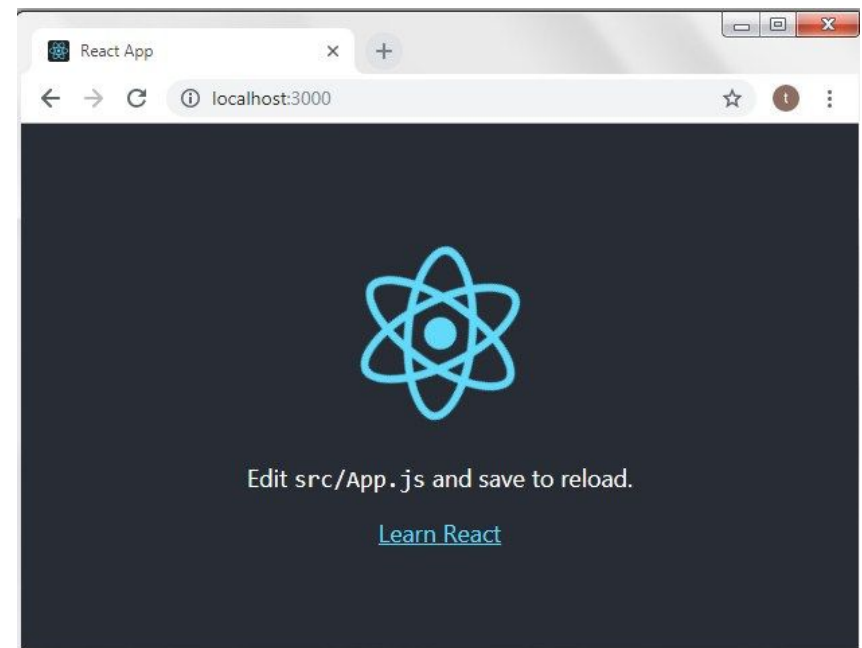


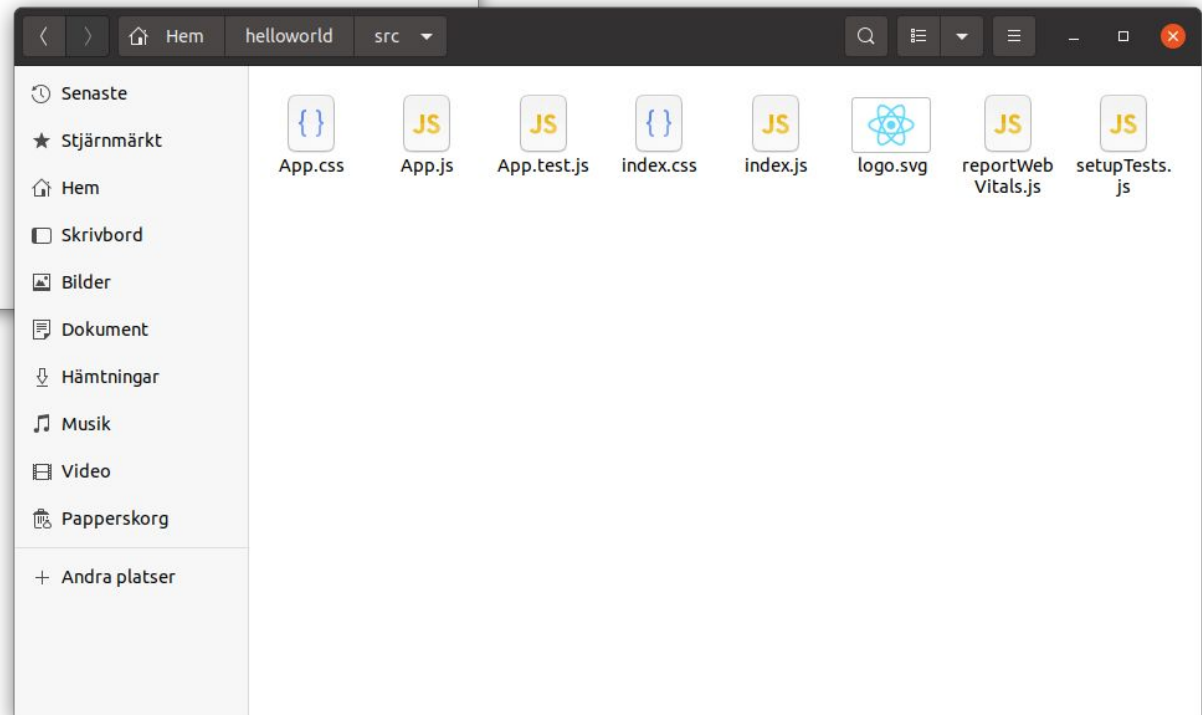
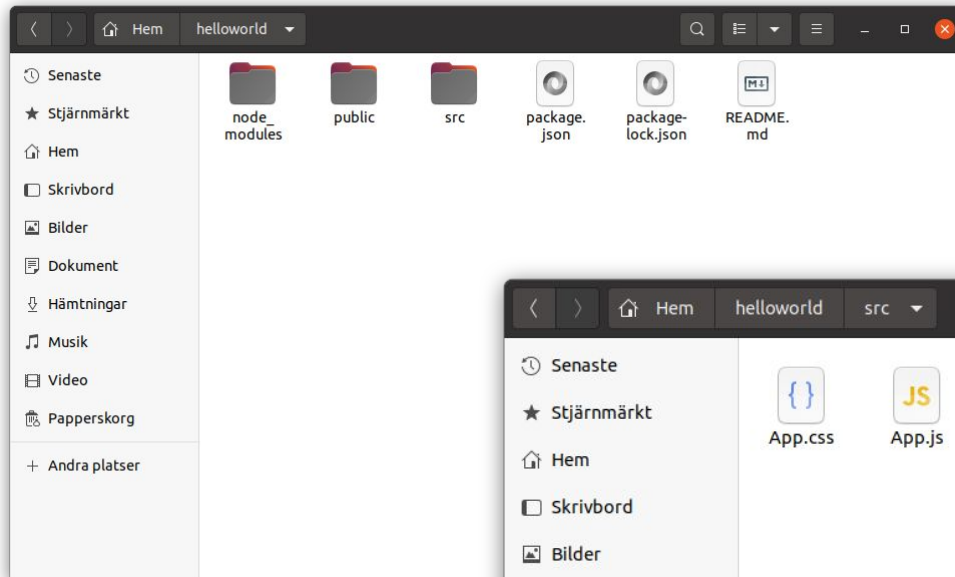
<https://2020.stateofjs.com/en-US/technologies/front-end-frameworks/>

