Cross-Platform Mobile Mapping with React Native

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Boundless
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What is React Native

• Created by Facebook and open sourced in 2013
• build mobile apps using Javascript only
• not a “mobile web app” or a “hybrid app”
• Supports both android and iOS platforms.
Who is using React Native

- Facebook
- AirBnb
- Instagram
- Walmart
- Tesla
- UberEATS
Advantages

- One codebase for two mobile platforms
- No knowledge of iOS/Android required
- Vibrant dedicated community
- Renders native views for improve performance
- Live code reloading during development.
Disadvantages

- Javascript
- Breaking change when upgrading major versions.
- Lagging platform SDK updates
- Debugging
How to get started

- MacOS
  - brew install node
  - brew install watchman

- Windows
  - choco install nodejs.install
  - choco install python2
  - choco install jdk8
  - Install React Native command line tools
    - npm install -g react-native-cli
  - Install Xcode or Android Studio
Create & run

- Use terminal/command prompt to create and run RN apps
- Create app
  - react-native init rnMapDemo
- Run the app in the different
  - cd rnMapDemo
  - Android
    - react-native run-android
  - iOS
    - react-native run-ios
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Mapping in React Native
Mapping in React Native

- react-native-maps
- Created by airbnb
- Officially supporting mapping library as of RN 0.44
- Native Map Component for iOS and Android
- iOS - Apple Maps and Google Maps
- Android - Google Maps
- Supports most native features
- Declarative mapping API
import MapView from 'react-native-maps';

<MapView
  initialRegion={{
    latitude: 37.78825,
    longitude: -122.4324,
    latitudeDelta: 0.0922,
    longitudeDelta: 0.0421,
  }}>

  <MapView.Marker
    coordinate={{latitude: 37.78825, longitude: -122.4324}}
    title={"title"}
    description={"description"}
  />

</MapView>
Markers

```javascript
<MapView.Marker
  coordinate={{marker.latlng}}
  title={{marker.title}}
  description={{marker.description}}
/>
```

- Default pins, images, or custom React views
- Callouts with custom views
- Draggable
Overlays

```xml
<MapView.Polygon
  coordinates={polygon.coordinates}
  fillColor={'#f00'}
/>
```

- Polygon
- Polyline
- Circle
Map Events

```xml
<MapView
  onRegionChange={this.onRegionChange} />
```

- The MapView component has several events that can be subscribed to
- MapView can animate to a specified region or location
import MapView, { PROVIDER_GOOGLE } from 'react-native-maps';

// The generated json object
const mapStyle = [ ... ];

<MapView
  provider={PROVIDER_GOOGLE}
  customMapStyle={mapStyle}
/>
Tile Overlays

```xml
<MapView>
  <MapView.UrlTile
    urlTemplate='http://c.tile.openstreetmap.org/{z}/{x}/{y}.png'
  />
</MapView>
```
Drawbacks

- Performance
- Offline support
- Javascript …
react-native-mapbox-gl

- Alternative to react-native-maps
- Experimental
- Vector tiles
- Five default map styles
- Supports markers, polygons, polylines
- Supports offline maps
• SpatialConnect
• A collection of libraries that makes it easier for developers to write apps that connect to multiple spatial data stores online and offline.
• Enables disconnected data collection
• Native iOS and Android SDKs
• Able to communicate with React Native
• Display, query, edit geospatial layers
• View offline maps stored in geopackages
More information

https://github.com/airbnb/react-native-maps

https://github.com/mapbox/react-native-mapbox-gl

https://github.com/boundlessgeo/spatialconnect-ios-sdk