CS47: Cross-Platform Mobile Development

Lecture 5B: Introduction to Navigation

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Fall 2019

Administrivia

Assignment 4

Cancelled

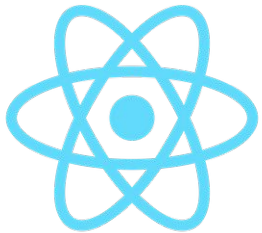
More than 2 absences?

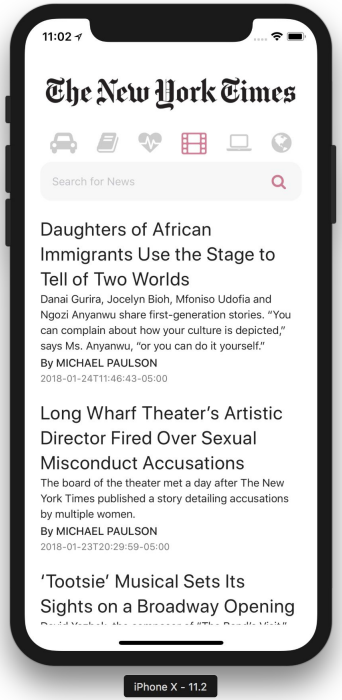
1- Talk to us asap

2- Do NOT miss any more classes with no excuse (we will fail you)

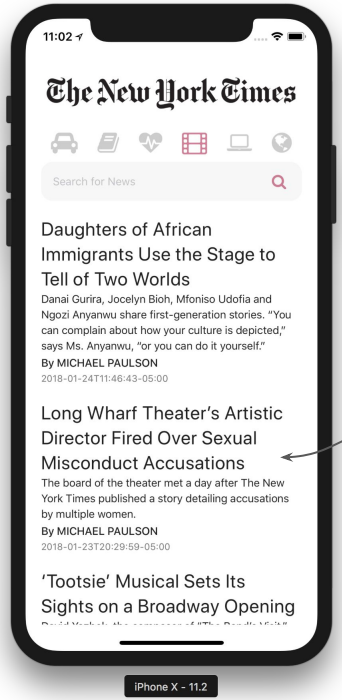
Overview for today

- Introduction to navigation
  - React Navigation
- How to do things with code?
  - Demo
    - Follow demo here: https://reflect.sh/jaded-design





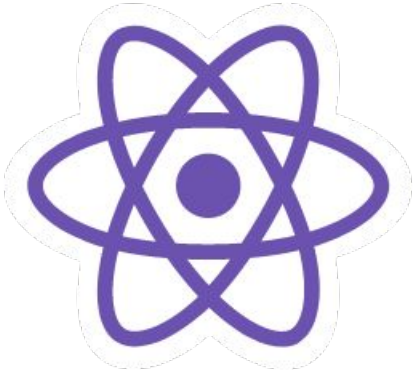
Single Screen App

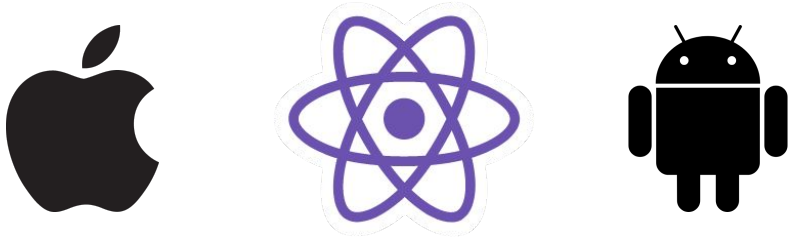


Single Screen App

What happens when you want to show a different screen?

Maybe a Settings screen, or an individual screen for one of those articles?





School of thought

React Native navigation should be based off “native” iOS and Android navigation components.

Usually a Java and Swift/Obj-C implementation

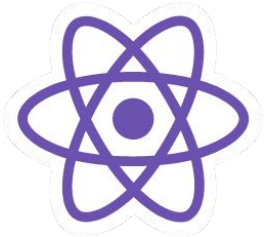
School of thought

React Native navigation should be based off “native” iOS and Android navigation components.

Usually a Java and Swift/Obj-C implementation

Native Navigation
http://airbnb.io/native-navigation/

React Native Navigation
https://github.com/wix/react-native-navigation

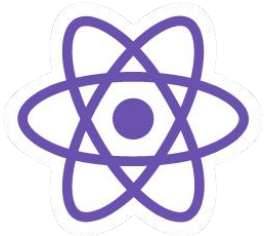


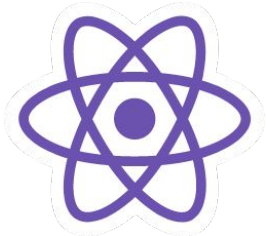
School of thought

React Native navigation should be based off as many existing components in the JavaScript layer.