Installera React

- Ladda ned och installera NodeJS

```
$ npm install -g create-react-app  
$ create-react-app hello-world  
$ cd hello-world  
$ npm start
```







```
Öppna App.js Spara - x
~/helloworld/src

1 import logo from './logo.svg';
2 import './App.css';
3
4 function App() {
5   return (
6     <div className="App">
7       <header className="App-header">
8         <img src={logo} className="App-logo" alt="logo" />
9         <p>
10           Edit <code>src/App.js</code> and save to reload.
11         </p>
12         <a
13           className="App-link"
14           href="https://reactjs.org"
15           target="_blank"
16           rel="noopener noreferrer"
17         >
18           Learn React
19         </a>
20       </header>
21     </div>
22   );
23 }
24
25 export default App;
```

JavaScript Tabulatorbredd: 8 Rad 1, kolumn 1 INF



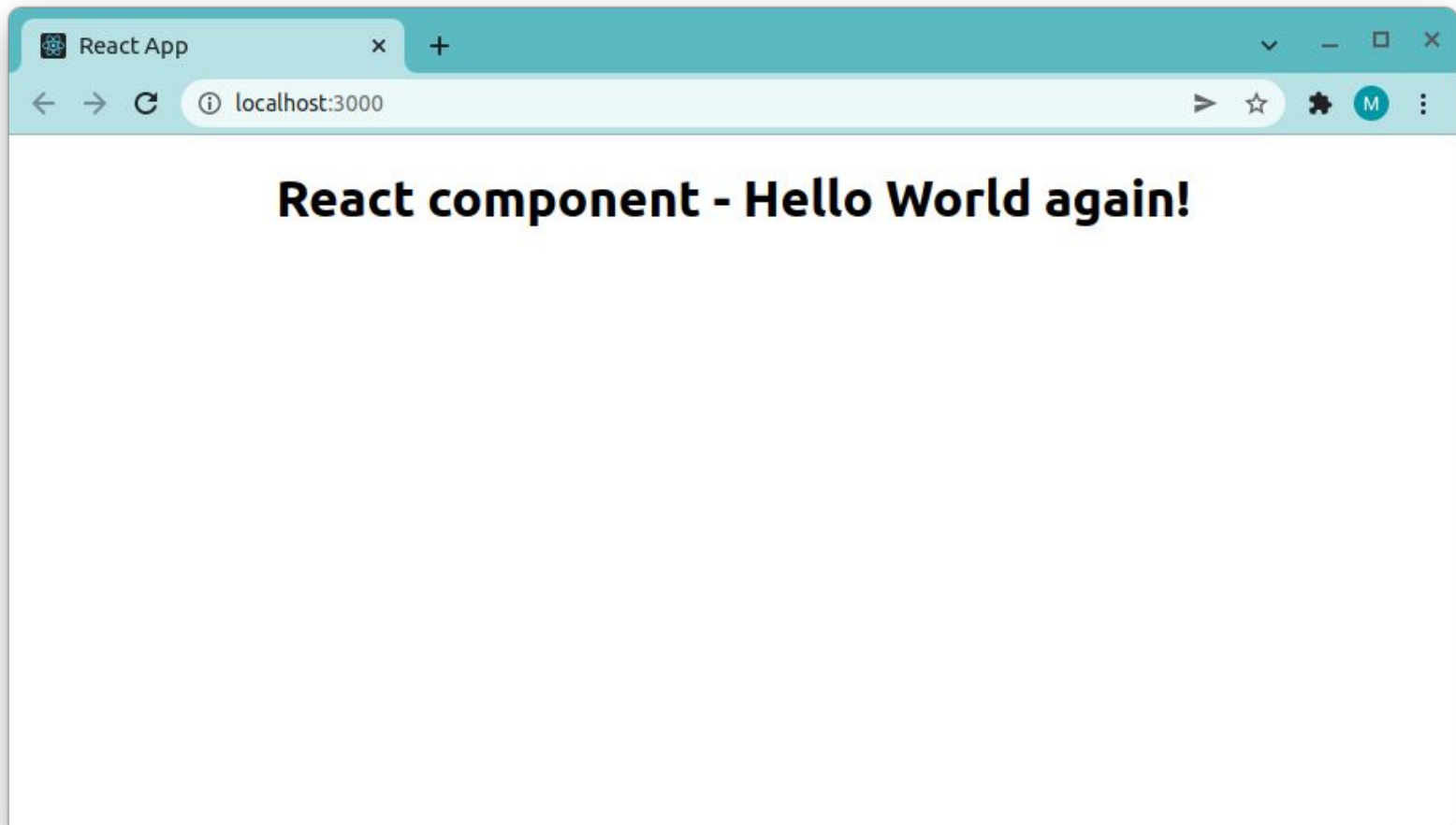
Skapa en React-komponent

Ändra koden i filen App.js till nedan

```
import React, { Component } from 'react';
import logo from './logo.svg';
import './App.css';

class App extends Component {
  render() {
    return (
      <div className="App">
        <h1>React component - Hello World again!</h1>
      </div>
    );
  }
}

export default App;
```



App.js

```
import React, { Component } from 'react';
import './App.css';

class App extends Component {
  render() {
    return (
      <div className="App">
        <h1>React component - Hello World!</h1>
      </div>
    );
  }
}

class KnApp extends Component {
  render() {
    return (
      <div className="KnApp">
        <h1>React component - Hello World again!</h1>
      </div>
    );
  }
}

export { App, KnApp }
```

