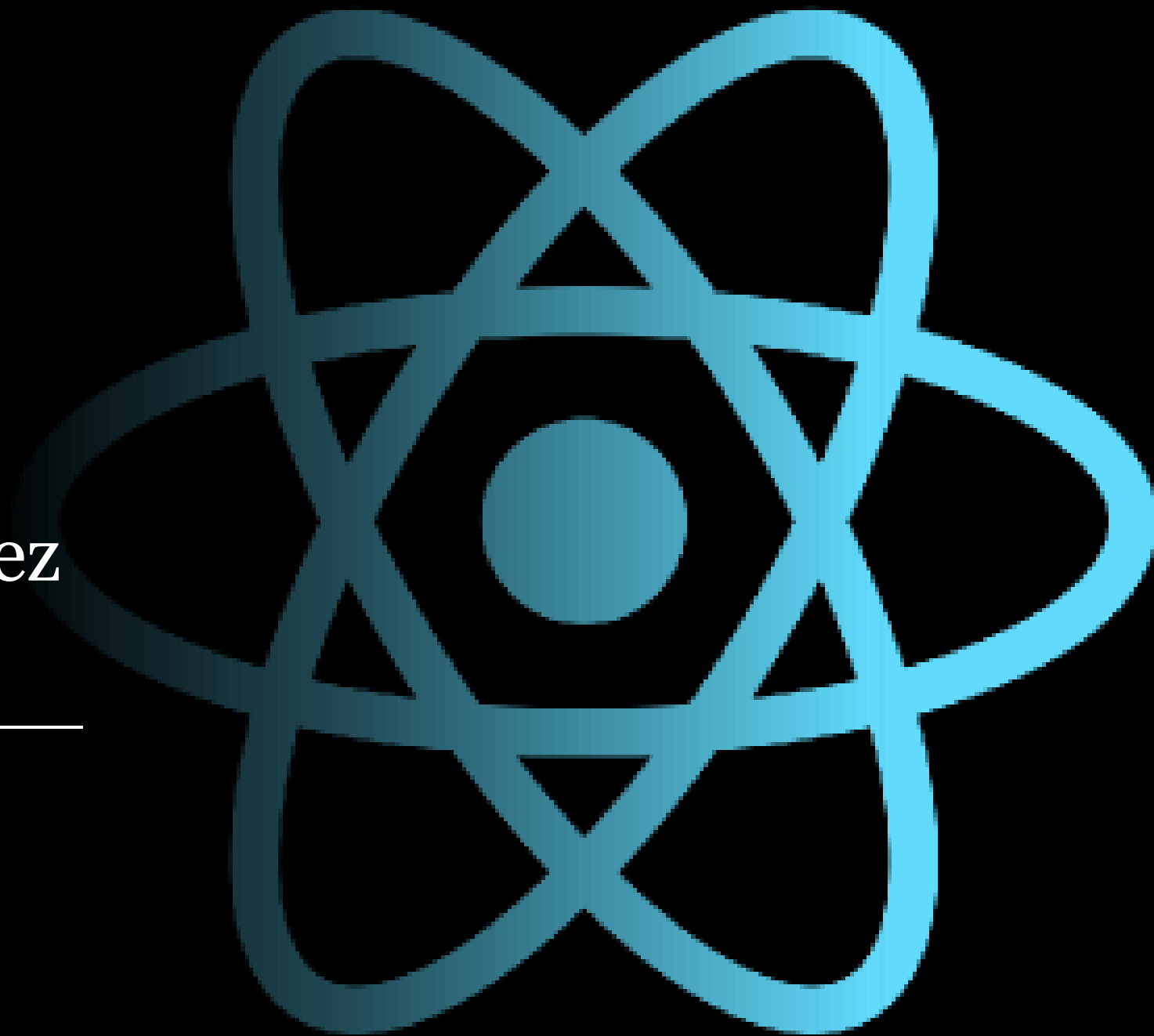




Webutvikling

Rolando Gonzalez 2022

What is React?



Content

- What is React?
- The Virtual DOM in React
- What is needed to get started coding React
- What is JSX?
- The Component
- Including images in React

What is React?

