



JSX

1. Overview of JSX
2. JSX syntax
3. Complete example

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1. Overview of JSX

- The story so far...
- Introducing JSX
- Transpiling JSX

The Story So Far...

- In all the examples so far, we've created elements programmatically using `React.createElement()`

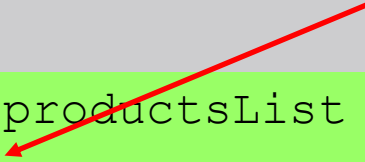
```
class Retailer extends React.Component {  
  render() {  
    return React.createElement(... .. )  
  }  
}
```

```
const Retailer = ({products, shops}) =>  
  React.createElement(... .. )
```

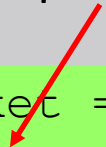
Introducing JSX

- React supports a lightweight syntax called JSX
 - Create React elements concisely and directly
 - HTML-like syntax, can embed directly inside ES6 code
 - Elements can be HTML, or your own components

```
const productList =  
  <ul>  
    <li>Skis</li>  
    <li>Boots</li>  
  </ul>
```



```
const basket =  
  <Basket>  
    <Item>Skis</Item>  
    <Item>Boots</Item>  
  </Basket>
```



Transpiling JSX (1 of 2)

- Browsers don't understand JSX syntax
 - You must convert JSX into `React.createElement()` calls - this is known as "transpiling"
- Use the Babel transpiler
 - Transpiles ES6 into ES5
 - Also transpiles JSX into pure React

Transpiling JSX (2 of 2)

- You can add Babel directly into your web page
 - Add a `<script>` to download the Babel transpiler
 - Embed JSX inside `<script type="text/babel">`

```
<script src="...URL for Babel on unpkg.com...">  
</script>
```

```
<script type="text/babel">  
  ... Put your JSX-enhanced code here ...  
</script>
```

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2. JSX Syntax

- JSX content
- Using JSX for components
- JSX syntax gotchas
- Simple example of JSX

JSX Content (1 of 2)

- JSX elements can contain plain text
 - Note, attribute values must be enclosed in quotes

```
const productList =  
  <ul>  
    <li title="swans">Swans shirt</li>  
    <li title="leeds">Leeds shirt</li>  
  </ul>
```


JSX Content (2 of 2)

- JSX elements can also contain JavaScript expressions
 - E.g. variables, arrays, objects, functions
 - Must be enclosed in braces

```
const data = ["Swans shirt", "Leeds shirt"]
```

```
const summaryElem =  
  <div>There are {data.length} items</div>
```

Using JSX for Components (1 of 2)

- Let's rewrite the following component using JSX:

```
const ItemsList = ({items}) =>  
  React.createElement("ul", null,  
    items.map((item, i) =>  
      React.createElement("li", {key:i}, item)  
    )  
  )
```



```
const ItemsList = ({items}) =>  
  <ul>  
    {items.map((item,i) =>  
      <li key={i}>{item}</li>  
    )}  
  </ul>
```

Using JSX for Components (2 of 2)

- Render the `ItemsList` component as follows:

```
const data = ["Swans shirt", "Leeds shirt"]

ReactDOM.render(
  <ItemsList items={data} />,
  document.getElementById("osl-container")
)
```

JSX Syntax Gotchas (1 of 2)

- JSX is case-sensitive

```
const badElem1 = <SpotTheBug>oops</SpotTheBUG>
```

- JSX tags must be closed

```
const badElem2 = <input type="text">
```

JSX Syntax Gotchas (2 of 2)