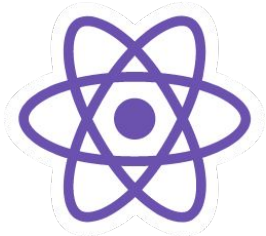
A JavaScript Implementation


Expo





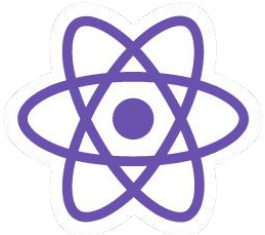
React Navigation
https://reactnavigation.org



React Navigation
https://reactnavigation.org

JavaScript implementation means:

- Greatest amount of customization
- Better fit for the RN ecosystem
- Room for growth independent of the navigation solutions that native platforms provide
- Integration with existing state-management systems like Redux

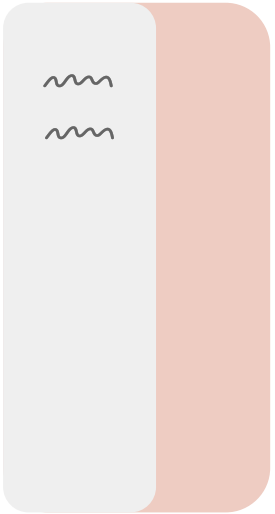


React Navigation

https://reactnavigation.org

Stack
Navigator

Tab
Navigator



Drawer
Navigator

Stack
Navigator

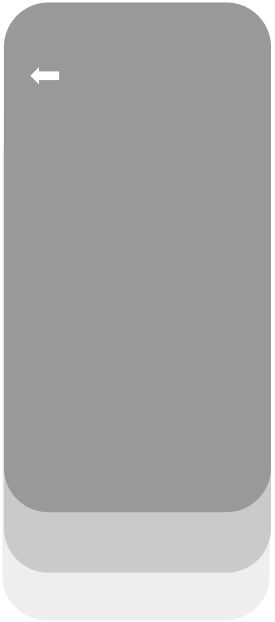
Tab
Navigator

Drawer
Navigator

Stack
Navigator

Tab
Navigator

Drawer
Navigator



Stack
Navigator

Tab
Navigator

Drawer
Navigator

Stack
Navigator

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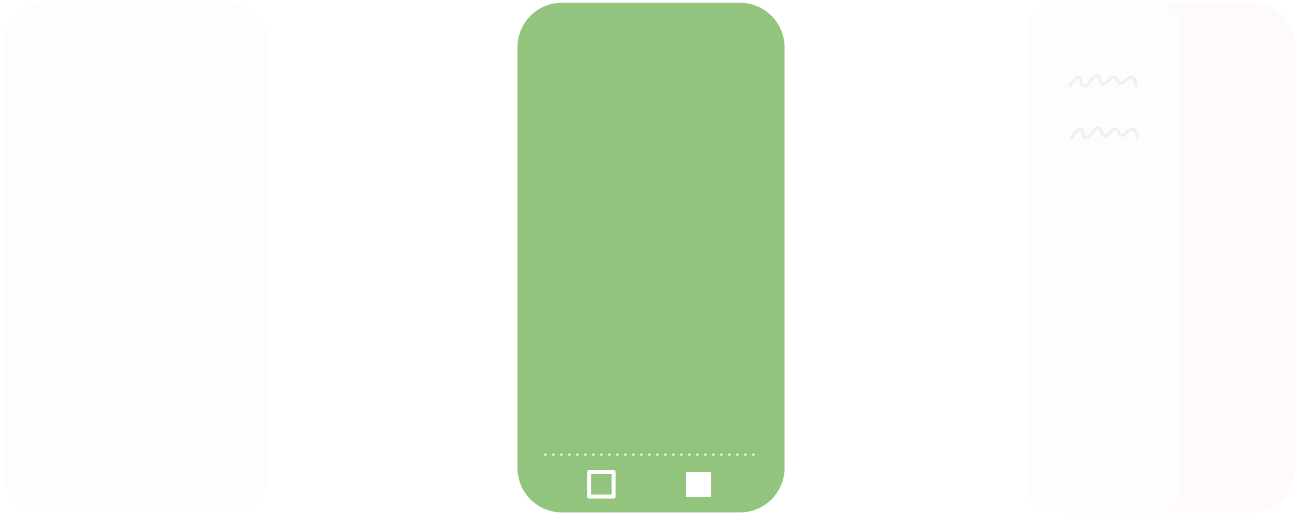
Navigator