- React is a JavaScript user interface library for creating interactive user interfaces which will update the components involved in an efficient manner when needed
- Created by Facebook developers in 2013, also maintained by Facebook
- Created to make more easy to create Single Page Applications (SPA)
- Used by amongst other Facebook, Apple, Uber, PayPal and airbnb

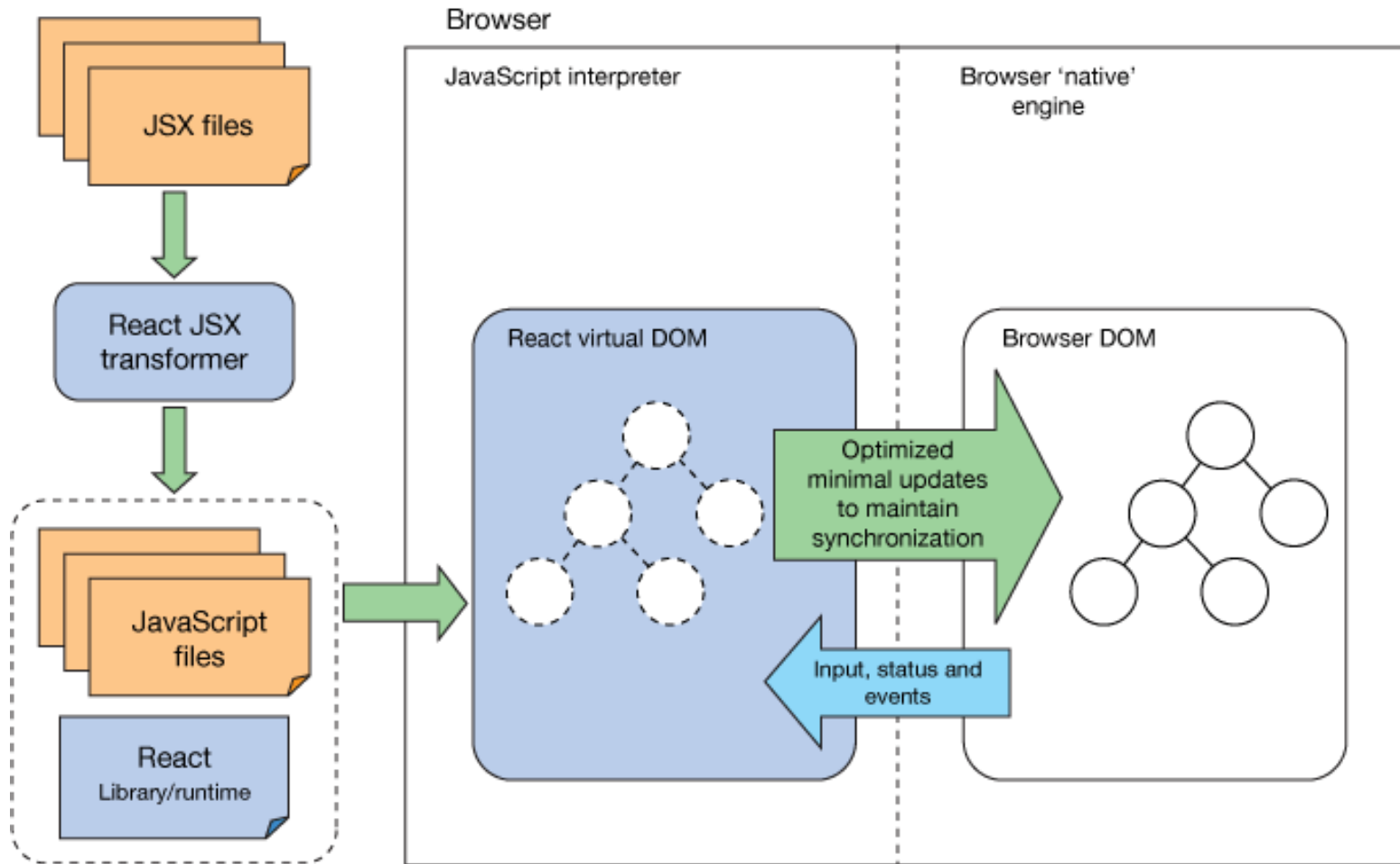
(facebook, 2016)

React Virtual DOM (VDOM)

- React is very fast because it never talks to the DOM directly. React maintains a fast in-memory representation of the DOM. `render()` methods actually return a description of the DOM, and React can compare this description with the in-memory representation to compute the fastest way to update the browser.

(facebook, 2016)

React Virtual DOM (VDOM)



- <https://www.ibm.com/developerworks/library/wa-react-intro/>

What is JSX?

