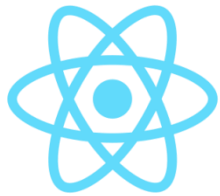


Front-End Development

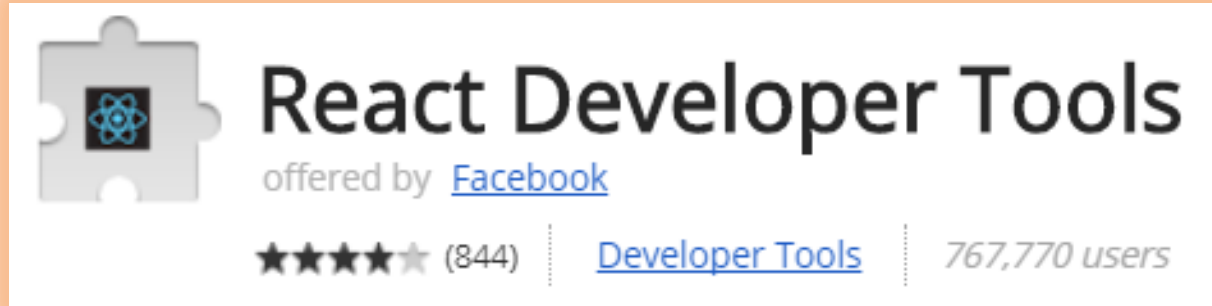


# React

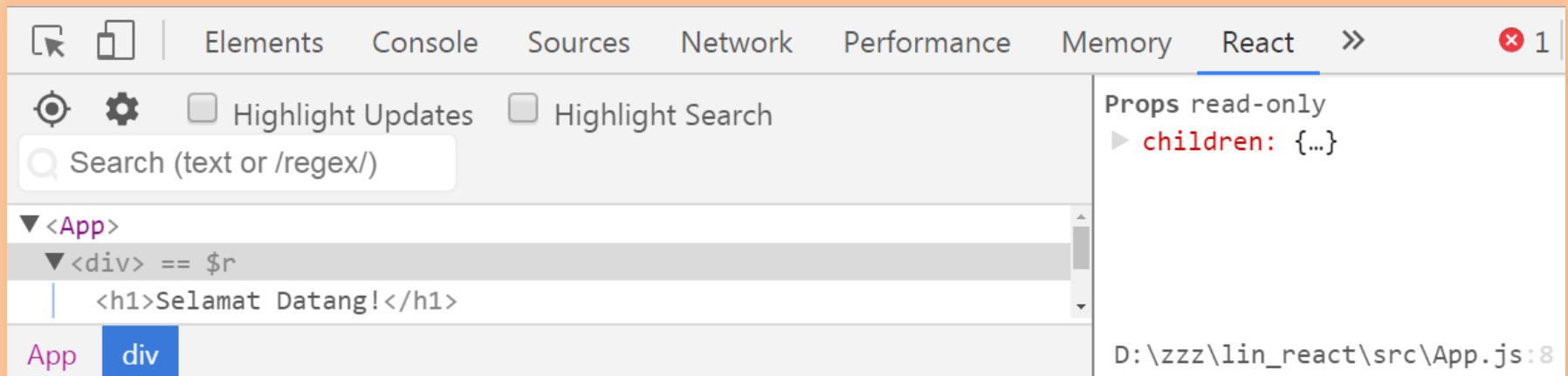
**#2** Learn Once, Write Anywhere

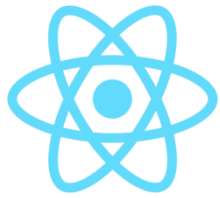


# React Dev Tools



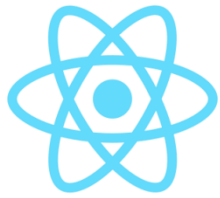
- Add React Dev Tools on Chrome from:  
<https://chrome.google.com/webstore/>





# State & Props

- There are 2 types of data that control a component: *State* & *Props*.
- *Props* are set by the parent and they're fixed throughout the lifetime of a component. For data that is going to change, we have to use *State*.



# State

- In general, we should initialize state in the `constructor`, and then call `setState` when we want to change it.
- State is mutable, and defines at any given time, the current state of the React component that is being rendered.

## src/App.js

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

class App extends Component {
  render() {
    return (
      <h1>Selamat datang!</h1>
    );
  }
}

export default App;
```



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

```
class App extends Component {
```

```
  constructor(){
```

```
    super();
```

```
    this.state = {nama: 'Andi'};
```

```
  }
```

```
  render() {
```

```
    return (
```

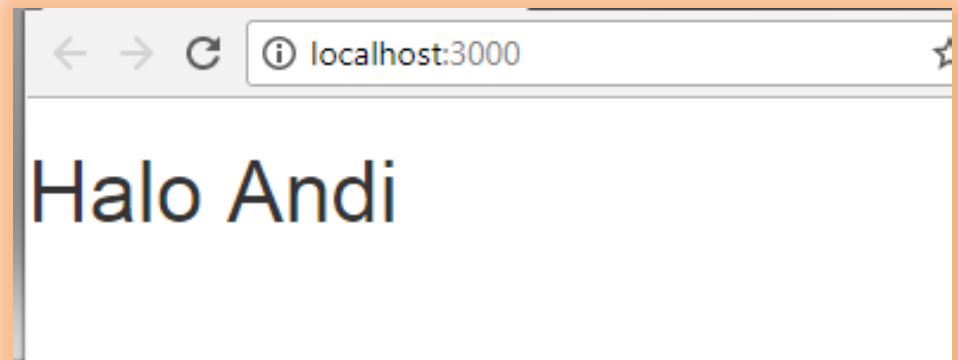
```
      <h1>Halo {this.state.nama}</h1>
```

```
    );
```

```
  }
```

```
}
```

```
export default App;
```



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

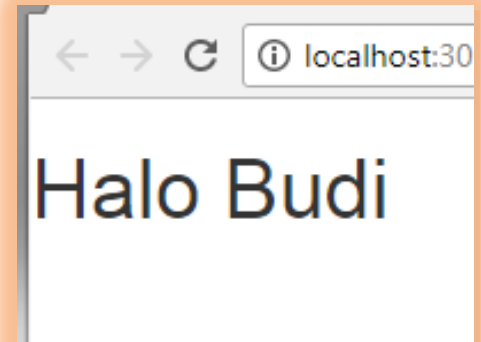
class App extends Component {
  constructor(){
    super();
    this.state = {nama:'Andi', usia:21};
  }
  render() {
    return (
      <div>
        <h1>Halo {this.state.nama}</h1>
        <h1>Usia {this.state.usia} th</h1>
      </div>
    );
  }
}

export default App;
```

**Halo Andi**

**Usia 21 th**

```
import React, { Component } from 'react';
class App extends Component {
  constructor(){
    super();
    this.state = {nama: 'Andi'};
  }
  render() {
    setTimeout(() => {
      this.setState({nama: 'Budi'});
    }, 3000)
    return (
      <h1>Halo {this.state.nama}</h1>
    );
  }
}
export default App;
```







