

A large, faint, dark gray watermark of the React logo (an infinity symbol with a circle in the center) is positioned on the left side of the slide.

# React

A JavaScript library for building user interfaces

# What is React?

- JavaScript library created by Facebook
- Open source
- Runs on Node.js and renders in the browser

# Why use React?

- Declarative
- Modular
- Stateful
- Cross-platform
  - Web: ReactJS
  - Mobile: React Native

# Apps and websites that use React

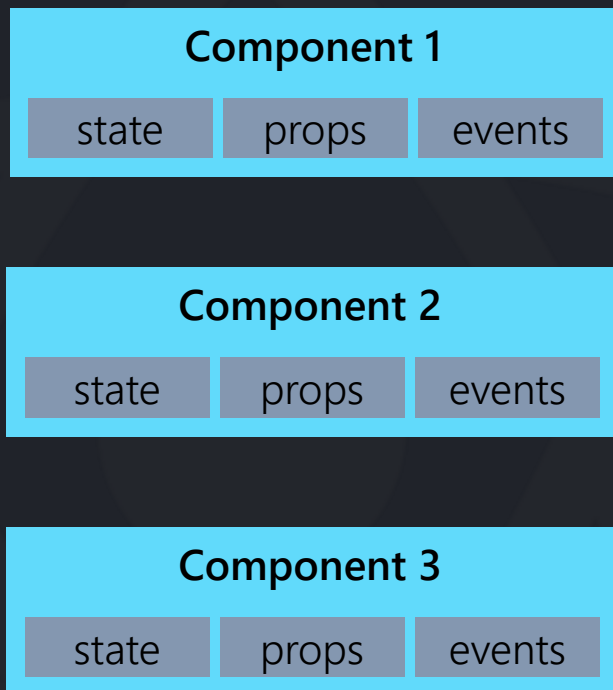


# Some things to take note of...

- There are many versions of React
- There are multiple ways to write code for React
- We will be using the latest version of React (v16).
- We will be using functional components (new).

# Virtual DOM

## Virtual DOM



## Real DOM

```
<!DOCTYPE html>
<html>
  <head>... </head>
  <body>
    ...
    <div class="root">
      ...
    </div>
    ...
  </body>
</html>
```

# Basic Example

```
1 const Welcome = (props) => {  
2   return (  
3     <div>Welcome to {props.name}!</div>  
4   );  
5 }  
6  
7 ReactDOM.render(  
8   <Welcome name="WDW 2020" />  
9 ), document.getElementById("root"));
```

# This is JSX (like HTML/XML + JS)

```
1 const Welcome = (props) => {  
2   return (  
3     <div>Welcome to {props.name}!</div>  
4   );  
5 }  
6  
7 ReactDOM.render(  
8   <Welcome name="WDW 2020" />  
9 ), document.getElementById("root"));
```



# Creating Components

- Start with the function declaration
- The function may have a `props` argument which are properties are added to the JSX tag

```
const Welcome = (props) => {  
  // props.name = "WDW 2020"  
}
```

The `name` property is accessible in the `props` object:

```
<Welcome name="WDW 2020" />
```

The `name` property is assigned in the JSX tag

# Creating Components

- The intended behavior of the component is `return`'d

```
const Welcome = (props) => {  
  return (  
    <h1>  
      {props.name}  
    </h1>  
  );  
}
```

A JSX expression is either a one-line tag or marked by parentheses.

You can reference JS functions and variables with curly braces.

# What about frequent changes?

- Let's say a click counter for example
- First, let's talk about some new features

# State and Lifecycle

- Unlike `props` which should be immutable, `state` is mutable.
- Lifecycle methods are called whenever the component renders/mounts.

# Events

- `onClick`: triggers a function call when component is clicked
- `onSubmit`: triggers a function call when component is submitted (e.g. form)

# How to start building?

```
$ npx create-react-app my-app  
$ cd my-app  
$ npm start
```



# Q&A



# Lab



# Additional Resources

- React Docs
  - <https://reactjs.org/docs/getting-started.html>
- Redux (advanced state management)
  - <https://redux.js.org/introduction/getting-started>
- Next.js (production-ready framework)
  - <https://nextjs.org/>
- React Native (build mobile apps with React)
  - <https://reactnative.dev/>