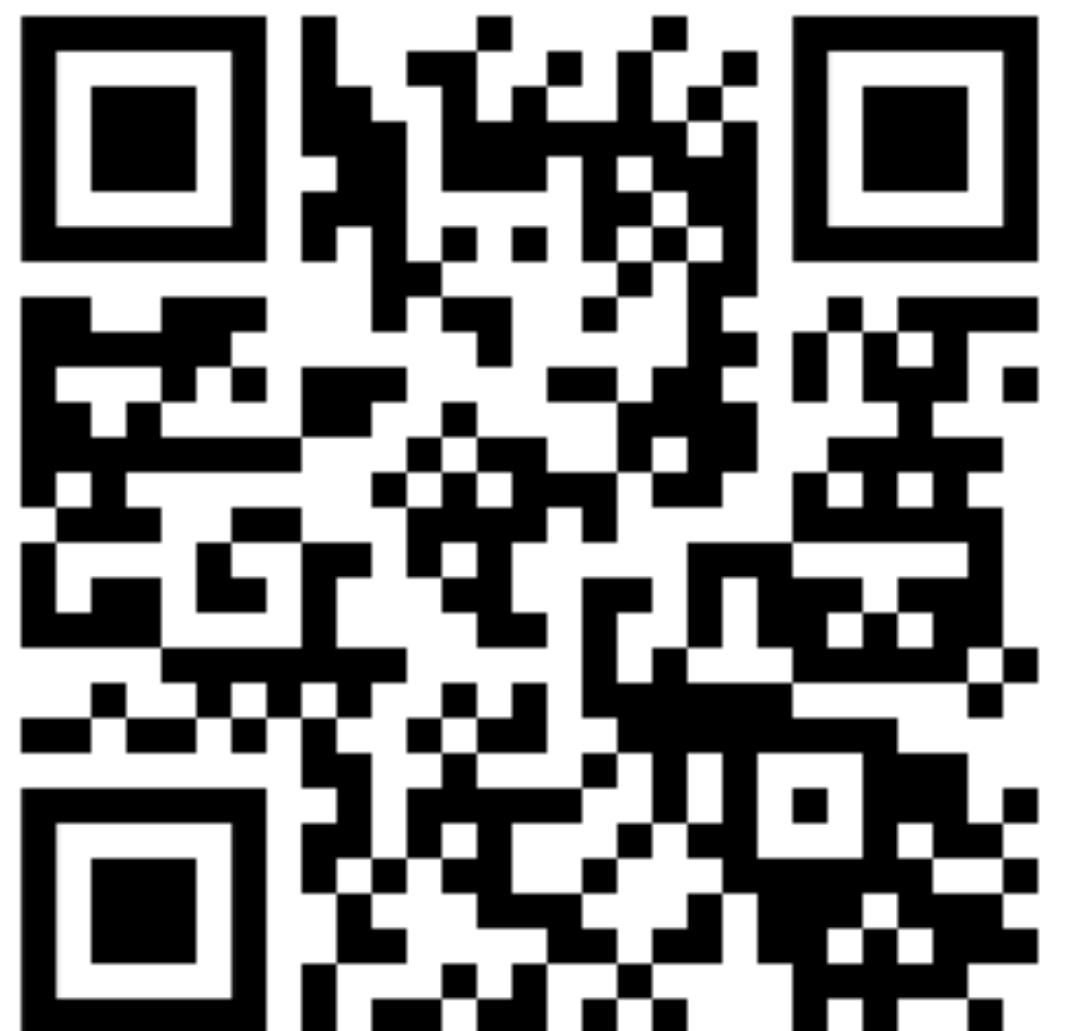


# Building and publishing a native, cross-platform mobile app

Ryan Carroll - Senior Software Engineer @ CoverMyMeds



# A little about me

- Full-stack developer for 8 years
- App Store published
- Outdoor lover
- Father and husband



# Where we're going

- The state of mobile development
- React Native fundamentals
- Building with Expo
- Developing and testing
- Production and publishing
- A word on burnout





Idea > Technology

What's your idea?