# Props

- Most components can be customized with different parameters when they are created. These creation parameters are called *Props (Properties)*.
- It lets you make a component that is used in many different places in your app, with slightly different properties in each places.
- For short, props are static properties on a React component that are immutable (cannot be changed).

```
import React, { Component } from 'react';
import Footer from './component/Footer';

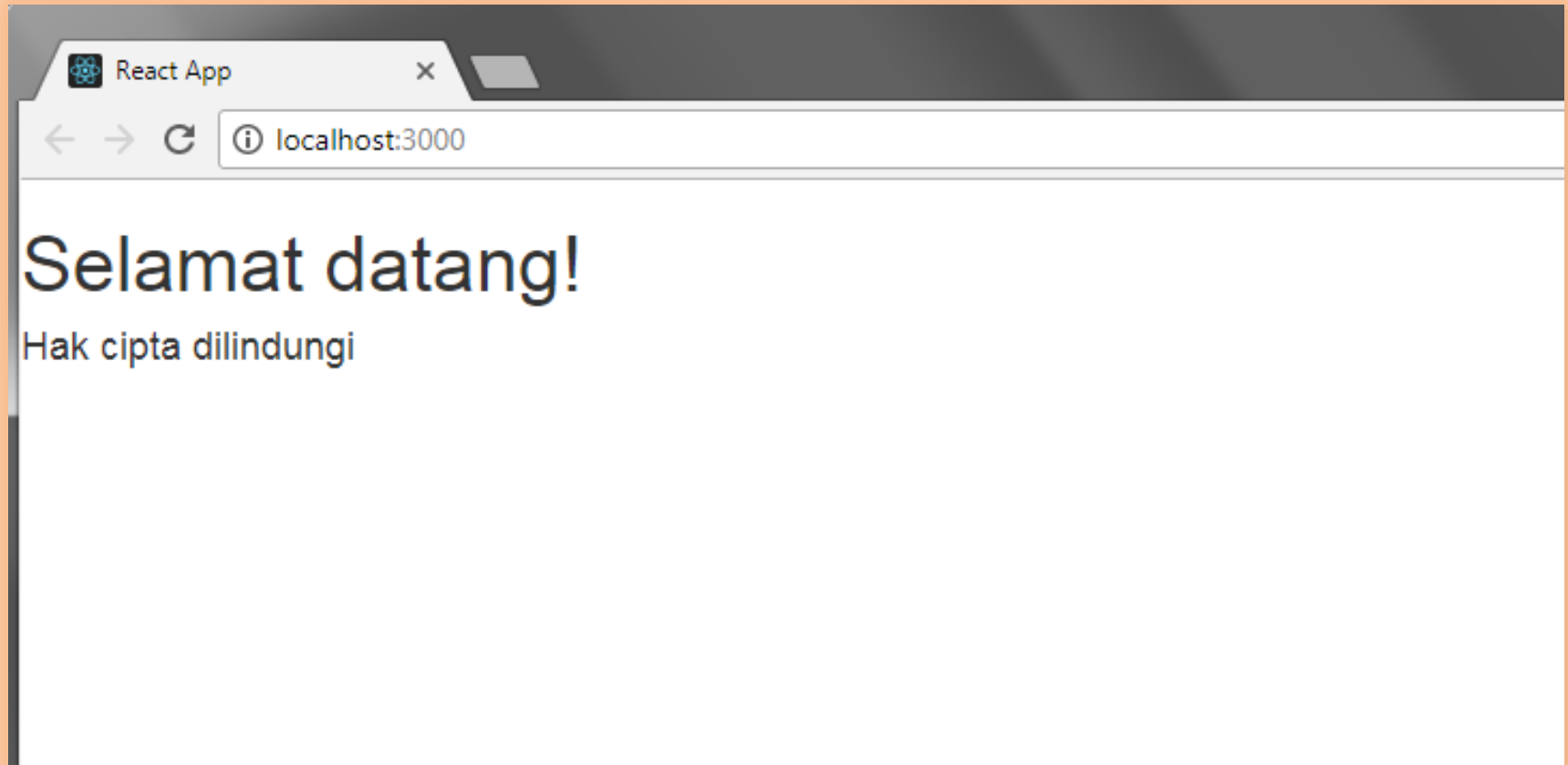
class App extends Component {
  render() {
    var teks = "Hak cipta dilindungi";
    return (
      <div>
        <h1>Selamat datang!</h1>
        <Footer konten={teks} />
      </div>
    );
  }
}
export default App;
```

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

class Footer extends Component {
  render() {
    return (
      <div>
        <h4>{this.props.konten}</h4>
      </div>
    );
  }
}

export default Footer;
```

# Props #1



```
import React, { Component } from 'react';
import Footer from './component/Footer';

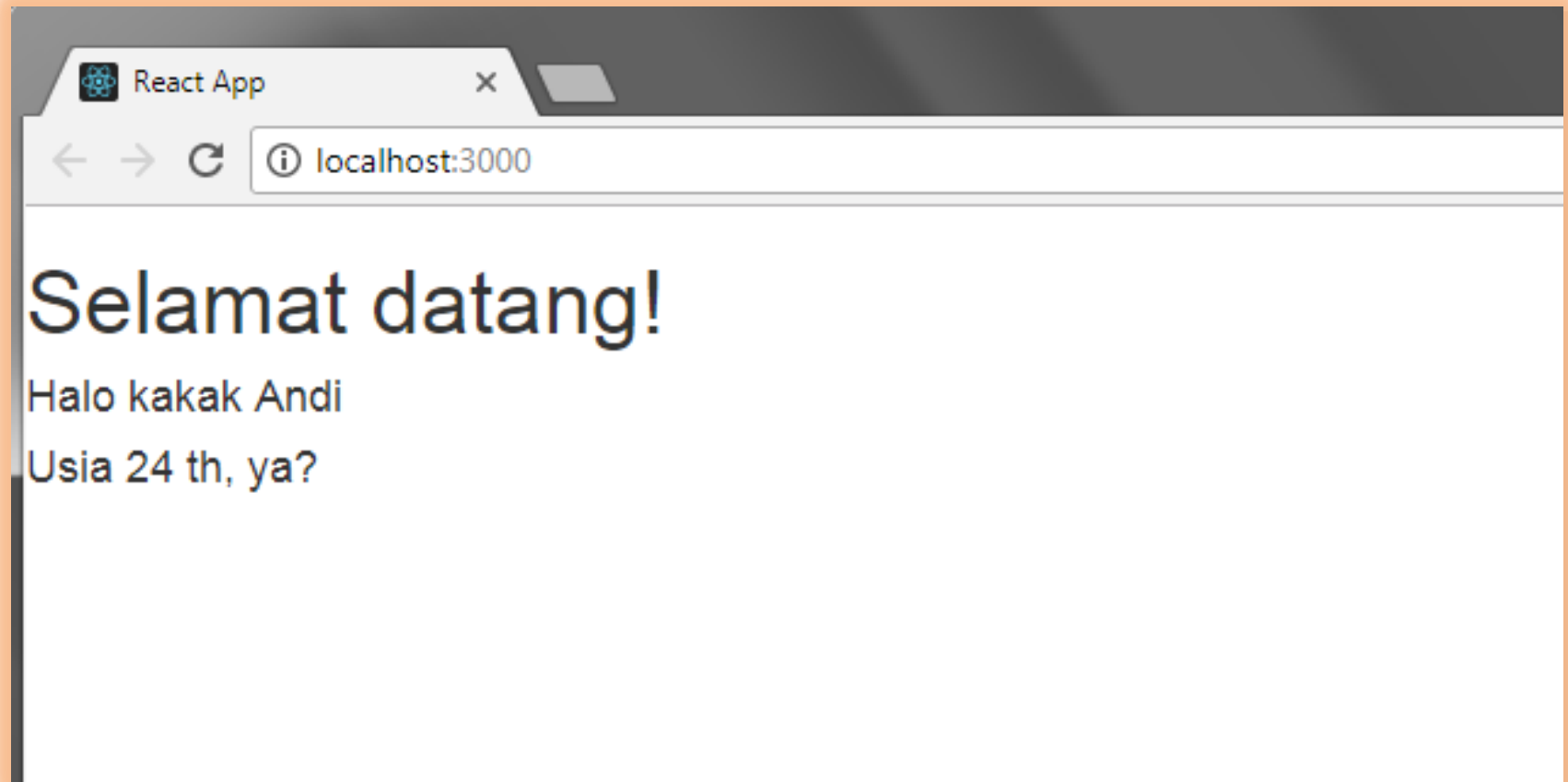
class App extends Component {
  render() {
    var andi = {nama:"Andi",usia:24};
    return (
      <div>
        <h1>Selamat datang!</h1>
        <Footer id={andi.nama} umur={andi.usia}/>
      </div>
    );
  }
}
export default App;
```

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

class Footer extends Component {
  render() {
    return (
      <div>
        <h4>Halo kakak {this.props.id}</h4>
        <h4>Usia {this.props.umur} th, ya?</h4>
      </div>
    );
  }
}


export default Footer;
```