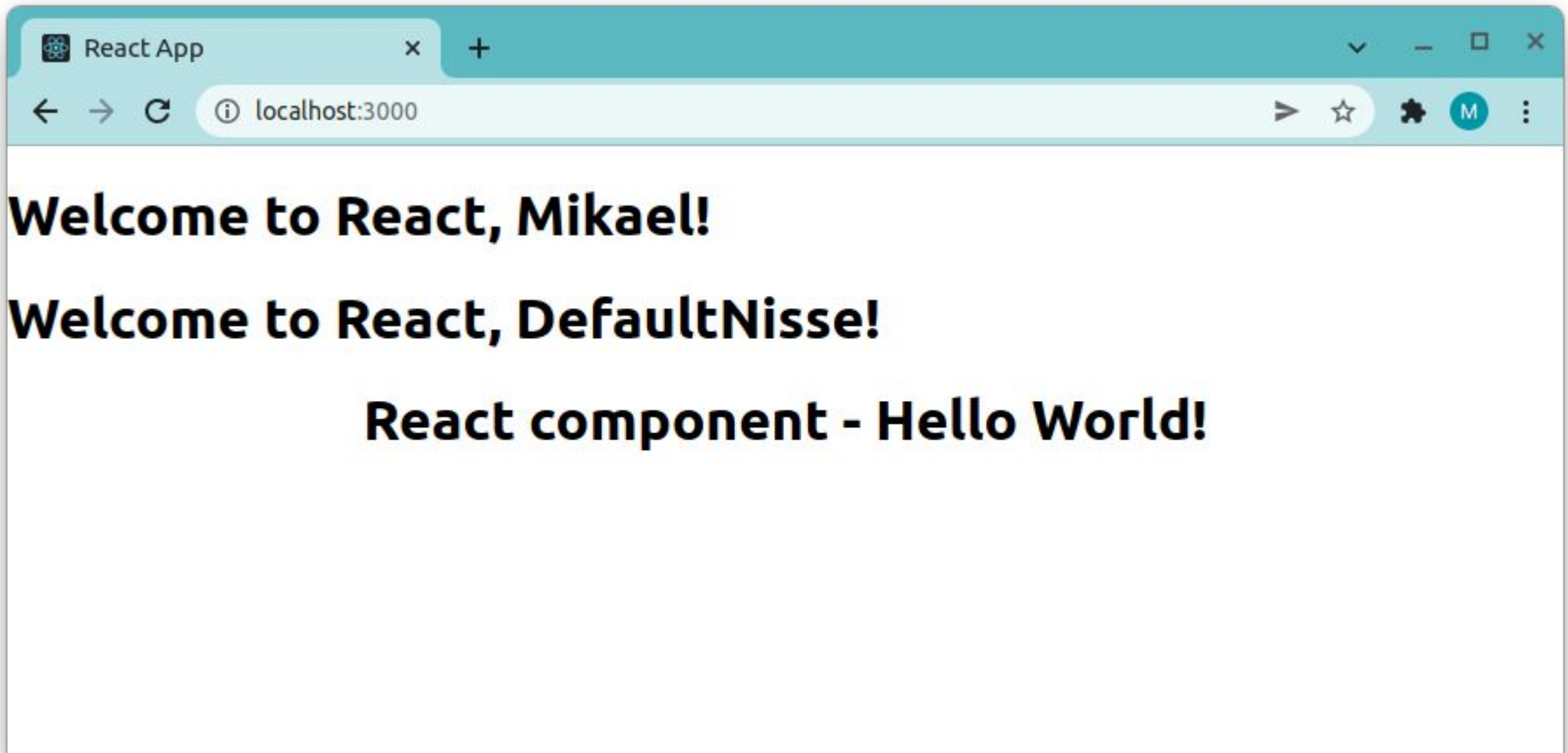


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index.js

```
import React from 'react';
import ReactDOM from 'react-dom';
import './index.css';
import { App, KnApp } from './App';

ReactDOM.render(
  <React.StrictMode>
    <App />
    <KnApp />
  </React.StrictMode>,
  document.getElementById('root')
);
```



index.js

```
import React from 'react';
import ReactDOM from 'react-dom';
import './index.css';
import App from './App';

//var React= require('react');
//var ReactDOM = require('react-dom');

class Welcome extends React.Component {
  render () {
    return <h1> Welcome to React, {this.props.name}!
  </h1>;
  }
}

Welcome.defaultProps = {
  name: "DefaultNisse",
};

ReactDOM.render(
  <React.StrictMode>
    <Welcome name="Mikael" />,
    <Welcome />,
    <App />
  </React.StrictMode>,
  document.getElementById('root')
);
```



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App.js

```
import React, { Component } from 'react';
import './App.css';

class App extends Component {
  render() {
    return (
      <div className="App">
        <h1>React component - Hello World!</h1>
      </div>
    );
  }
}

export default App;
```

