

# Session 28

## A Very Brief Introduction to React

### Reading and Reference

#### ■ Reading

[reactjs.org/docs/add-react-to-a-website.html](https://reactjs.org/docs/add-react-to-a-website.html)

[reactjs.org/docs/getting-started.html#using-a-cdn](https://reactjs.org/docs/getting-started.html#using-a-cdn)

#### ■ Reference:

##### ■ API

<https://reactjs.org/docs/react-api.html>

## React

- JavaScript library maintained by Facebook and a community of developers
- Simple components
  - can render static html markup
  - can render components based on locally saved JSON data
  - can be nested into each other to create a more complex app layout
- Complex components
  - can include advanced logic that defines what the returned html will look like
  - can contain its own state
  - can include custom methods that will be executed when a user causes an event

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3

## Recent JavaScript Syntax

- You might see some recent JavaScript syntax in React
- Use of declaration alternates to var
  - const - defines a constant (assignments to them are ignored)
  - let - defined only within the closest enclosing block
- Class keyword defines JavaScript classes
- Arrow functions - shorthand syntax for anonymous functions

For example, `x => x * 2` is roughly equivalent to  
`function(x) { return x * 2; }`

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4

## Multiple Ways to Develop with React

- We will look at
  - Bare html
  - Using JSX
- Specialized development environments

Examples taken from

[reactjs.org/docs/add-react-to-a-website.html](https://reactjs.org/docs/add-react-to-a-website.html)

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5

## Example ...

- Simple html page and a JavaScript file

### Add React in One Minute

This page demonstrates using React with no build tooling.

React is loaded as a script tag.

Like



### Add React in One Minute

This page demonstrates using React with no build tooling.

React is loaded as a script tag.

You liked this.

Clicking the Like button  
changes the page



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6

## ... Example - html ...

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8" />
    <title>Add React in One Minute</title>
  </head>
  <body>
    ...
```

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7

## ... Example - html

```
<h2>Add React in One Minute</h2>
  <p>This page demonstrates using React with no build tooling.</p>
  <p>React is loaded as a script tag.</p>
  <div id="like_button_container"></div>
  <!-- Load React. -->
  <script src="https://unpkg.com/react@16/umd/react.development.js"
  crossorigin></script>
  <script src="https://unpkg.com/react-dom@16/umd/react-
  dom.development.js" crossorigin></script>
  <script src="like_button.js"></script>
</body>
</html>
```

React component is placed here

Typically, you will have many empty DOM containers in your page

This script tag loads your React component

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8

## Example - React Component ...

### ■ Like\_button.js

```
'use strict';
const e = React.createElement;
class LikeButton extends React.Component {
  constructor(props) {
    super(props);
    this.state = { liked: false };
  }
  ...
}
```

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9

## ... Example - React Component

### ■ The html refers to the React component in the js file

```
render() {
  if (this.state.liked) {
    return 'You liked this.';
  }
  return e(
    'button',
    { onClick: () => this.setState({ liked: true }) },
    'Like'
  );
}
const domContainer = document.querySelector('#like_button_container');
ReactDOM.render(e(LikeButton), domContainer);
```

Renders the Like button inside the div block

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10

## JSX

■ Let's look at the same example using JSX

■ JSX is

- an extension to JavaScript syntax
- Similar in appearance to html

Multiple elements on the same level need to be wrapped in a div or an array

```
class App extends React.Component {  
  render() {  
    return (  
      <div>  
        <p>Header</p>  
        <p>Content</p>  
        <p>Footer</p>  
      </div>  
    );  
  }  
}
```

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11

## JSX

■ Architectural model is counter to MVC

■ Mixes view with logic

After compilation, JSX expressions become JS function calls

```
function formatName(user) {  
  return user.firstName + ' ' + user.lastName;  
}  
const user = {  
  firstName: 'Harper',  
  lastName: 'Perez'  
};  
const element = (  
  <h1>  
    Hello, {formatName(user)}!  
  </h1>  
)  
);  
ReactDOM.render(  
  element,  
  document.getElementById('root')  
);
```

A JavaScript expression can be within the {}

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12

## Conclusion

- This might be enough to get you started in working with React

React will not be covered in depth on the final exam. You might see just one or two T/F questions