# Props #2



```
import React, { Component } from 'react';  
import Footer from './component/Footer';
```

```
class App extends Component {  
  constructor(){  
    super();  
    this.state = {nama: 'Andi'};  
  }  
  render() {  
    return (  
      <div>  
        <Footer id={this.state.nama} />  
      </div>  
    );  
  }  
}  
export default App;
```

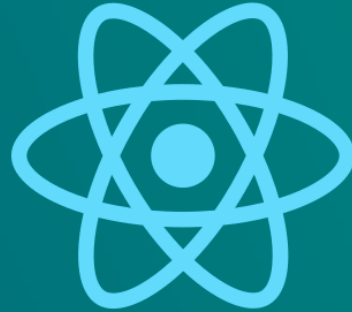




```
import React, { Component } from 'react';

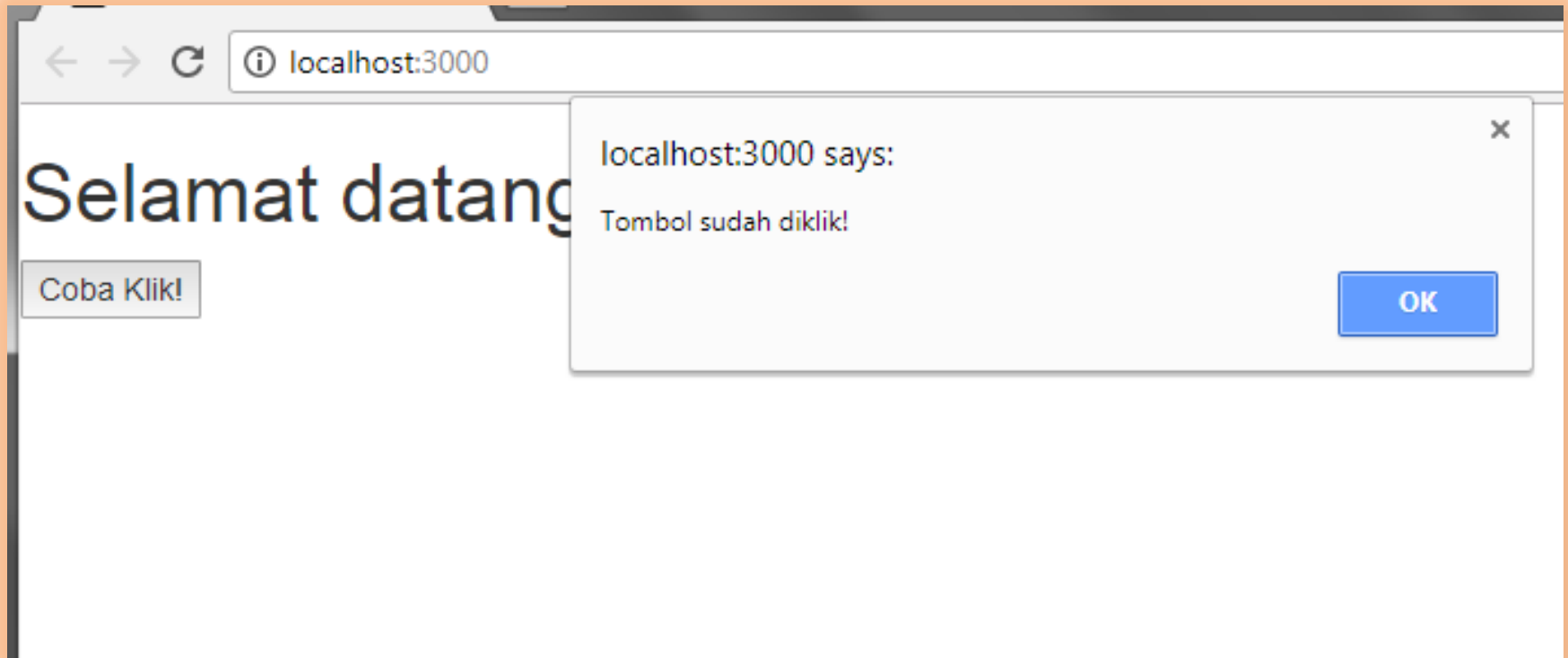
class Footer extends Component {
  render() {
    return (
      <div>
        <h1>Halo {this.props.id}</h1>
      </div>
    );
  }
}

export default Footer;
```



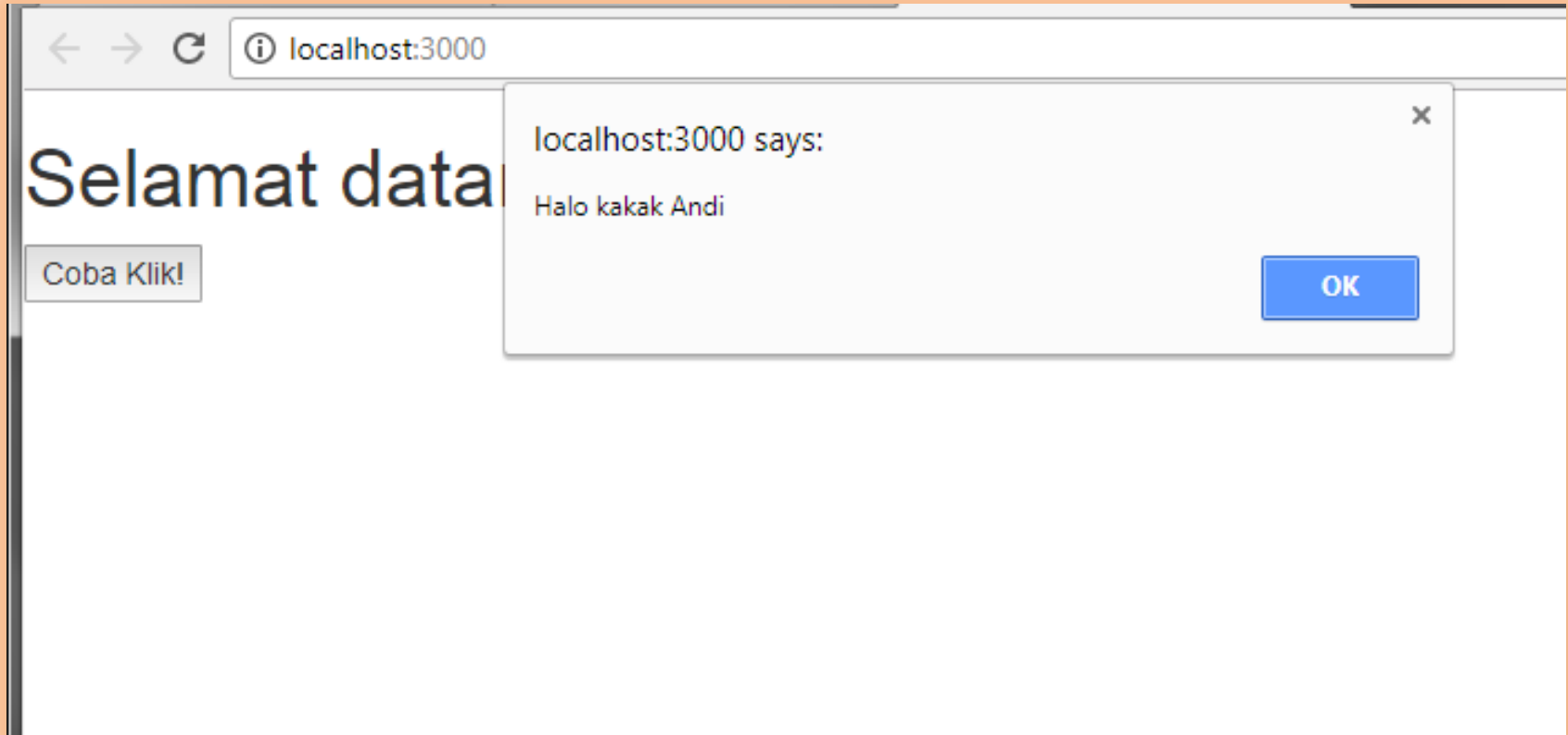
# Handling Events

# Click Event



```
import React, { Component } from 'react';
class App extends Component {
  klik(){
    alert('Tombol sudah diklik!');
  }
  render() {
    return (
      <div>
        <h1>Selamat datang!</h1>
        <button onClick={this.klik}>
          Coba Klik!
        </button>
      </div>
    );
  }
}
export default App;
```

