How React Works with the Browser

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React separates the building and managing of components from their rendering to a device

React Design

Web Browser

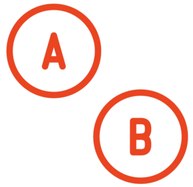
React renders to a physical DOM which is the browser itself

Smart Phone

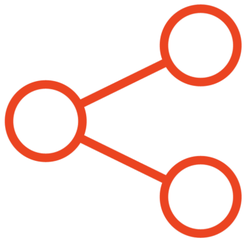
React Native renders to s smart phone like and iPhone or Android

Building Apps for React and React Native

There is no “write once, run everywhere” for React and React Native



Separate components required for UI’s in React and React Native



You can build shared components between React and React Native

React and React Native Code Compared

React for the web

```
function App() {
  return (
    <div>
      <b>Hello From Pluralsight!</b>
    </div>
  );
}
```

React Native

```
function App() {
  return (
    <View
      style={{
        fontSize: 20,
        fontWeight: "bold"
      }}>
      <Text>Hello From Pluralsight!
      </Text>
    </View>
  )
}
```

The skills you develop for building React apps can be leveraged in React Native apps

Two Libraries Define React on the Web

React

Creating React Elements

Creating UIs

Linking components together

ReactDOM

Rendering elements to a browser

Renders Root Element to the DOM

ReactDOM is about the “what” to render and “where” to render it

A Basic React App Launching

Index.js

```
import ReactDOM from "react-dom";

const container =
  document.getElementById('root');
const root =
  ReactDOM.createRoot(container);

const RootComponent =
  () => <div>Hello From Pluralsight!</div>

root.render(
  <RootComponent />
);
```

Reconciliation

Old Virtual DOM

```
▼<div class="container">
  ▼<div class="row mb-1 ms-1 me-1 mt-2"> flex
    ▼<form>
      ▼<div class="row"> flex
        ▼<div class="col-7">
            <input class="px-2 mt-2 mb-2 ms-1" type="text" placeholder="Enter new task"
            value>
          </div>
        ▼<div class="col-5">
            <button class="px-2 mt-2 mb-2 ms-1">Add Item</button>
          </div>
        </div>
      </form>
    </div>
  ▼<div class="row mb-3 ms-1 me-1 mt-3"> flex
    ▼<ul class="mt-3">
        <b class="ms-3">Items:</b>
        <li class="px-2 mt-1 mb-1 ms-2">Buy Sugar</li>
        <li class="px-2 mt-1 mb-1 ms-2">Eat Carrots</li>
      </ul>
    </div>
  </div>
</div>
```

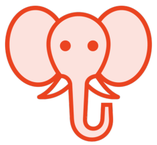
New Virtual DOM

```
▼<div class="container">
  ▼<div class="row mb-1 ms-1 me-1 mt-2"> flex
    ▼<form>
      ▼<div class="row"> flex
        ▼<div class="col-7">
            <input class="px-2 mt-2 mb-2 ms-1" type="text" placeholder="Enter new task"
            value>
          </div>
        ▼<div class="col-5">
            <button class="px-2 mt-2 mb-2 ms-1">Add Item</button>
          </div>
        </div>
      </form>
    </div>
  ▼<div class="row mb-3 ms-1 me-1 mt-3"> flex
    ▼<ul class="mt-3">
        <b class="ms-3">Items:</b>
        <li class="px-2 mt-1 mb-1 ms-2">Return Oats</li>
        <li class="px-2 mt-1 mb-1 ms-2">Buy Sugar</li>
        <li class="px-2 mt-1 mb-1 ms-2">Eat Carrots</li>
      </ul>
    </div>
  </div>
</div>
```

Complex React App Reconciliation

Many elements can change during updates

Challenge is to figure out minimal diffs for updates



No diff optimization leads to O(n^3) comparisons

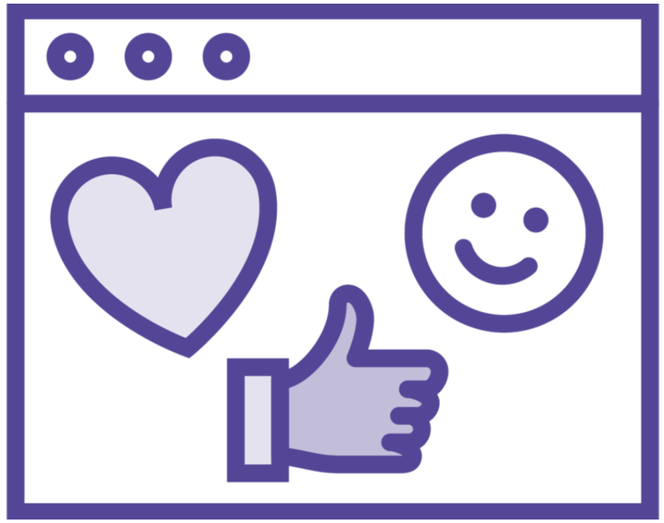
200 components would lead to 6 million comparisons

React team has implemented many optimizations to make Reconciliation fast

Reconciliation step is very fast
because of all the
optimizations the React team
has implemented

Choosing React

Good Understanding
Learned what React is and how it fits into web development



Gained Appreciation
How React is good for you as a developer and your users

My Experience
React has been a big win for me personally with my projects

Final Thoughts

React is fast to learn – easy to use

React Is unopinionated

React is declarative

Easy for binding data to your apps

Easy to build re-usable components

It’s just JavaScript