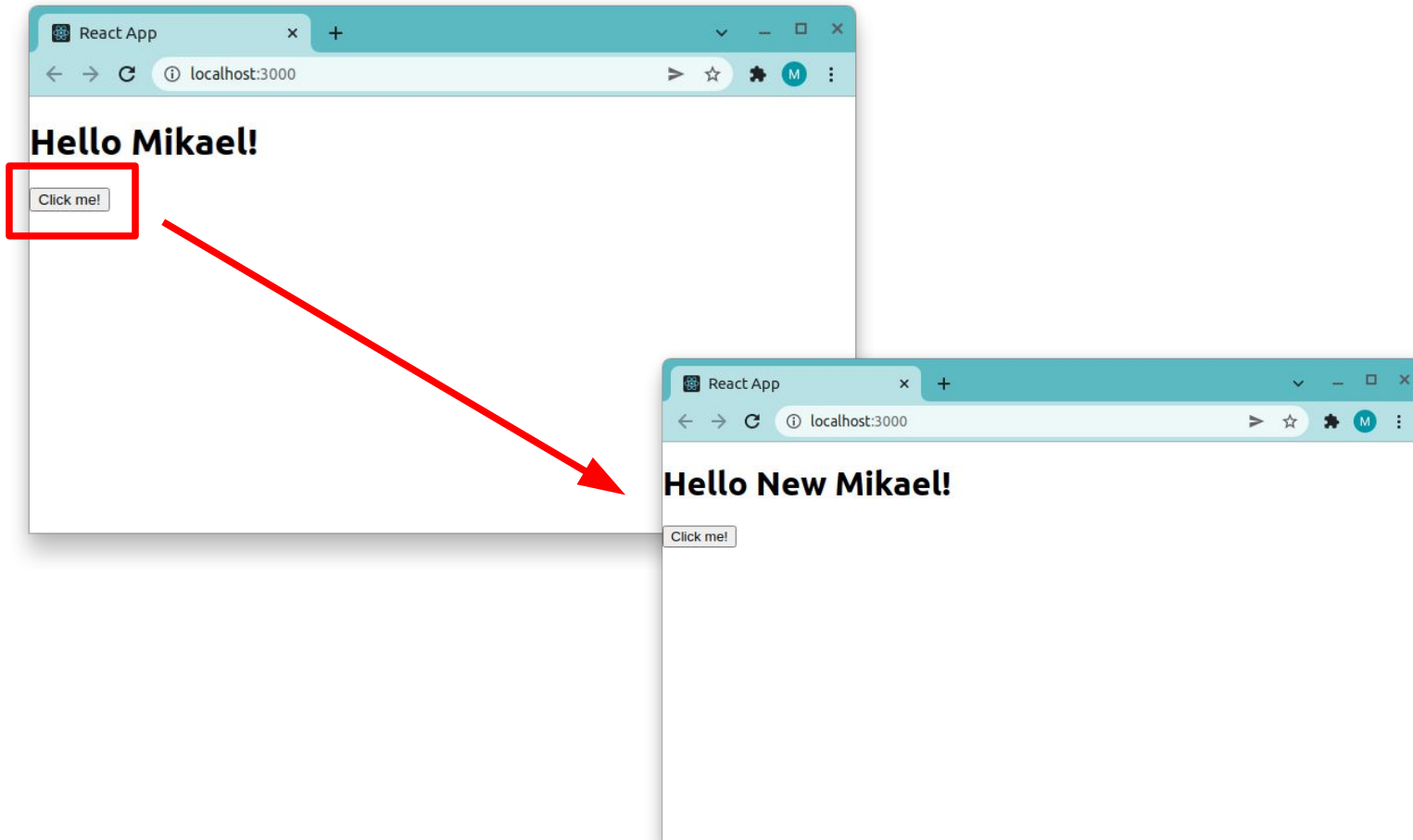
React state

Det är möjligt att initiera och påverka aktuell status hos en React komponent.

```
class Welcome extends Component {
  constructor(props)
  {
    super(props); // Have to be called to initialize "this"
    this.state = { msg: "Mikael" };
    this.updateMsg = this.updateMsg.bind(this); // We have to bind the keyword to the updateMessage method
  }

  updateMsg() {
    this.setState({
      msg: "New Mikael"
    });
  }

  render()
  {
    return ( <div> <h1>Hello {this.state.msg}!</h1> <button onClick={this.updateMsg}>Click me!</button> </div> )
  }
}
```



App.js

```
import React, { Component } from 'react';

class Welcome extends Component {

  constructor(props){
    super(props);
    this.state = {
      msg: "Mikael"
    };
    this.updateMsg = this.updateMsg.bind(this);
  }

  updateMsg() {
    this.setState({
      msg: "New Mikael"
    });
  }

  render() {
    return (
      <div>
        <h1>Hello {this.state.msg}!</h1>
        <button onClick={this.updateMsg}>Click me!</button>
      </div>
    )
  }
}

export default Welcome;
```



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index.js

```
import React from 'react';
import ReactDOM from 'react-dom';
import './index.css';
import App from './App';

ReactDOM.render(
  <React.StrictMode>
    <App />
  </React.StrictMode>,
  document.getElementById('root')
);
```