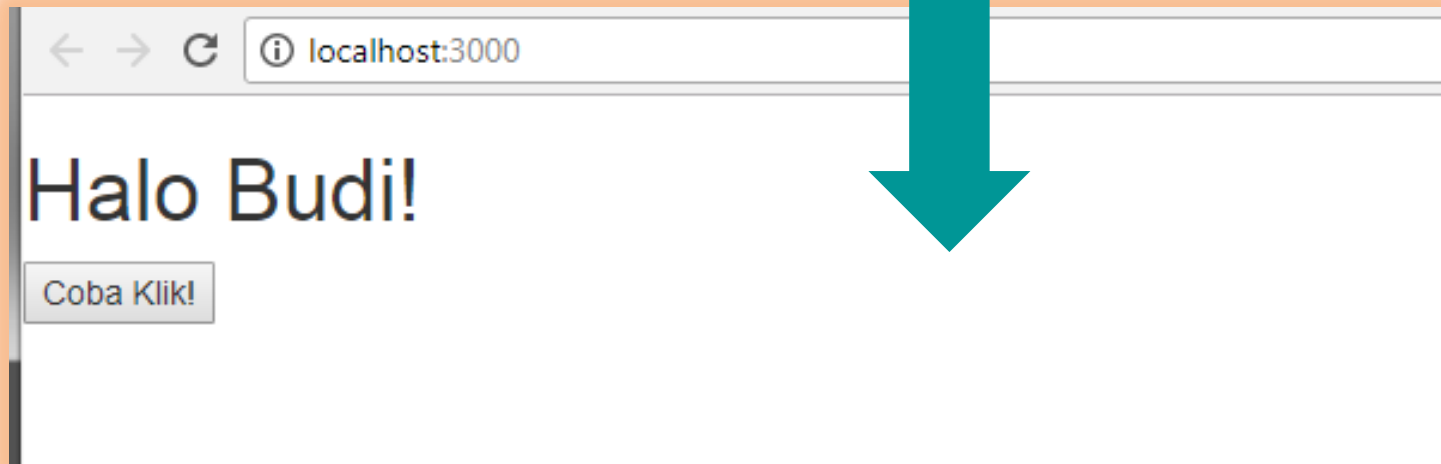
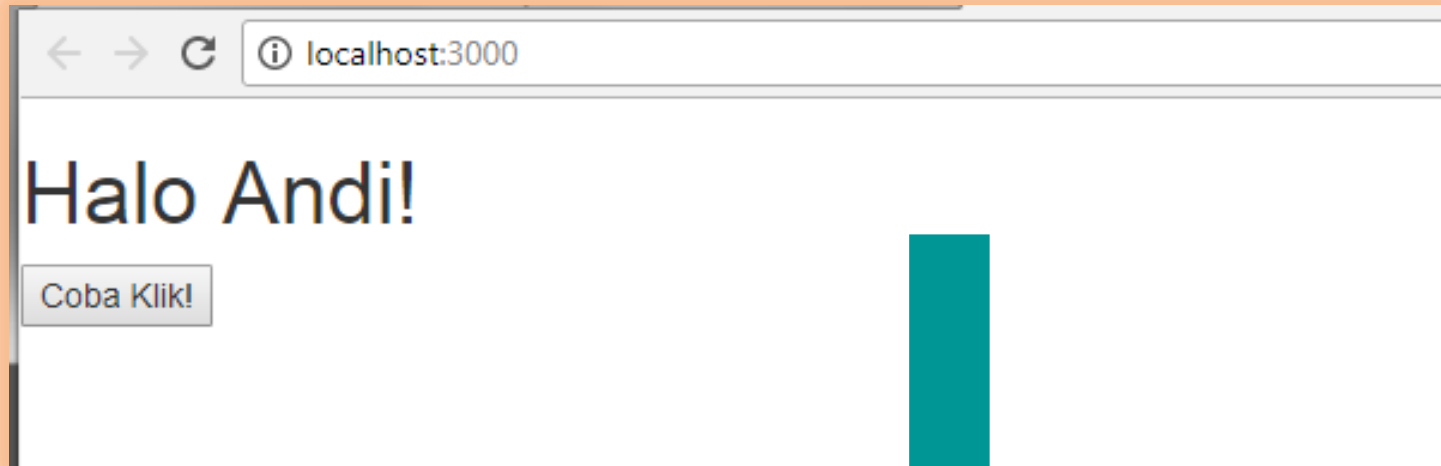
# Click Event *with param*



```
import React, { Component } from 'react';
class App extends Component {
  klik(siapa){
    alert('Halo kakak '+siapa);
  }
  render() {
    return (
      <div>
        <h1>Selamat datang!</h1>
        <button onClick={()=>{this.klik('Andi');}}>
          Coba Klik!
        </button>
      </div>
    );
  }
}
export default App;
```

# Click Event

*update State #1*



```

import React, { Component } from 'react';
class App extends Component {
  constructor(){
    super();
    this.state = {user: 'Andi'};
  }
  klik(siapa){
    this.setState({user: siapa});
  }
  render() {
    return (
      <div>
        <h1>Halo {this.state.user}!</h1>
        <button onClick={()=>{this.klik('Budi')}}>
          Coba Klik!
        </button>
      </div>
    );
  }
}
export default App;

```

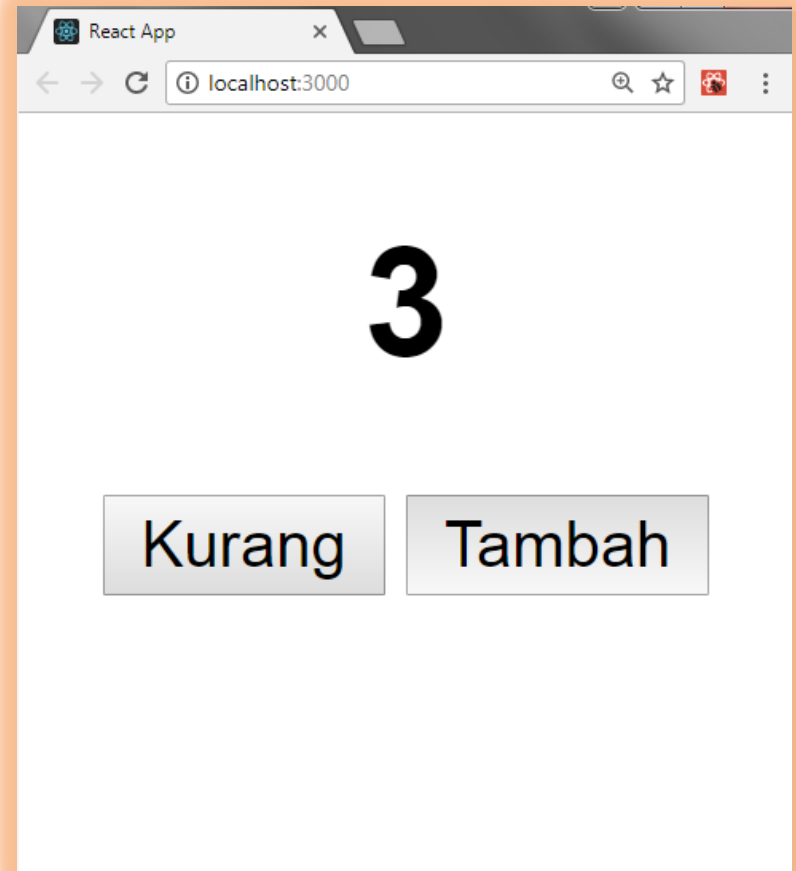
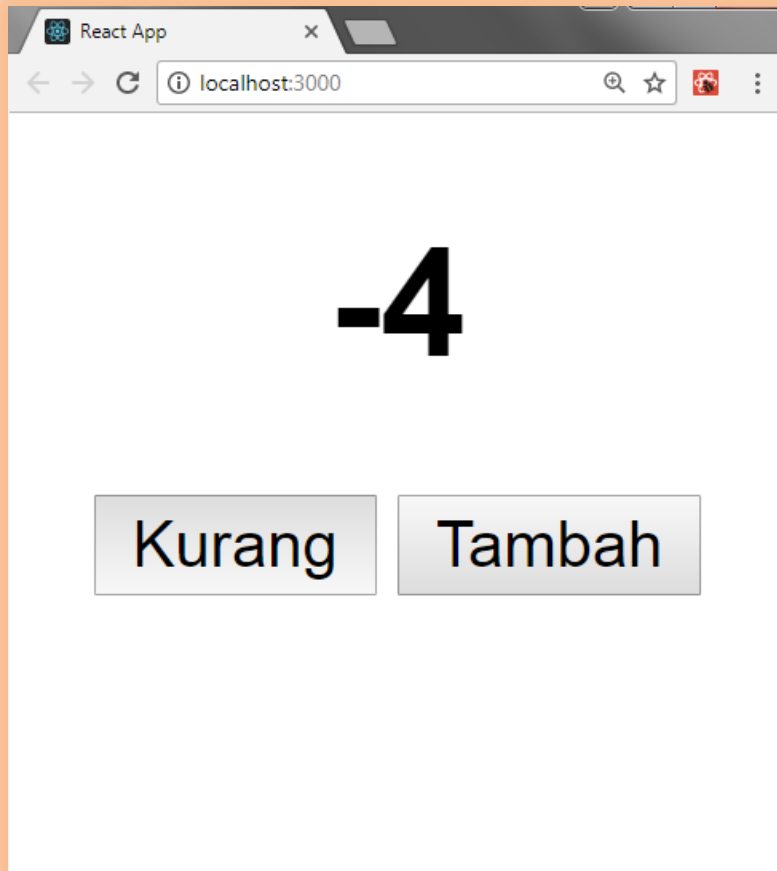
src/App.js

