

Contents

Book Revision	1
We'd love to hear from you!	1
Bug Reports	1
Be notified of updates via Twitter	1
Introduction	1
About This Book	2
Running Code Examples	3
Code Blocks and Context	4
Getting Help	5
Emailing Us	5
Getting Started with React Native	7
Weather App	7
Starting the project	10
Expo	12
Components	21
Custom components	41
Summary	85
React Fundamentals	87
Breaking the app into components	88
7 step process	93
Step 2: Build a static version of the app	96
Step 3: Determine what should be stateful	114
Step 4: Determine in which component each piece of state should live . .	117
Step 5: Hardcode initial states	119
Step 6: Add inverse data flow	133

CONTENTS

Updating timers	143
Deleting timers	150
Adding timing functionality	153
Add start and stop functionality	155
Methodology review	166
Core Components, Part 1	168
What are components?	168
Building an Instagram clone	169
View	178
StyleSheet	188
Text	191
TouchableOpacity	201
Image	207
ActivityIndicator	216
FlatList	222
Core Components, Part 2	237
TextInput	240
ScrollView	246
Modal	254
Core APIs, Part 1	269
Building a messaging app	269
Initializing the project	274
The app	274
Network connectivity indicator	278
The message list	293
Toolbar	319
Geolocation	333
Input Method Editor (IME)	335
Core APIs, Part 2	355
The keyboard	355
We're Done!	385
Navigation	386

CONTENTS

Navigation in React Native	386
Contact List	394
Starting the project	400
Container and Presentational components	402
Contacts	403
Profile	408
React Navigation	412
Stack navigation	413
Tab navigation	428
Drawer navigation	453
Sharing state between screens	460
Deep Linking	470
Summary	475
Animation	477
Animation challenges	477
Building a puzzle game	479
App	484
Building the Start screen	488
Building the Game screen	517
Summary	533
Gestures	534
Building the board	535
Gesture Responder System	549
PanResponder	553
Draggable component	555
Finishing the game	573
We're Done!	578
Native Modules	580
What are native modules?	580
Building a native module	583
Development environment	585
Initializing the project	586
iOS	592
Android	604

CONTENTS

JavaScript	615
Building and publishing	625
How to read this chapter	625
Building	626
Building with Expo	626
iOS	630
Android	650
Handling Updates	659
Summary	660
Appendix	661
JavaScript Versions	661
ES2015	661
ReactDOM	669
Handling Events in React Native	670
Publishing with Expo	675
Changelog	676

Book Revision

Revision 5p

We'd love to hear from you!

Did you like the book? Did you find it helpful? We'd love to add your face to our list of testimonials on the website! Email us at: rn@fullstack.io¹.

Bug Reports

If you'd like to report any bugs, typos, or suggestions just email us at: rn@fullstack.io².

Be notified of updates via Twitter

If you'd like to be notified of updates to the book on Twitter, [follow @fullstackreact](https://twitter.com/fullstackreact)³

¹<mailto:rn@fullstack.io?Subject=React%20Native%20testimonial>

²<mailto:rn@fullstack.io?Subject=Fullstack%20React%20Native%20book%20feedback>

³<https://twitter.com/fullstackreact>

Introduction

One of the major problems that teams face when writing native mobile applications is *becoming familiar with all the different technologies*. iOS and Android - the two dominant mobile platforms - support different languages. For iOS, Apple supports the languages [Swift](https://developer.apple.com/swift/)⁴ and [Objective-C](https://developer.apple.com/library/content/documentation/Cocoa/Conceptual/ProgrammingWithObjectiveC/Introduction/Introduction.html)⁵. For Android, Google supports the languages [Java](https://docs.oracle.com/javase/8/docs/technotes/guides/language/index.html)⁶ and [Kotlin](https://developer.android.com/kotlin/index.html)⁷.

And the differences don't end there. These platforms have different toolchains. And they have different interfaces for the device's core functionality. Developers have to learn each platform's procedure for things like accessing the camera or checking network connectivity.

One trend is to write mobile apps that are powered by **WebViews**. These types of apps have minimal native code. Instead, the interface is a web browser running an app written in HTML, CSS, and JS. This web app can use the native wrapper to access features on the device, like the camera roll.