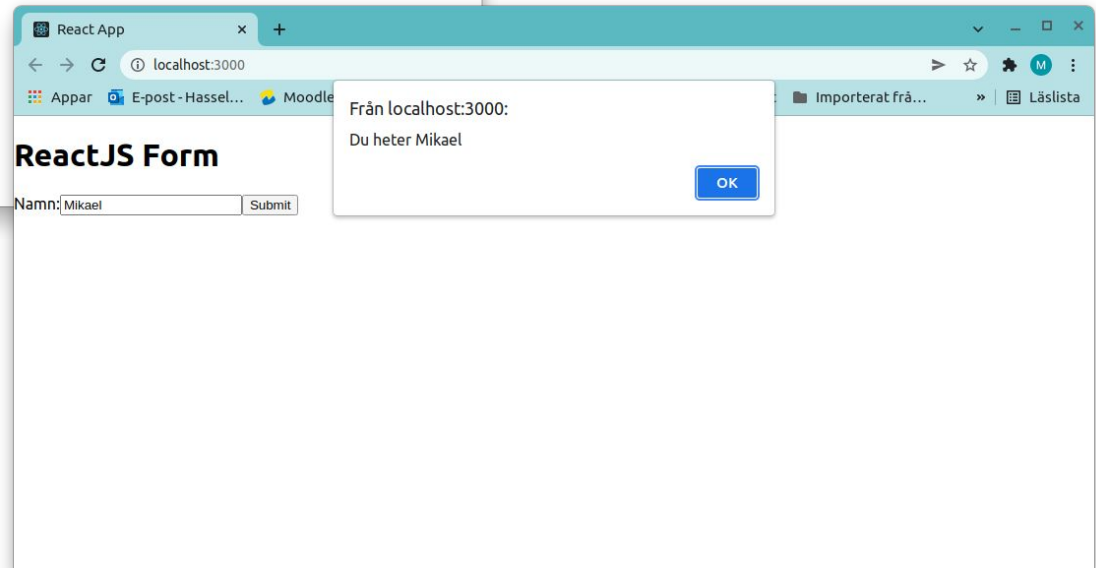
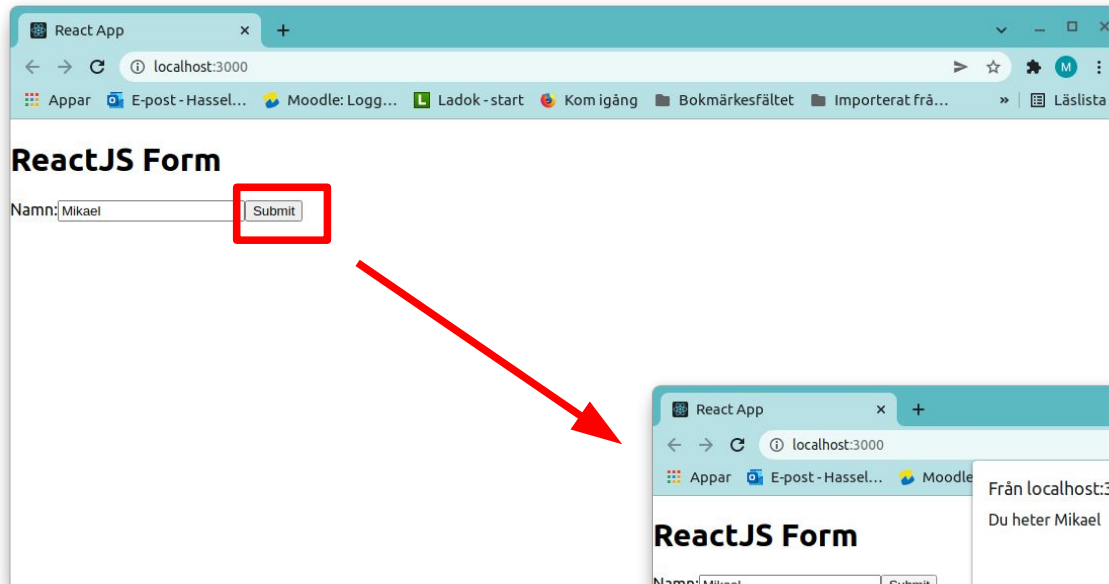
Skillnad mellan props och state

- props är konstanta medan state är ett värde som kan ändras över tid
- props definieras när komponenter skapas, state definieras inuti en komponent
- state är definierad som private och kan endast ändras i en komponent



Formulär

```
<form>  
  <label>  
    Namn:  
    <input type="text" name="name" />  
  </label>  
  <input type="submit" value="Submit" />  
</form>
```



App.js

```
import React, { Component } from 'react';

class App extends React.Component {
  constructor(props) {
    super(props);
    this.state = {value: ""};