**Click Event**  
*update State #1*



# Click Event

## *update State #2*



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

```
class App extends Component {  
  state = { count: 0 }
```

```
  tambah = () => {  
    this.setState({  
      count: this.state.count + 1  
    });  
  }
```

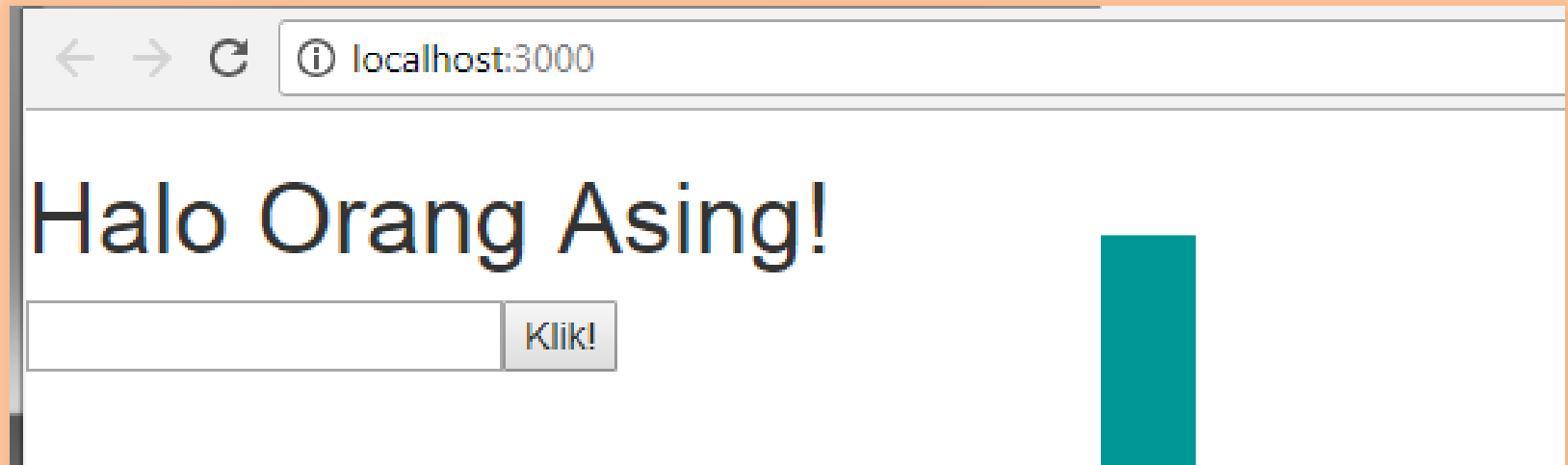
```
  kurang = () => {  
    this.setState({  
      count: this.state.count - 1  
    });  
  }
```

```
render(){
  return (
    <div>
      <center>
        <h1>{this.state.count}</h1>
        <div>
          <button onClick = {this.kurang}>Kurang</button>
          <span> </span>
          <button onClick = {this.tambah}>Tambah</button>
        </div>
      </center>
    </div>
  );
}
}
```

export default **App**;

# Click Event

*update State from user input*



← → ↻ ⓘ localhost:3000

Halo Orang Asing!

Klik!



← → ↻ ⓘ localhost:3000

Halo Lintang!

Lintang Klik!

## src/App.js

**Click Event**  
*update State  
from user input*

```
import React, { Component } from 'react';
class App extends Component {
  constructor(){
    super();
    this.state = {user: 'Orang Asing'};
  }
  klik(){
    this.setState({user: this.refs.nama.value});
  }
  render() {
    return (
      <div>
        <h1>Halo {this.state.user}!</h1>
        <input ref="nama" type="text"/>
        <button onClick={()=>{this.klik();}}>Klik!</button>
      </div>
    );
  }
}
export default App;
```

# Events

## ■ Keyboard Events

onKeyDown onKeyPress onKeyUp

## ■ Focus Events

onFocus onBlur

## ■ Form Events

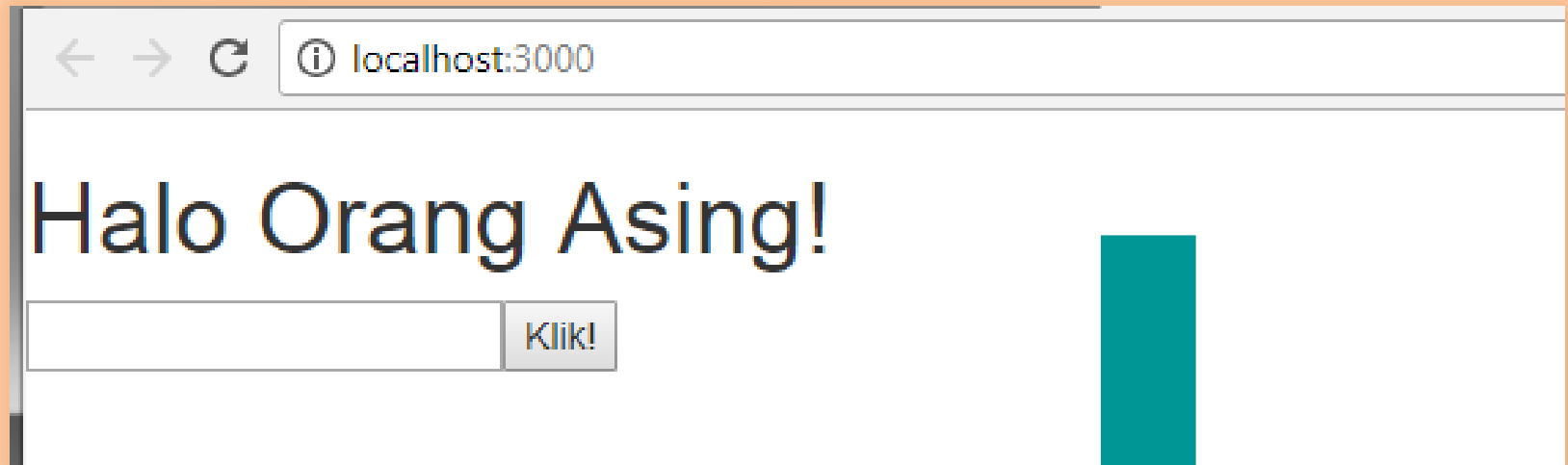
onChange onInput onInvalid onSubmit

## ■ Mouse Events

onClick onContextMenu onDoubleClick onDrag  
onDragEnd onDragEnter onDragExit onDragLeave  
onDragOver onDragStart onDrop onMouseDown  
onmouseenter onMouseleave onMousemove  
onmouseout onMouseover onMouseup