# The state of mobile app dev

17b

Devices

257b

Downloads

Per year

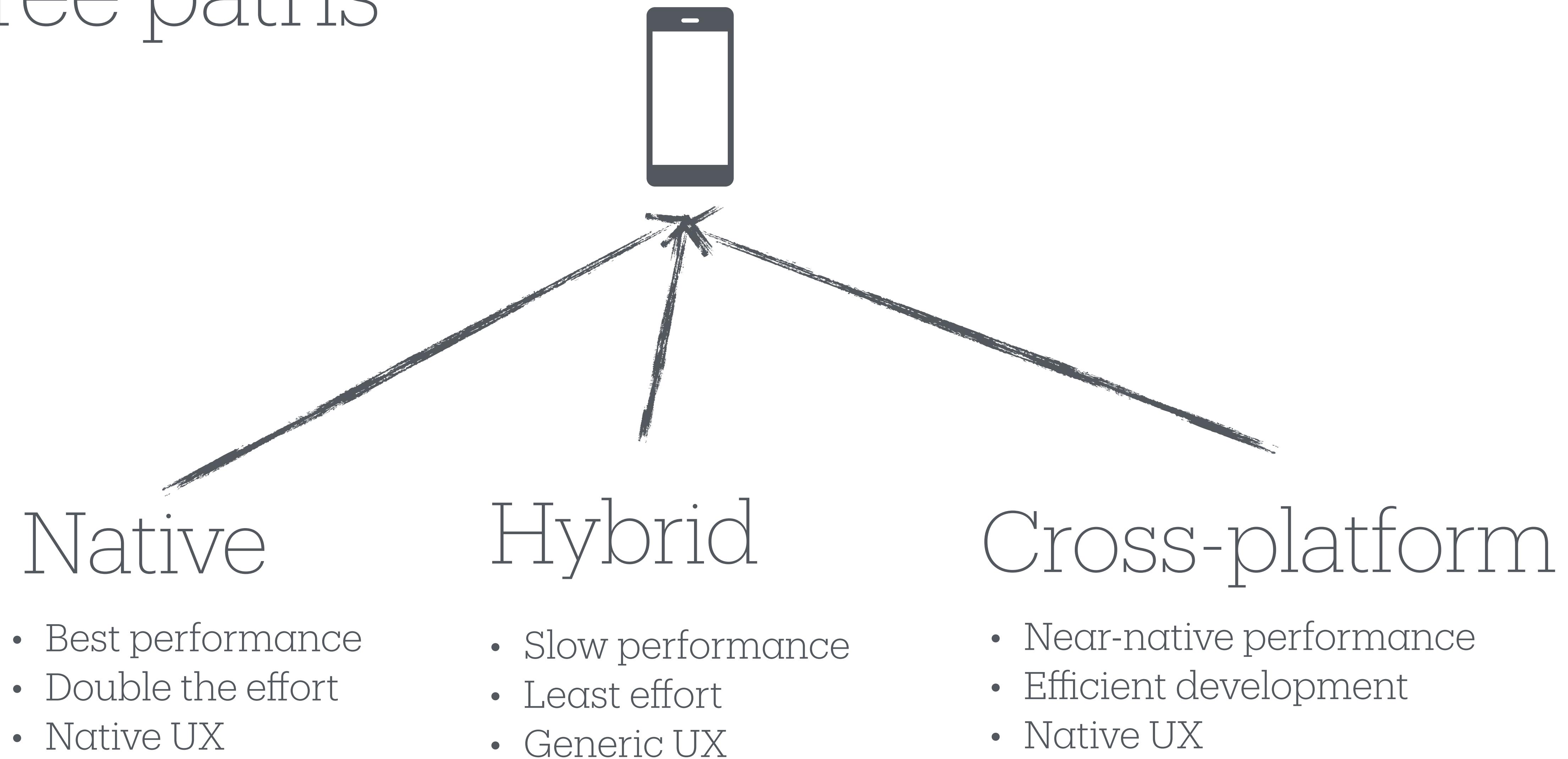
\$437b

Revenue

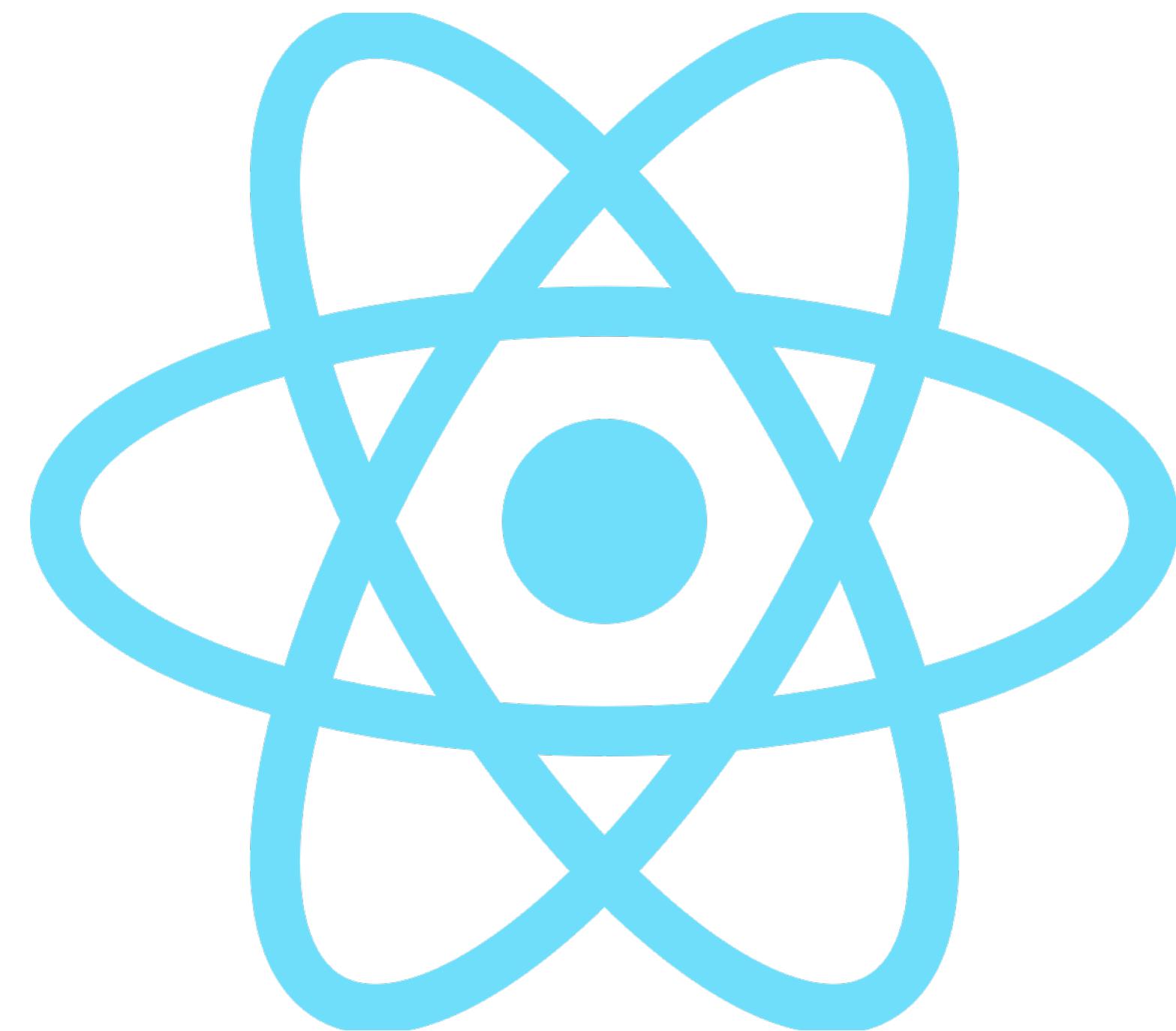
Source: Statista as of 2023

How will you stand out?

# Three paths



# The landscape of cross-platform



React Native - Facebook



Flutter - Google

# React Native Fundamentals

# What you get

- Routing
- Basic components
- Common languages and design patterns
- Vibrant community support
- Approachable learning curve from web



# Web vs Native

Web

```
<div className="container">
  <h1>Bingo is fun!</h1>
  <button onClick={handleClick}>
    Play now
  </button>
</div>
```

Native

```
<View style={styles.container}>
  <Text>Bingo is fun!</Text>
  <TouchableOpacity onPress={handlePress}>
    <Text>Play now</Text>
  </TouchableOpacity>
</View>
```

# Web vs Native

Web

```
.container {  
  display: flex;  
  justify-content: center;  
  margin: 20px;  
}
```