- Adjacent JSX elements must be wrapped inside an enclosing tag

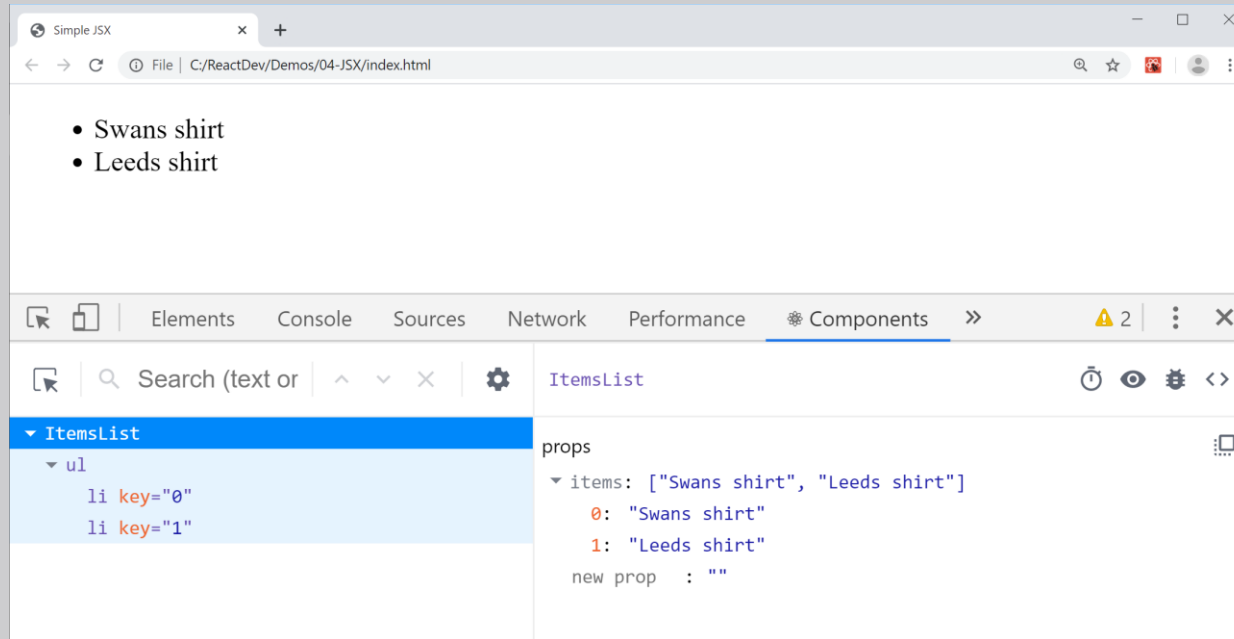
```
const badElem3 =  
  <h1>Greeting</h1>  
  <div>This won't work. Sorry!</div>
```

- To assign a CSS class, use `className` (not `class`)

```
const badElem4 =  
  <div class="emphasis">Won't work!</div>
```

Simple Example of JSX

- Example - see `index.html`



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3. Complete Example

- Overview
- Running the example
- Viewing the web page

Overview

- In this section we review a more interesting and realistic example of JSX
- See the following files
 - `retailerDirectory.html`
 - `retailerDirectory.js`
 - `styles.css`

Running the Example

- You must run the example through a web server
 - E.g. npm provides `live-server`
 - Reloads Web pages automatically when you save a file

- Install `live-server` using npm

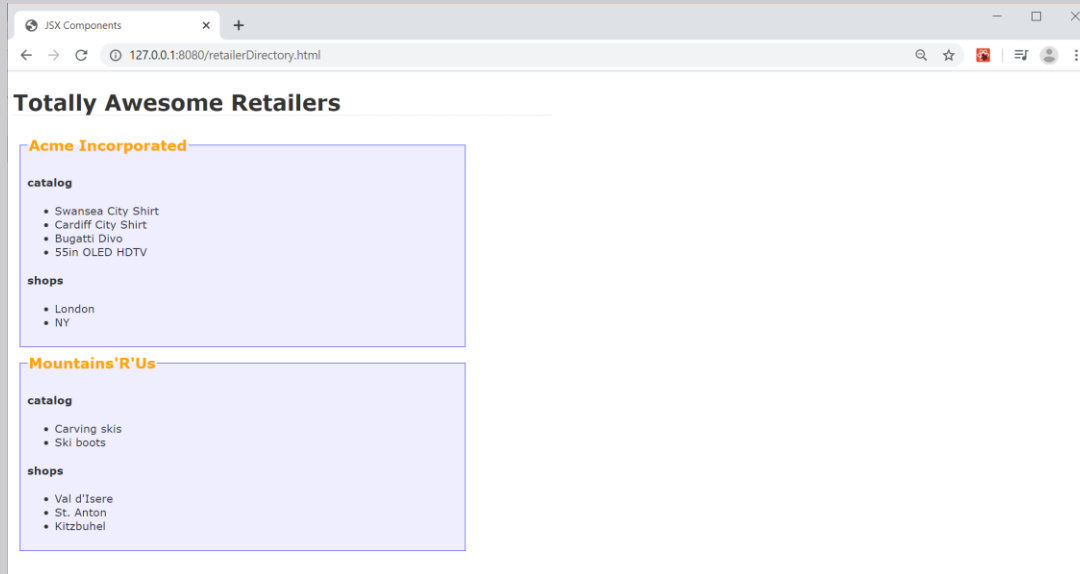
```
npm install live-server -g
```

- Start the server in your project root folder

```
live-server
```

Viewing the Web Page

- In the browser, navigate to the following address:
 - `127.0.0.1:8080/retailerDirectory.html`



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Summary

- Overview of JSX
- JSX syntax
- Complete example