# Double Click Event

*update State from user input*



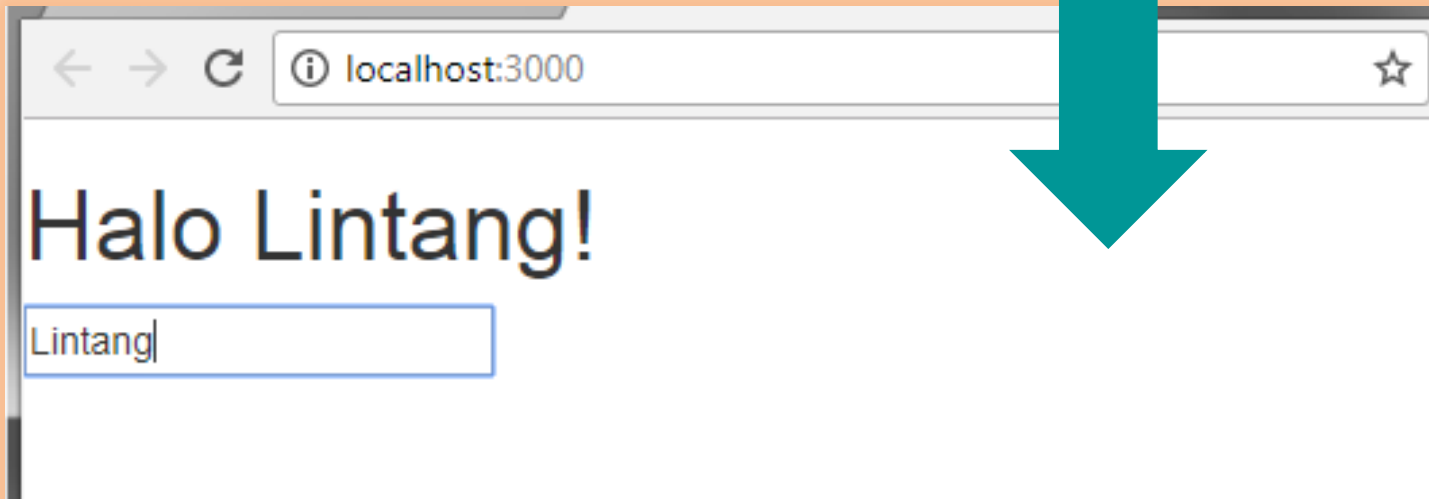
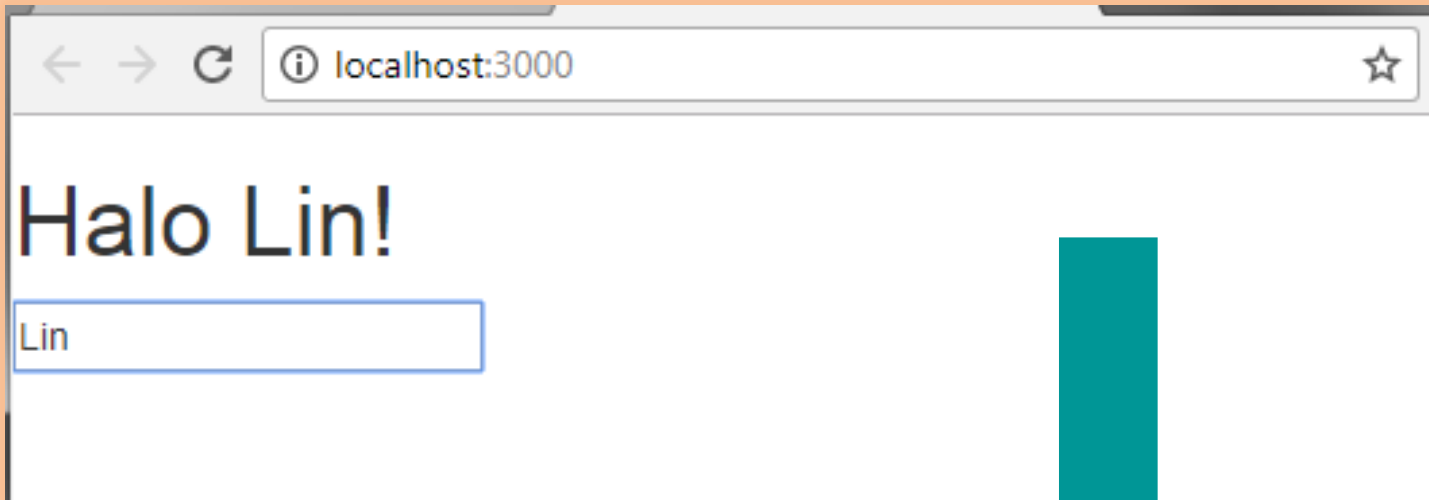
```
import React, { Component } from 'react';
class App extends Component {
  constructor(){
    super();
    this.state = {user: 'Orang Asing'};
  }
  klik(){
    this.setState({user: this.refs.nama.value});
  }
  render() {
    return (
      <div>
        <h1>Halo {this.state.user}!</h1>
        <input ref="nama" type="text"/>
        <button onDoubleClick={()=>{this.klik();}}>
          Klik!
        </button>
      </div>
    );
  }
}
export default App;
```

**Double Click**  
*update State  
from user input*

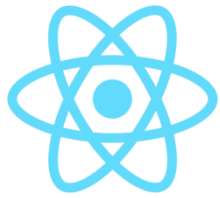


# onInput Event

*update State from user input*



```
import React, { Component } from 'react';
class App extends Component {
  constructor(){
    super();
    this.state = {user: 'Orang Asing'};
  }
  klik(){
    this.setState({user: this.refs.nama.value});
  }
  render() {
    return (
      <div>
        <h1>Halo {this.state.user}!</h1>
        <input ref="nama" type="text"
          onInput={()=>{this.klik();}}/>
      </div>
    );
  }
}
export default App;
```



# Life-cycle Methods

## *#1 Mounting*

### ■ `componentWillMount()`

Invoked once on both client and server, immediately before the initial rendering occurs.