Drawer
Navigator



Stack
Navigator

Tab
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Drawer
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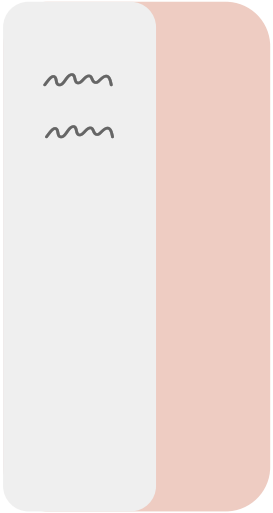
Navigator



Drawer
Navigator

Stack
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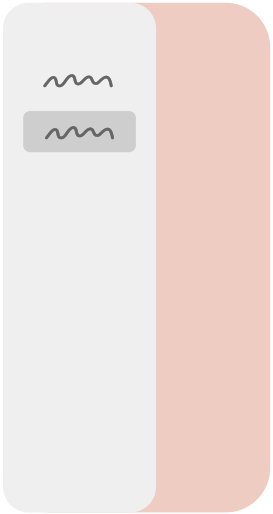
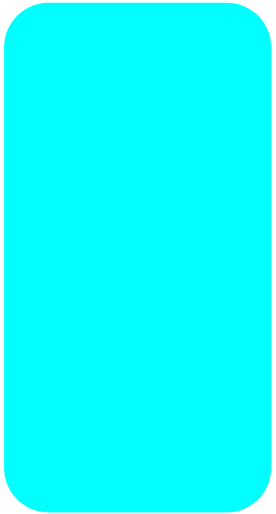


Drawer
Navigator

Stack
Navigator

Tab
Navigator

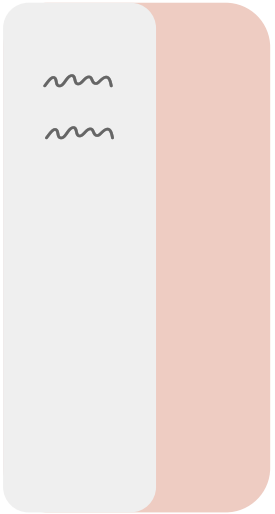


Drawer
Navigator

Live Demo

Stack
Navigator

Tab
Navigator



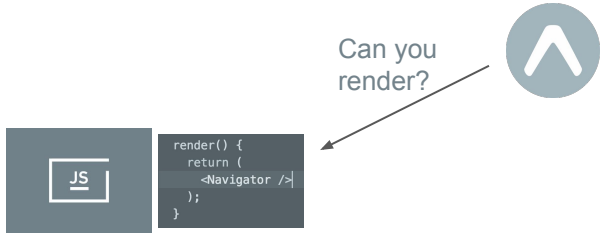
Drawer
Navigator

How does it work?

