Intro to React / Firebase

Dylan Skelly

BACKGROUND

- React is a JavaScript library for building user interfaces.
- It was developed by Facebook to help maintain their increasingly complex UI.
- The concept of virtual DOM makes it very fast (We'll talk about virtual DOM in coming slides).
- Can be a steep learning curve but once you get the handle of it development speed increases dramatically due to the reusable nature of it.
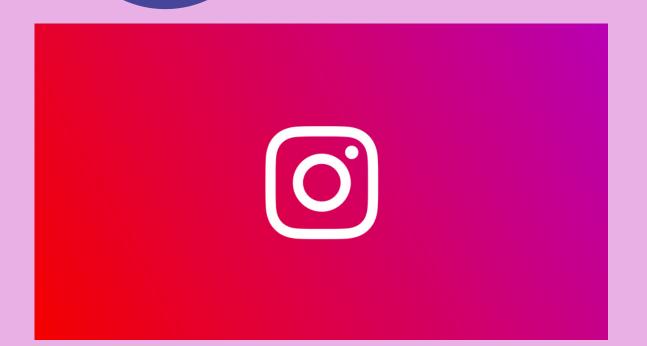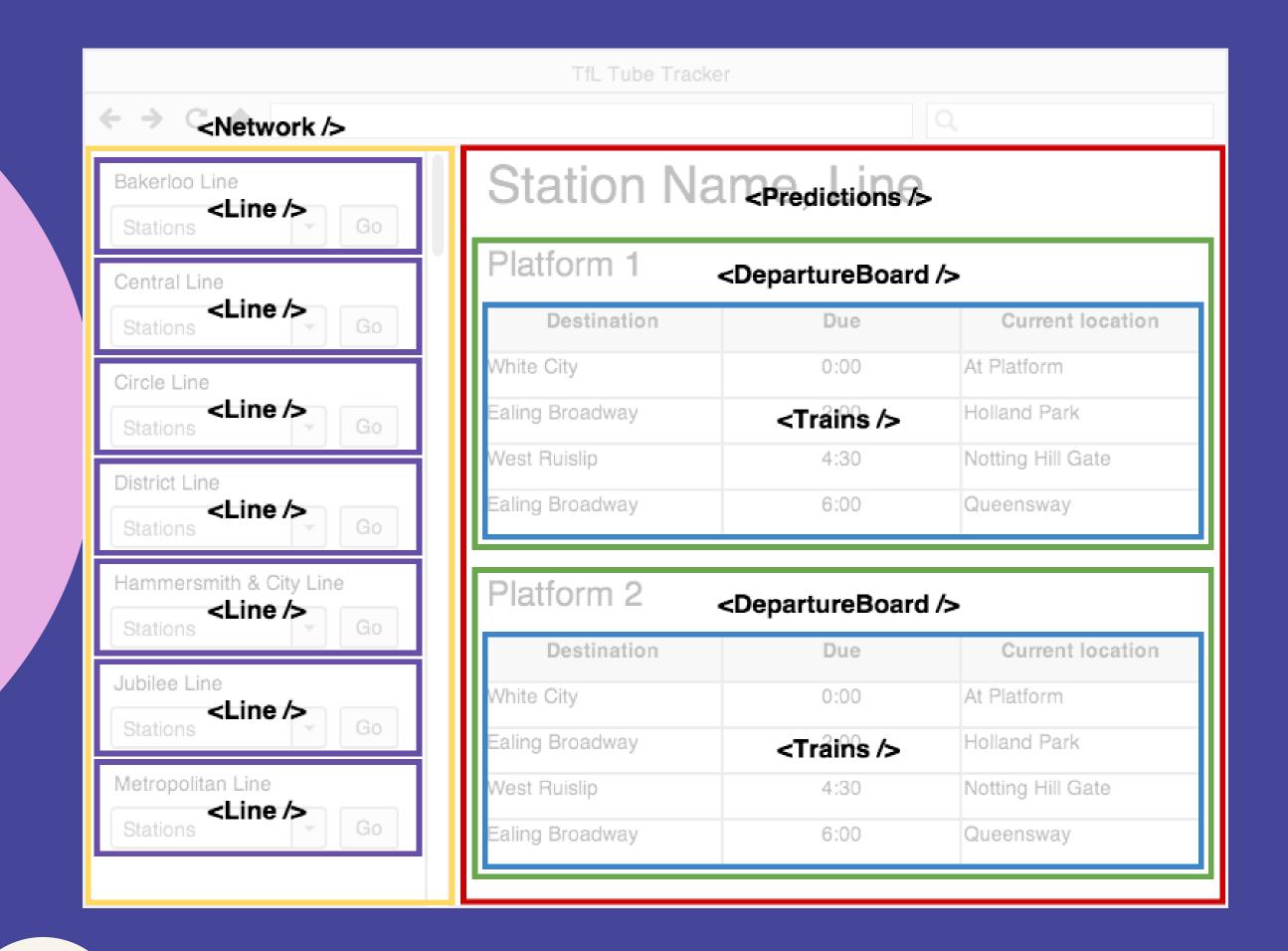
REACT FUNDAMENTALS

- **Component**
- **Props**
- **State**
- **JSX**
- **Virtual Dom**

COMPONENTS

- Components are self-contained reusable building blocks of web application.
- You can think of components as functions, they're parts of your UI that take some input and produce a predictable output from it.
- Components can be either a class or a function.
- They have lifecycle methods, the only lifecycle method that's required is render.

<Network />

Bakerloo Line
<Line />
Stations | Go

Central Line
<Line />
Stations | Go

Circle Line
<Line />
Stations | Go

District Line
<Line />
Stations | Go

Hammersmith & City Line
<Line />
Stations | Go

Jubilee Line
<Line />
Stations | Go

Metropolitan Line
<Line />
Stations | Go

Station Name, Line
<Predictions />

Platform 1
<DepartureBoard />

Destination	Due	Current location
White City	0:00	At Platform
Ealing Broadway	**<Trains />**	Holland Park
West Ruislip	4:30	Notting Hill Gate
Ealing Broadway	6:00	Queensway

Platform 2
<DepartureBoard />

Destination	Due	Current location
White City	0:00	At Platform
Ealing Broadway	**<Trains />**	Holland Park
West Ruislip	4:30	Notting Hill Gate
Ealing Broadway	6:00	Queensway

JSX

- Syntax extension for JavaScript that's used in React to create the HTML that is eventually rendered out to the DOM.
- The advantage of JSX is it makes it much easier to see and understand what UI is doing as the HTML grows more complex.
- Often referred to as "Syntactic Sugar".

```
const element = (
  <div>
    <h1>Hello!</h1>
    <h2>Good to see you here.</h2>
  </div>
);
```

STATE

- **Represents internal state of the component, and handles the dynamically changing content of the component.**
- **When a components state changes, the render() method is reinvoked and an updated version of the component is displayed.**
- **Use this.setState({}) to update state, never update the state object directly because this will not re-render the component.**

PROPS

- **Passed down to component from parent component and represents data from the component.**
- **In a function component, props are passed in as arguments.**
- **In a class component, props are accessed using this.props.**
- **Immutable, must not be modified.**
- **Components in regards to props are pure functions**

VIRTUAL DOM

- Manipulating the DOM directly is expensive.
- Essentially an in memory data cache that enumerates the resulting differences every time a component is rendered / re-rendered and then converts the changes to DOM nodes and puts them right in your browser.

LINKS

- **Github**
  - **Insert REPO HERE**
  - **https://reactjs.org/docs/**
  - **https://firebase.google.com/docs**