- JSX (JavaScript XML) is a JavaScript syntax extension that looks similar to XML. You can use a simple JSX syntactic transform with React.
 - XML has the benefit of balanced opening and closing tags. This helps make large trees **easier to read(!)** than function calls or object literals.
- (facebook, 2016)

The Component - creation

- In the center of React is the component.
- The component is where you code JSX to create elements, and code different behaviour through methods.

```
const MyComponent = () => {  
    return (  
        <div>  
            <p>lorem ipsum</p>  
        </div>  
    )  
};
```

The Component - rendering

- When you have created a component you may render it to a specific HTML element on the page by its id

```
ReactDOM.render(  
    <ComponentName />,  
    document.getElementById("mainHeaderContainer")  
);
```


The Component - rendering

- Notice there can be only 1 parent in the rendering.
- For example this is **not allowed**:

```
ReactDOM.render(  
  <ComponentName />  
  <ComponentName />,  
  document.getElementById("main-header-container")  
);
```

- However, this is allowed:

```
ReactDOM.render(  
  <div>  
    <ComponentName />  
    <ComponentName />  
  </div>,  
  document.getElementById("main-header-container")  
).
```

Let a component receive props

- It is possible to send information into a component to give unique information to each instance of it.

```
function MyComponent(props){  
    return(  
        <div>{props.propertyName}</div>  
    )  
}
```

Sending properties into component

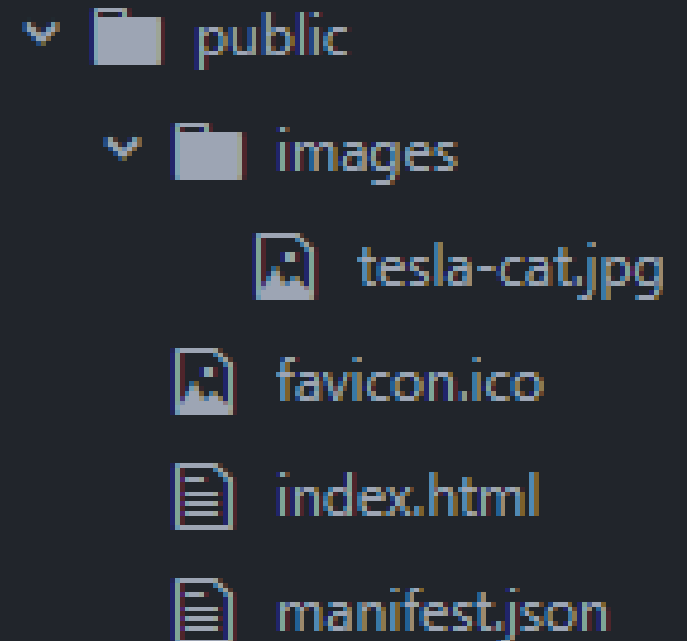
- The previous slide showed how a component is made ready to receive properties. The following code is an example of how you can send a property into that component

```
ReactDOM.render(  
  <Component title="A title">This will be the  
  this.props.children</Component>,  
  document.getElementById("container")  
)
```

Including images – alternative 1

- If you have your images in the public folder you can add your pictures in JSX like this:

```
<img src={"/images/tesla-cat.jpg"} alt="Tesla cat. Photo."/>
```



Including images – alternative 2

- If you have your images in the src folder in a folder called images you can require it like this:

```
<img src={ require("./images/mr-flutty.png").default } alt="Photo. Mr. Fluffy"/>
```

Use of public folder i boilerplate

- For more information on use of public folder in boilerplate:
 - <https://create-react-app.dev/docs/using-the-public-folder/#when-to-use-the-public-folder>

Attributes in JSX

- Notice that you can use most of the attributes which you use normally in HTML, for example src, alt, href and so on. However, there are two attributes that you must change in JSX:
 - class is in JSX className
 - for is in JSX htmlFor
- The same applies to events:
 - onclick is in JSX onClick

Comment in JSX

- To add comment in your JSX you have to format it as follows:
 - `{/*A comment in JSX*/}`

React.Fragment and <></>

- If one doesn't want to include a JSX HTML tag as mother component one can add the <React.Fragment>, or shortcut <></>, around your JSX.

```
function App(){  
  return (  
    <React.Fragment>  
      { /* JSX here*/ }  
    </React.Fragment>  
  )  
}
```

Notice regarding how to make components

- There are actually two main ways of making components:
 - functional
 - classes
- Functional components with hooks is the newest standard, however, React does not explicitly state that classes will not be used more:
<https://reactjs.org/docs/hooks-intro.html#gradual-adoption-strategy>

Resources

- Official React pages
 - <https://facebook.github.io/react/index.html>
- Getting started
 - <https://facebook.github.io/react/docs/getting-started.html>
- About JSX
 - <https://facebook.github.io/react/docs/jsx-in-depth.html>
- Tutorial
 - <https://facebook.github.io/react/tutorial/tutorial.html>
- Video about React by the creators of React
 - https://www.youtube.com/watch?v=XxVg_s8xAms