    this.handleChange = this.handleChange.bind(this);
    this.handleSubmit = this.handleSubmit.bind(this);
  }

  handleChange(event) {
    this.setState({value: event.target.value});
  }

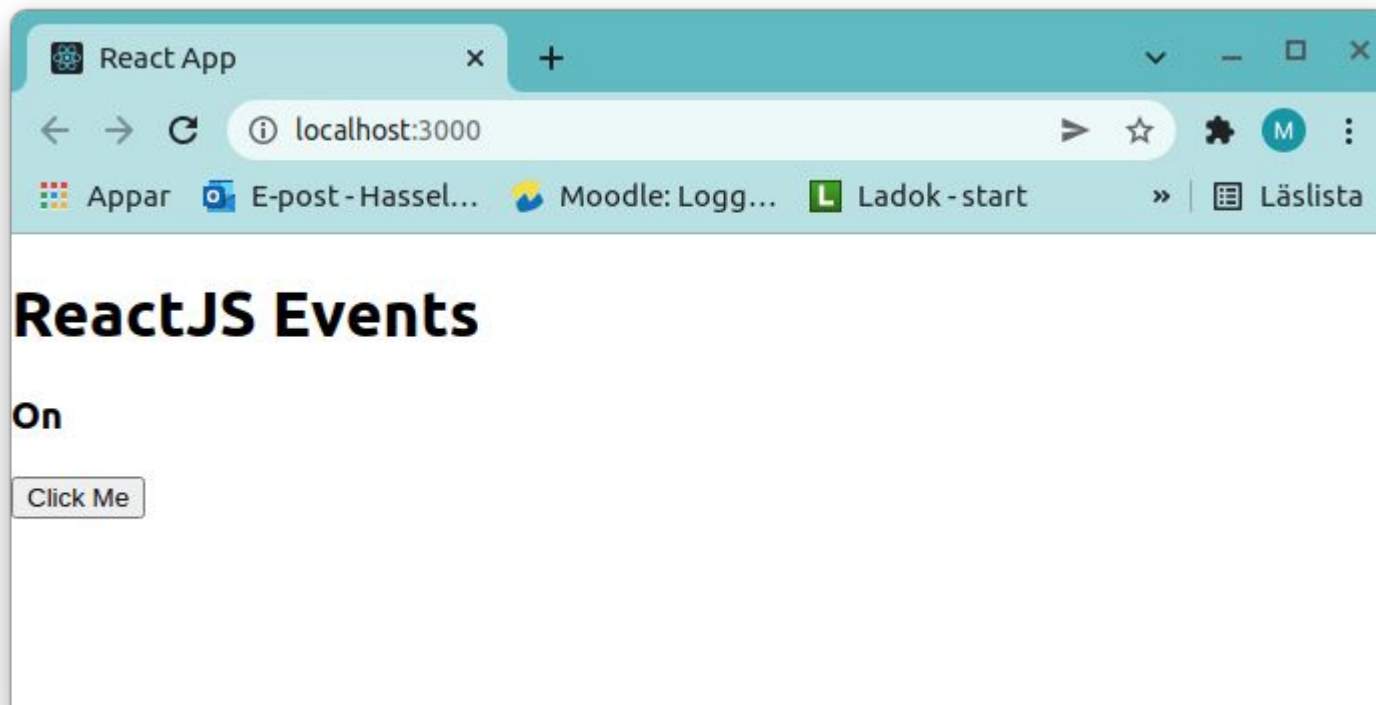
  handleSubmit(event) {
    alert('Du heter ' + this.state.value);
    event.preventDefault();
  }

  render() {
    return (
      <div>
        <h1>ReactJS Form</h1>
        <form onSubmit={this.handleSubmit}>
          <label>
            Namn:
            <input type="text" value={this.state.value} onChange={this.handleChange} />
          </label>
          <input type="submit" value="Submit" />
        </form>
      </div>
    );
  }
}

export default App;
```