Can you
render?


```
render() {
  return (
    <Navigator />
  );
}
```

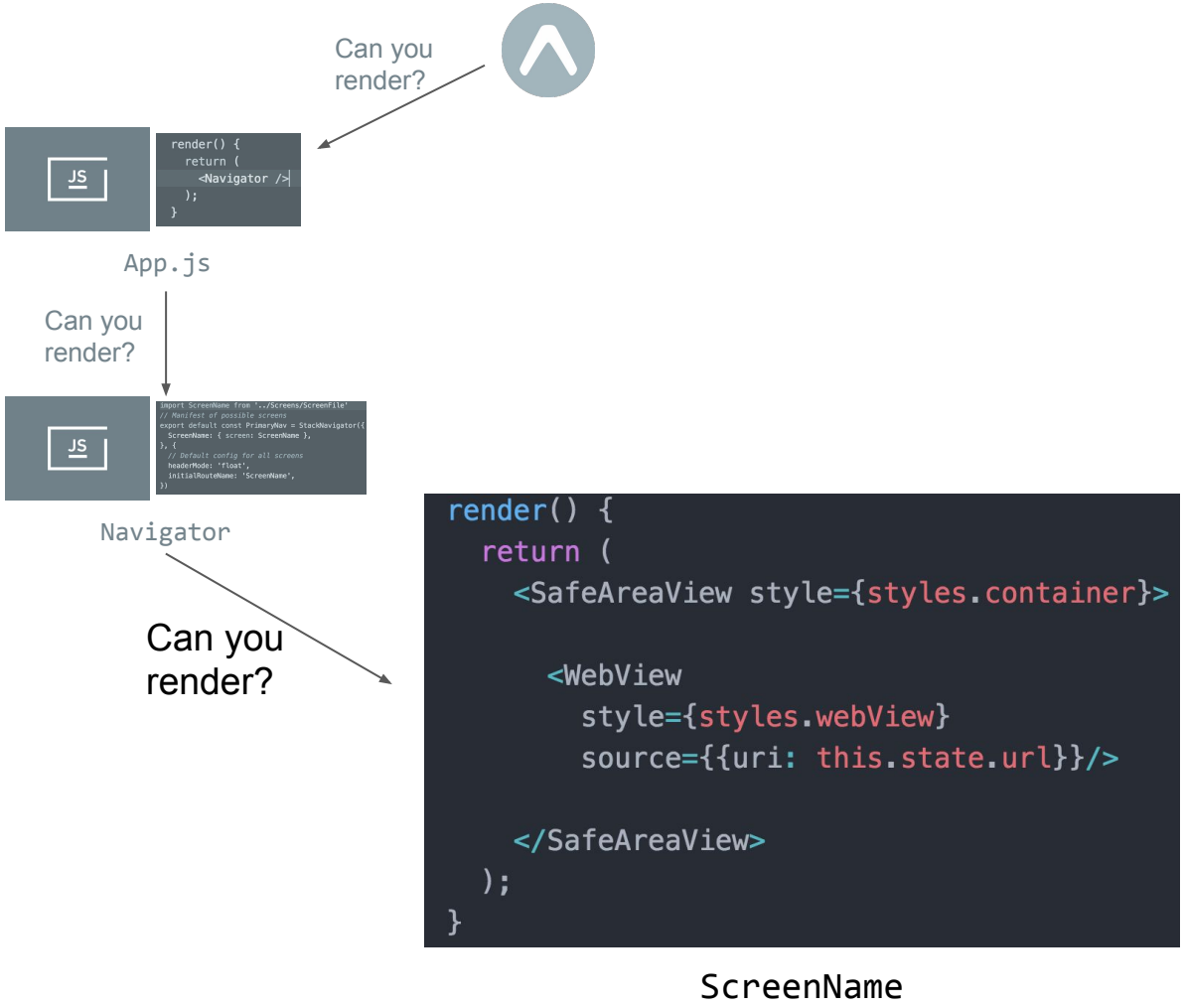
App.js



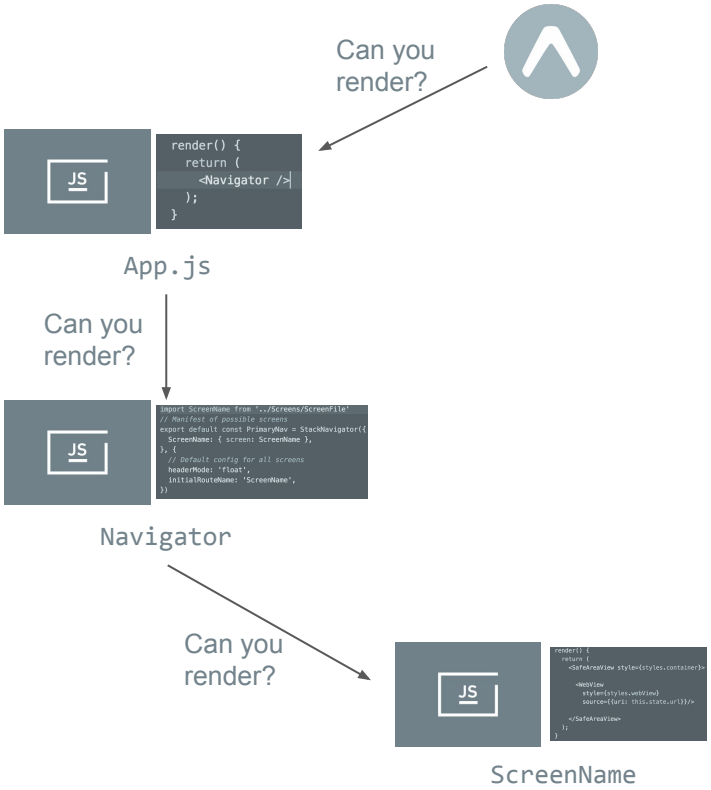
Can you
render?

```
import ScreenName from '../Screens/ScreenFile'
// Manifest of possible screens
export default const PrimaryNav = StackNavigator({
  ScreenName: { screen: ScreenName },
}, {
  // Default config for all screens
  headerMode: 'float',
  initialRouteName: 'ScreenName',
})
```

Navigator


Can you render?
JS
render() {
return (
<Navigator />
);
}
App.js
Can you render?
JS
Navigator
Can you render?
render() {
return (
<SafeAreaView style={styles.container}>
<WebView
style={styles.webView}
source={{uri: this.state.url}}/>
</SafeAreaView>
);
}
ScreenName

How does it work?