### ■ `componentDidMount()`

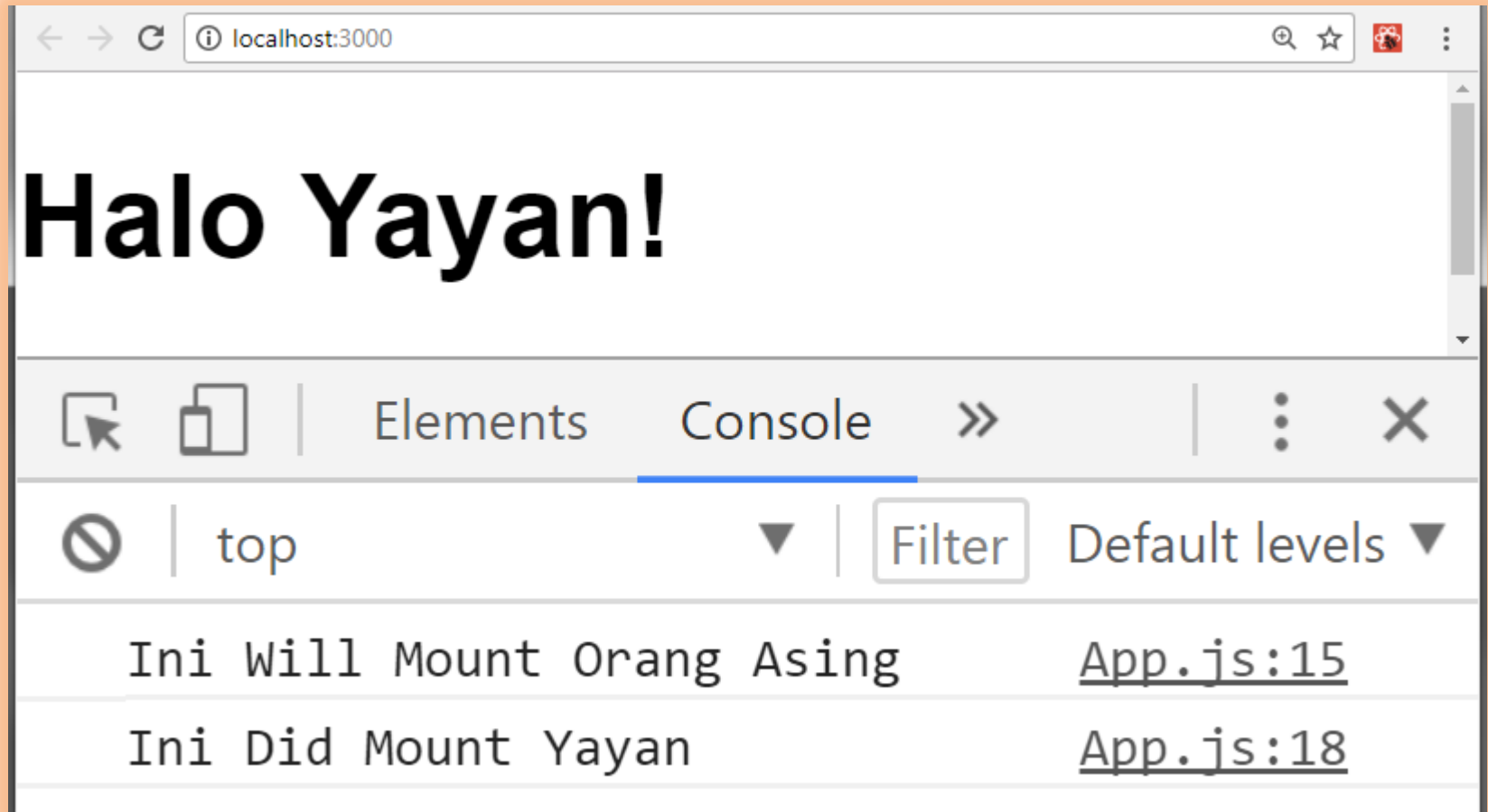
Invoked once only on client, immediately after the initial rendering occurs.

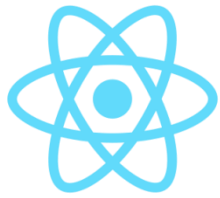
# Life-cycle Methods

*Mounting*

**src/App.js**

```
import React, { Component } from 'react';
class App extends Component {
  constructor(){
    super();
    this.state = {user: 'Orang Asing'};
  }
  componentWillMount(){
    this.setState({user: 'Yayan'});
    console.log('Ini Will Mount '+this.state.user);
  }
  componentDidMount(){
    console.log('Ini Did Mount '+this.state.user);
  }
  render() {
    return (
      <div><h1>Halo {this.state.user}!</h1></div>
    );
  }
}
export default App;
```





# Life-cycle Methods

## *#2 Updating*

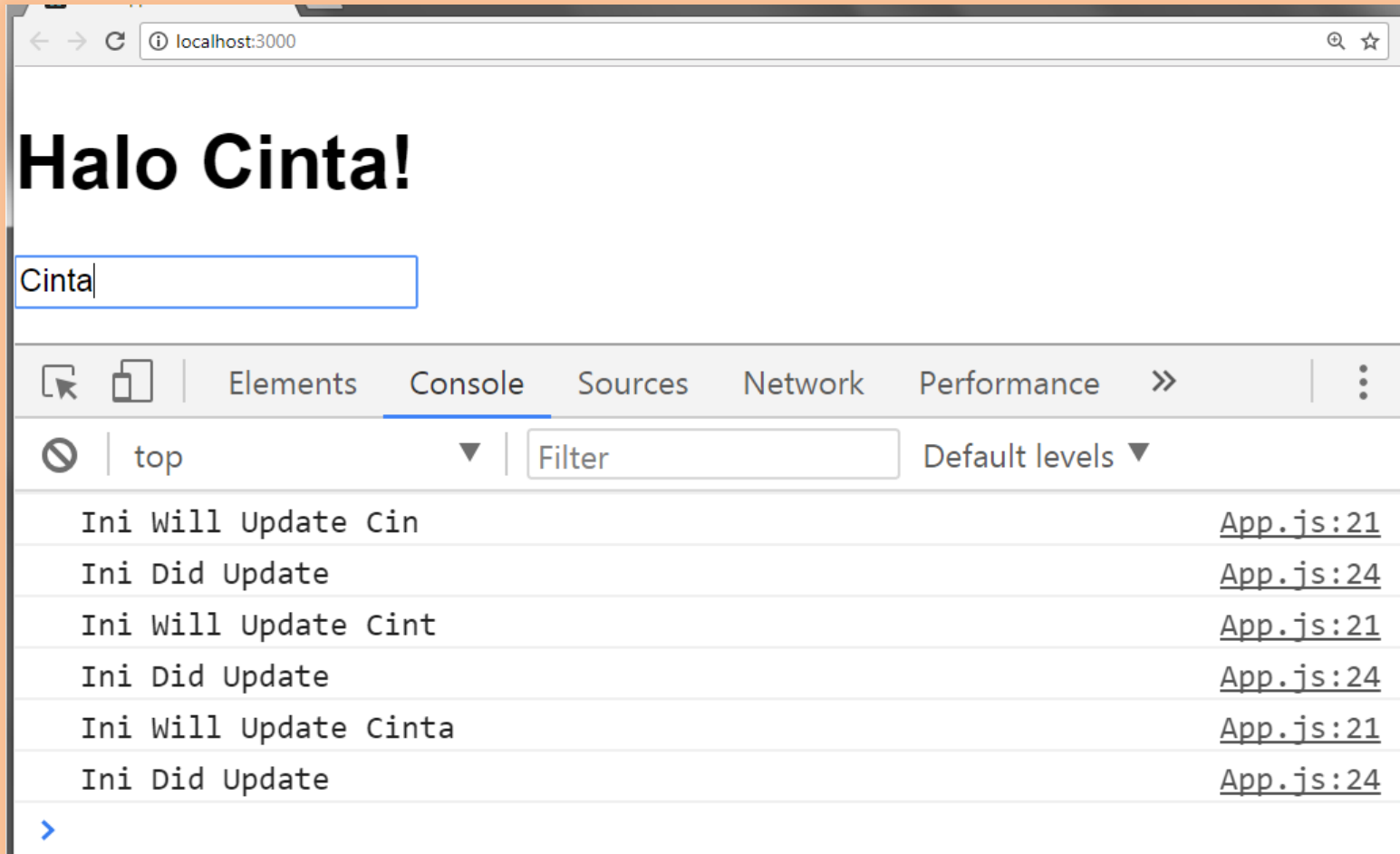
### ■ **componentWillUpdate()**

Invoked immediately before rendering when new props or state are being received. This isn't called for the initial render.