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App.js

```
import React, { Component } from 'react';

class App extends React.Component {
  constructor(props) {
    super(props);
    this.state = {isToggle: true};
    this.handleClick = this.handleClick.bind(this);
  }

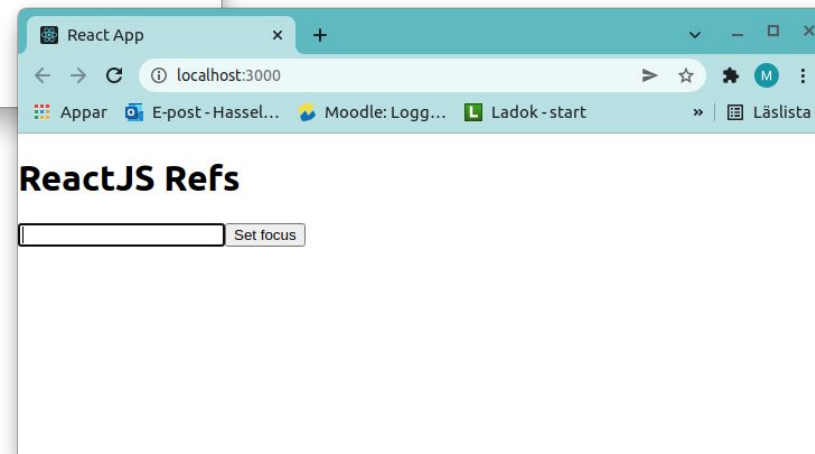
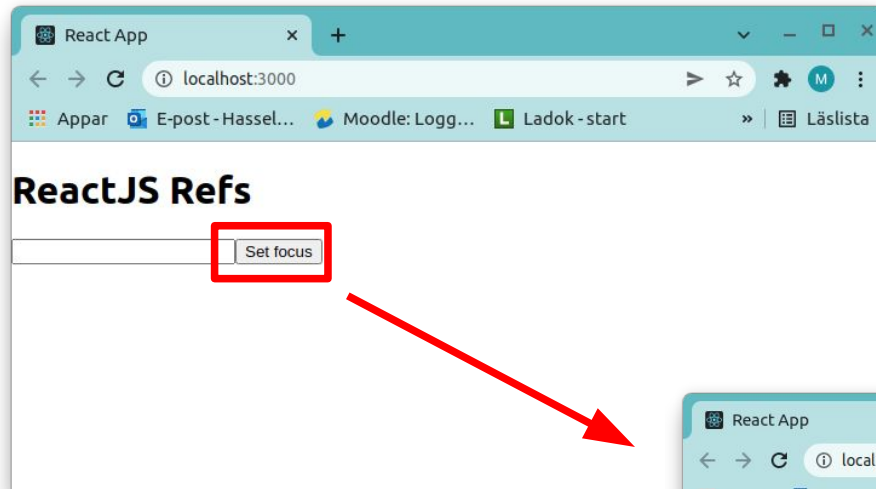
  handleClick() {
    this.setState(state => ({
      isToggle: !state.isToggle
    }));
  }

  render() {
    return (
      <div>
        <h1>ReactJS Events</h1>
        <h3>{this.state.isToggle ? 'On' : 'Off'}</h3>
        <button onClick={this.handleClick}>
          Click Me
        </button>
      </div>
    );
  }
}

export default App;
```