Really??

Really??

Kinda…
Sorta...

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Navigator

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```

Navigator

Injects

```
<OtherComponents>
  <MainScreen navigation={...}>
<OtherComponents>
```

```
import ScreenName from '../Screens/ScreenFile'
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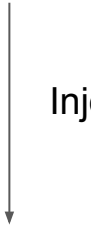
Navigator



Injects

Tries to get

```
<OtherComponents>
  <MainScreen navigation={...}>
<OtherComponents>
```

```
static navigationOptions = ({ navigation }) => {
  var {params} = navigation.state;
   //Some code to get values
   var options = {
     //key : //Value
   }
   return options;
};
```

Really??

Really??

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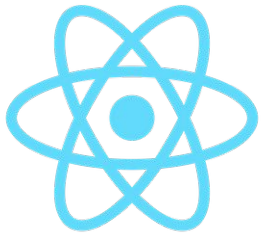

Deeper Dive

More on Stack Navigators

this.props.navigation.

- navigate('RouteName')
    - If screen is in stack, navigates to screen; else pushes to stack
- push('RouteName')
- .goBack()
- .popToTop()

More on Stack Navigators

this.props.navigation.

- navigate('RouteName')
- push('RouteName')
    - Pushes route to stack irregardless if it is already in the stack
- .goBack()
- .popToTop()

More on Stack Navigators

this.props.navigation.

- navigate('RouteName')
- push('RouteName')
- .goBack()
    - A way to go back from within the class; a button for example
- .popToTop()

More on Stack Navigators

this.props.navigation.

- navigate('RouteName')
- push('RouteName')
- .goBack()
- .popToTop()
    - Goes back to the first screen in the stack

Demo

Params

- Very Similar to Props
  - Passed in With Navigation
    - this.props.navigation.navigate('RouteName', { /* params go here */ })
    - this.props.navigation.navigate('Opinions', {myParam: ‘Dogs are Overrated’});
  - Getting Params
    - const paramBam = this.props.navigation.getParam(‘myParam’ , ‘default’)
    - this.props.navigation.state.params
      - Null if no params supplied

Headers

- static navigationOptions

```
class HomeScreen extends React.Component {
  static navigationOptions = {
    title: 'Home',
    headerStyle: {
      backgroundColor: '#f4511e',
    },
    headerTintColor: '#fff',
    headerTitleStyle: {
      fontWeight: 'bold',
    },
  };

  /* render function, etc */
}
```

Headers

- static navigationOptions
  - Configuration object (static property of component)

```
class DetailsScreen extends React.Component {
  static navigationOptions = ({ navigation }) => {
    return {
      title: navigation.getParam('otherParam', 'A Nested Details Screen'),
    };
  };

  /* render function, etc */
}
```

Header Buttons

- NavigationOptions is a static property of the component

Header Buttons

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  - You can’t just call a function from the header

Header Buttons

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  - You can’t just call a function from the header

```
class HomeScreen extends React.Component {
  static navigationOptions = {
    headerTitle: <LogoTitle />,
    headerRight: (
      <Button
        onPress={() => alert('This is a button!')}
        title="Info"
        color="#fff"
      />
    ),
  };
}
```

Header Buttons

- NavigationOptions is a static property of the component
  - You can’t just call a function from the header

```
class HomeScreen extends React.Component {
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    headerTitle: <LogoTitle />,
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      <Button
        onPress={() => alert('This is a button!')}
        title="Info"
        color="#fff"
      />
    ),
  };
}
```

← Will not work

Header Buttons

- Instead you use params, and treat them like state
  - You set/update a param in the class, and access that param from the navigation options to call the function

Header Buttons

```
class HomeScreen extends React.Component {
  static navigationOptions = ({ navigation }) => {
    return {
      headerTitle: () => <LogoTitle />,
      headerRight: () => (
        <Button
          onPress={navigation.getParam('increaseCount')}
          title="+1"
          color="#fff"
        />
      ),
    };
  };

  componentDidMount() {
    this.props.navigation.setParams({ increaseCount: this._increaseCount });
  }

  state = {
    count: 0,
  };

  _increaseCount = () => {
    this.setState({ count: this.state.count + 1 });
  };

  /* later in the render function we display the count */
}
```

Demo

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