### ■ **componentDidUpdate()**

Invoked immediately after the component's updates are flushed to the DOM. This isn't called for the initial render.

```
import React, { Component } from 'react';
class App extends Component {
  constructor(){
    super();
    this.state = {user: 'Orang Asing'};
  }
  klik(){
    this.setState({user: this.refs.nama.value});
  }
  componentWillUpdate(x, y){
    console.log('Ini Will Update '+y.user);
  }
  componentDidUpdate(){
    console.log('Ini Did Update ');
  }
  render() {
    return (
      <div><h1>Halo {this.state.user}!</h1>
      <input ref="nama" type="text" onInput={()=>{this.klik();}}/>
      </div>
    );
  }
}
export default App;
```







# Router

- A router allows an application to navigate between different components, changing the browser URL, modifying the browser history, and keeping the UI state in sync.
- React focuses only on building user interfaces, so it doesn't have a built-in solution for routing.
- We can use *React Router DOM*, which allows us to define routes on our web app. First, install this package on our React project directory:

```
$ npm install react-router-dom --save
```

# Routing



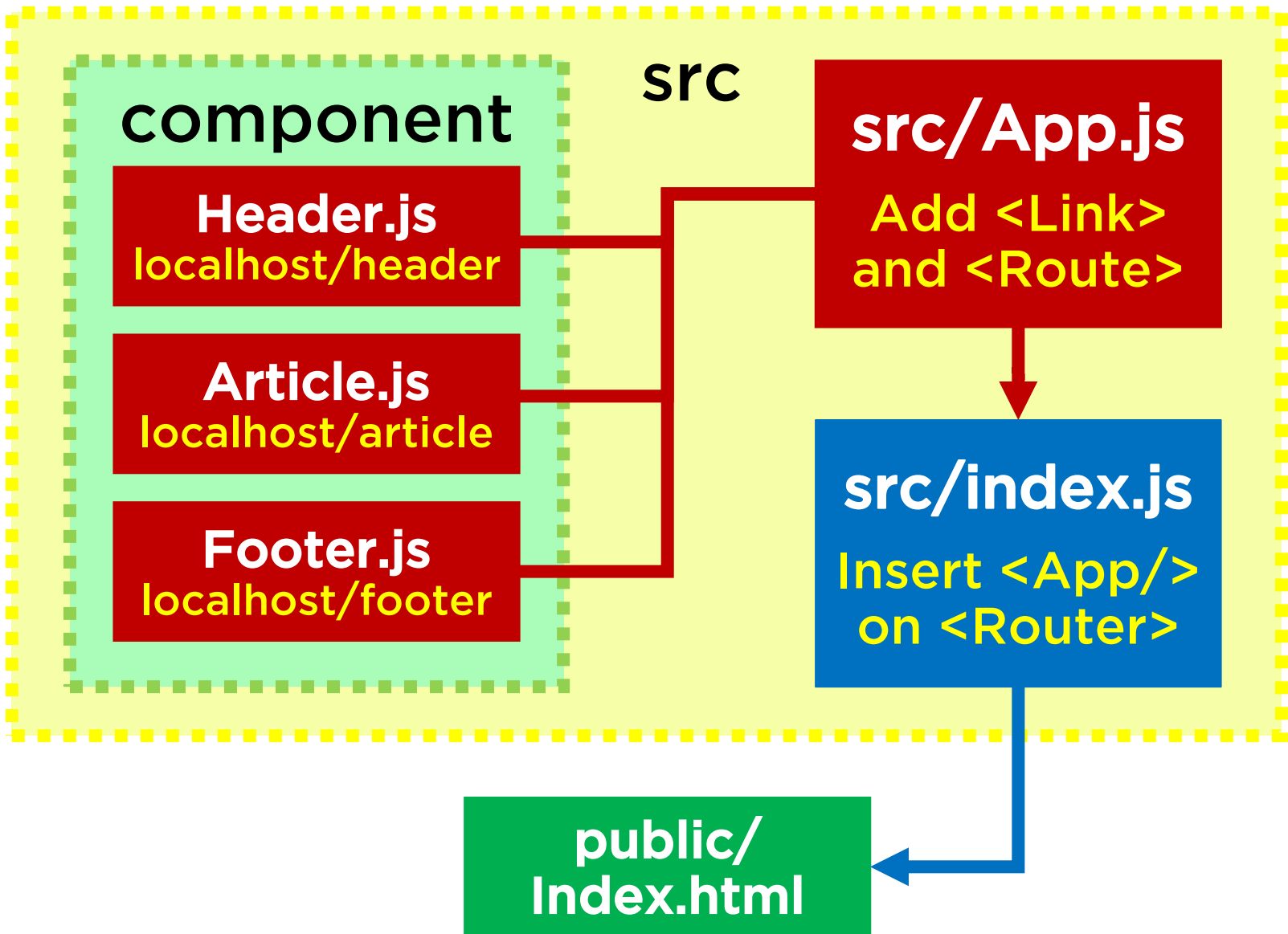
**Header.js**  
localhost/header



**Article.js**  
localhost/article



**Footer.js**  
localhost/footer



# src/component/Header.js

## #1 component

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

class Header extends Component {
  render() {
    return (
      <h1>Ini Header!</h1>
    );
  }
}

export default Header;
```

# src/component/Article.js

## #2 component

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

class Article extends Component {
  render() {
    return (
      <h1>Ini Article!</h1>
    );
  }
}

export default Article;
```

# src/component/Footer.js

## #3 component

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

class Footer extends Component {
  render() {
    return (
      <h1>Ini Footer!</h1>
    );
  }
}

export default Footer;
```

## src/index.js

*Insert Router!*

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

```
import { BrowserRouter } from 'react-router-dom';
```

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

```
registerServiceWorker();
```

# src/App.js

## Part 1 Import

```
import React, { Component } from 'react';  
import { Link, Route } from 'react-router-dom';  
  
import Header from './component/Header';  
import Footer from './component/Footer';  
import Article from './component/Article';
```



# src/App.js

## Part 2 Insert Link

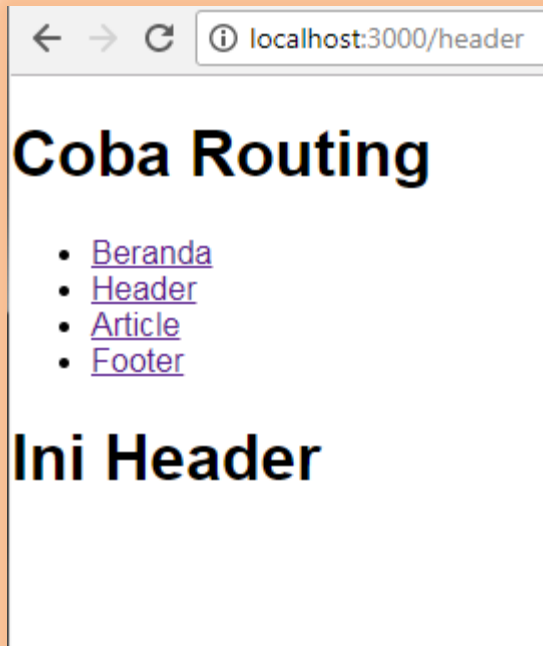
```
class App extends Component {  
  render() {  
    return (  
      <div>  
        <h1>Coba Routing</h1>  
        <ul>  
          <li><Link to="/">Beranda</Link></li>  
          <li><Link to="/header">Header</Link></li>  
          <li><Link to="/article">Article</Link></li>  
          <li><Link to="/footer">Footer</Link></li>  
        </ul>  
      )  
    }  
  }  
}
```

# src/App.js

## Part 3 Insert Route

```
<div>
<Route path="/" component={ 'Home' } />
<Route path="/article" component={Article} />
<Route path="/header" component={Header} />
<Route path="/footer" component={Footer} />
</div>
</div>
);
}
}
export default App;
```

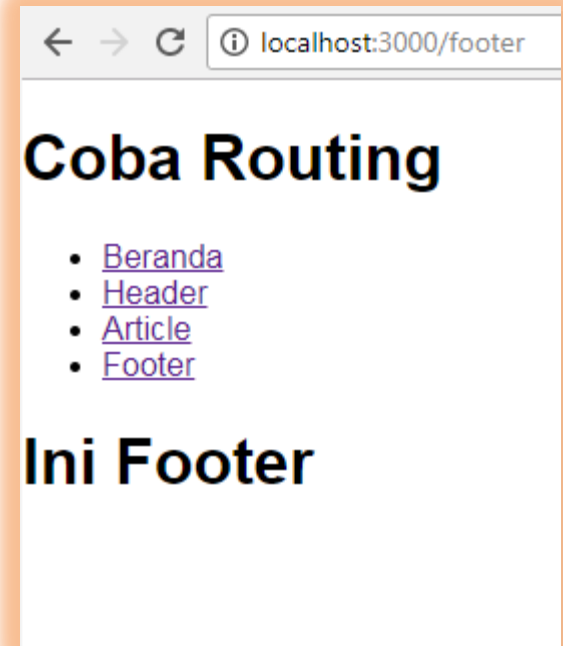
# Routing



**Header.js**  
localhost/header



**Article.js**  
localhost/article



**Footer.js**  
localhost/footer

Front-End Development



# React

**#2** Learn Once, Write Anywhere