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App.js

```
import React, { Component } from 'react';

class App extends React.Component {
  constructor(props) {
    super(props);
    this.txtReff = React.createRef();
    this.focusToTxt= this.focusToTxt.bind(this);
  }

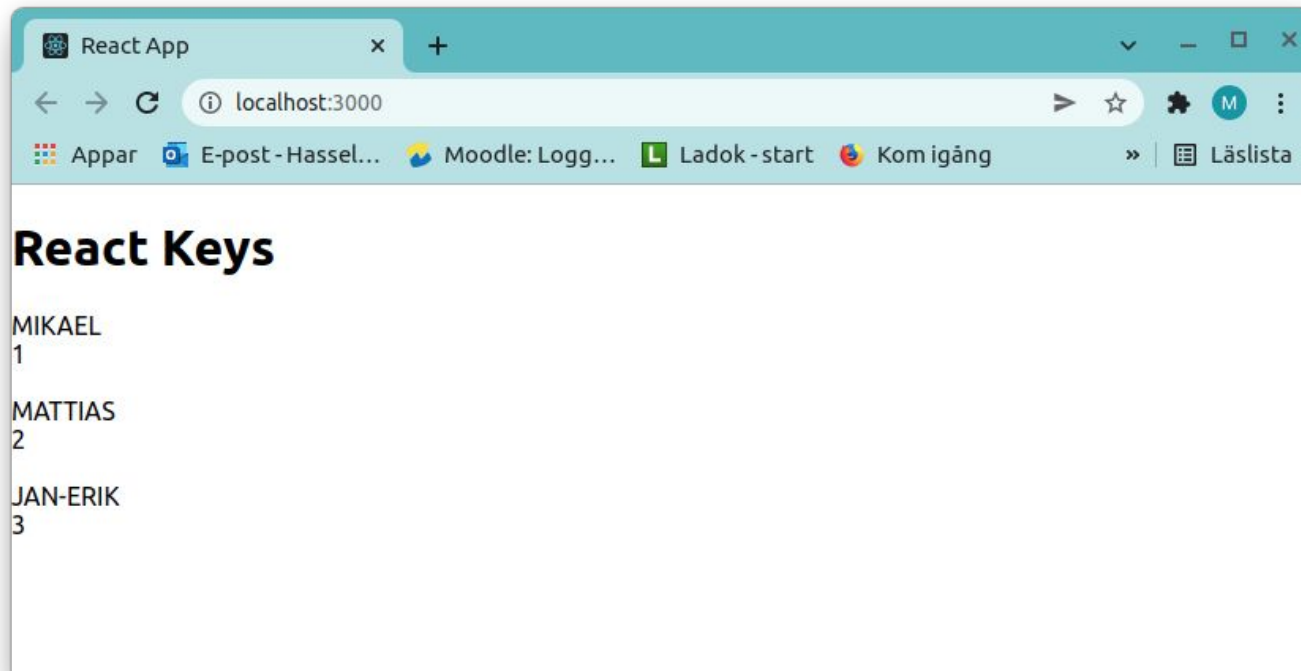
  focusToTxt() {
    // focus to text input
    this.txtReff.current.focus();
  }

  render() {
    return (
      <div>
        <h1>ReactJS Refs</h1>
        <input
          type="text"
          ref={this.txtReff} />
        <input
          type="button"
          value="Set focus"
          onClick={this.focusToTxt}
        />
      </div>
    );
  }
}

export default App;
```



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App.js

```
import React, { Component } from 'react';

class App extends React.Component {
  constructor() {
    super();

    this.state = {
      employees:[
        {
          empName: 'Mikael',
          id: 1
        },
        {
          empName: 'Mattias',
          id: 2
        },
        {
          empName: 'Jan-Erik',
          id: 3
        }
      ]
    }
  }
  render() {
    return (
      <div>
        <h1>React Keys</h1>
        <div>
          {this.state.employees.map((data, i) => <Employee
            key = {i} empData = {data} />)}
        </div>
      </div>
    );
  }
}

class Employee extends React.Component {
  render() {
    return (
      <div>
        <div>{this.props.empData.empName.toUpperCase()}</div>
        <div>{this.props.empData.id}</div>

        <br />
      </div>
    );
  }
}

export default App;
```



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Referenser

<https://reactjs.org/>

<https://www.w3schools.com/REACT/DEFAULT.ASP>