Tools like [Cordova](https://cordova.apache.org/)⁸ enable developers to write these hybrid apps. The advantage is that developers can write apps that run on multiple platforms. Instead of learning iOS and Android specifics, they can use HTML, CSS, and JS to write a “universal” app.

The disadvantage, though, is that it's hard to make these apps look and feel like *real* native applications. And users can tell.

While universal WebView-powered apps were built with the idea of *build once, run anywhere*, React Native was built with the goal of *learn once, write anywhere*.

React is a JavaScript framework for building rich, interactive web applications. With React Native, we can build native mobile applications for multiple platforms using

⁴<https://developer.apple.com/swift/>

⁵<https://developer.apple.com/library/content/documentation/Cocoa/Conceptual/ProgrammingWithObjectiveC/Introduction/Introduction.html>

⁶<https://docs.oracle.com/javase/8/docs/technotes/guides/language/index.html>

⁷<https://developer.android.com/kotlin/index.html>

⁸<https://cordova.apache.org/>

JavaScript and React. Importantly, the interfaces we build are *translated into native views*. React Native apps are not composed of WebViews.

We'll be able to share a lot of the code we write between iOS and Android. And React Native makes it easy to write code specific to each platform when the need arises. We get to use one language (JavaScript), one framework (React), one styling engine, and one toolchain to write apps for both platforms. *Learn once, write anywhere*.

At its core, React Native is composed of React components. We'll dig deep into components throughout this book, but here's an example of what a React component looks like:

```
import React from 'react';
import { StyleSheet, Text } from 'react-native';

export default class StyledText extends React.Component {
  render() {
    return (
      <Text style={styles.text}>{this.props.content}</Text>
    );
  }
}

const styles = StyleSheet.create({
  text: {
    color: 'red',
    fontWeight: 'bold',
  },
});
```

React Native **works**. It is currently being used in production at Facebook, Instagram, Airbnb, and thousands of other companies.

About This Book

This book aims to be an extensive React Native resource. By the time you're done reading this book, you (and your team) will have everything you need to build

reliable React Native applications.

React Native is rich and feature-filled, but that also means it can be tricky to understand all of its parts. In this book, we'll walk through everything, such as installing its tools, writing components, navigating between screens, and integrating native modules.

But before we dig in, there are a few guidelines we want to give you in order to get the most out of this book. Specifically:

- how to approach the code examples and
- how to get help if something goes wrong

Running Code Examples

This book comes with a library of runnable code examples. The code is available to download from the same place where you downloaded this book.

We use [yarn](#)⁹ to run every example in this book. This means you can type the following commands to run any example:

- `yarn start` will start the React Native packager and print a QR code. If you're on an Android mobile device, scanning this code with the [Expo](#)¹⁰ app will load the application. For iOS devices, see the instructions for loading apps onto your phone at the [beginning of the first chapter](#).
- `yarn run ios` will start the React Native packager and open your app in the iOS Simulator if you are using a Mac.
- `yarn run android` will start the React Native packager and open your app on a connected Android device or emulator.

In the next chapter we'll explain each of these commands in detail.

⁹<https://yarnpkg.com/en/>

¹⁰<https://expo.io/>

Code Blocks and Context

Nearly every code block in this book is pulled from a runnable code example, which you can find in the sample code. For example, here is a code block pulled from the first chapter:

weather/1/App.js

```
import React from 'react';
import { StyleSheet, Text, View } from 'react-native';

export default class App extends React.Component {
  render() {
    return (
      <View style={styles.container}>
        <Text>Open up App.js to start working on your app!</Text>
        <Text>Changes you make will automatically reload.</Text>
        <Text>Shake your phone to open the developer menu.</Text>
      </View>
    );
  }
}

const styles = StyleSheet.create({
  container: {
    flex: 1,
    backgroundColor: '#fff',
    alignItems: 'center',
    justifyContent: 'center',
  },
});
```

Notice that the header of this code block states the path to the file which contains this code: code/weather/1/App.js.

This book is written with the expectation that you'll also be looking at the