Native

```
const styles = StyleSheet.create({  
  container: {  
    flexDirection: 'column',  
    justifyContent: 'center',  
    margin: 20,  
  }  
});
```

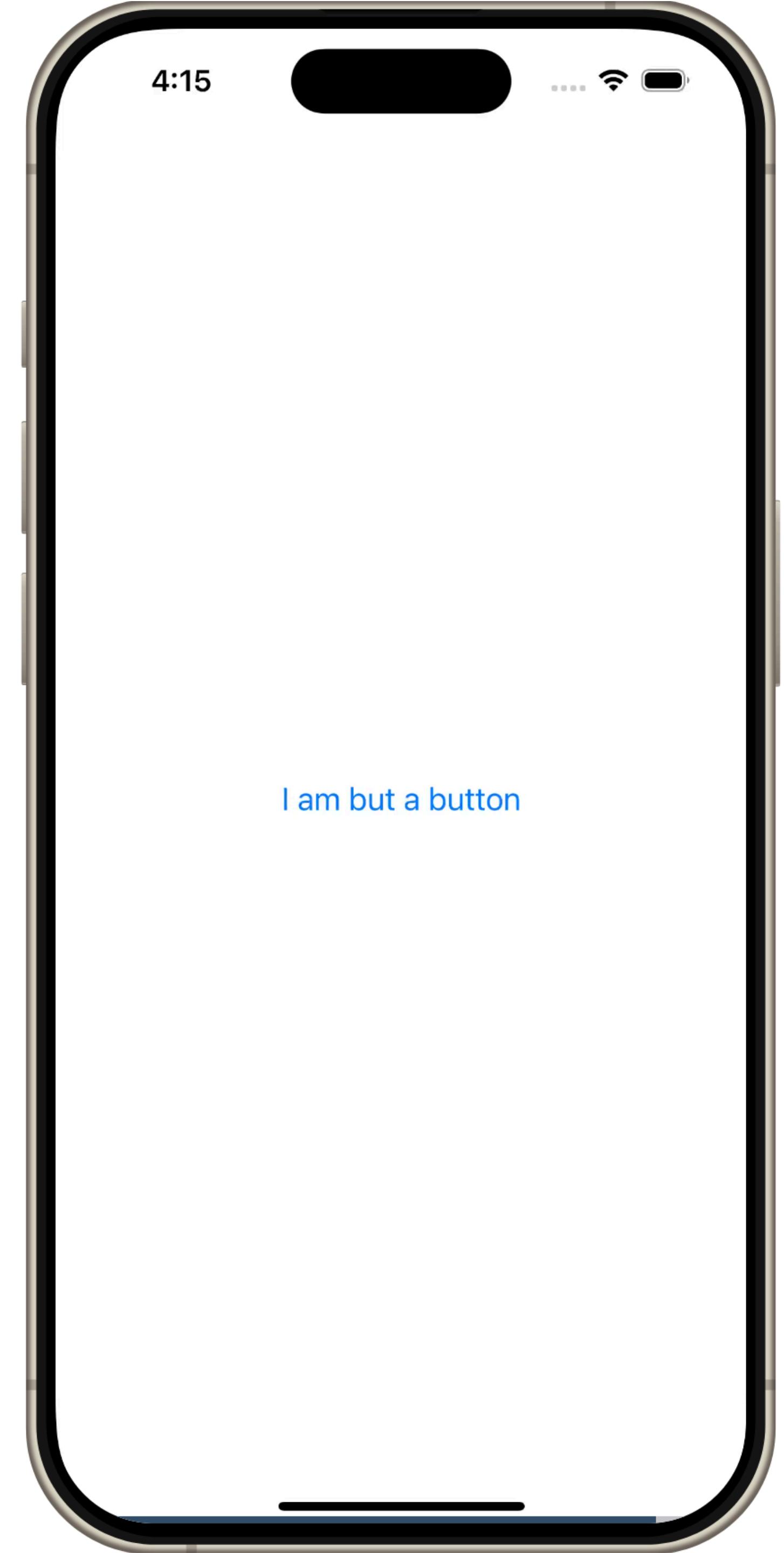
# Common Components

```
<View>
  <Text style={styles.bodyText} >
    I am but a small text
    {'\n'}
    {'\n'}
  </Text>
</View>
```



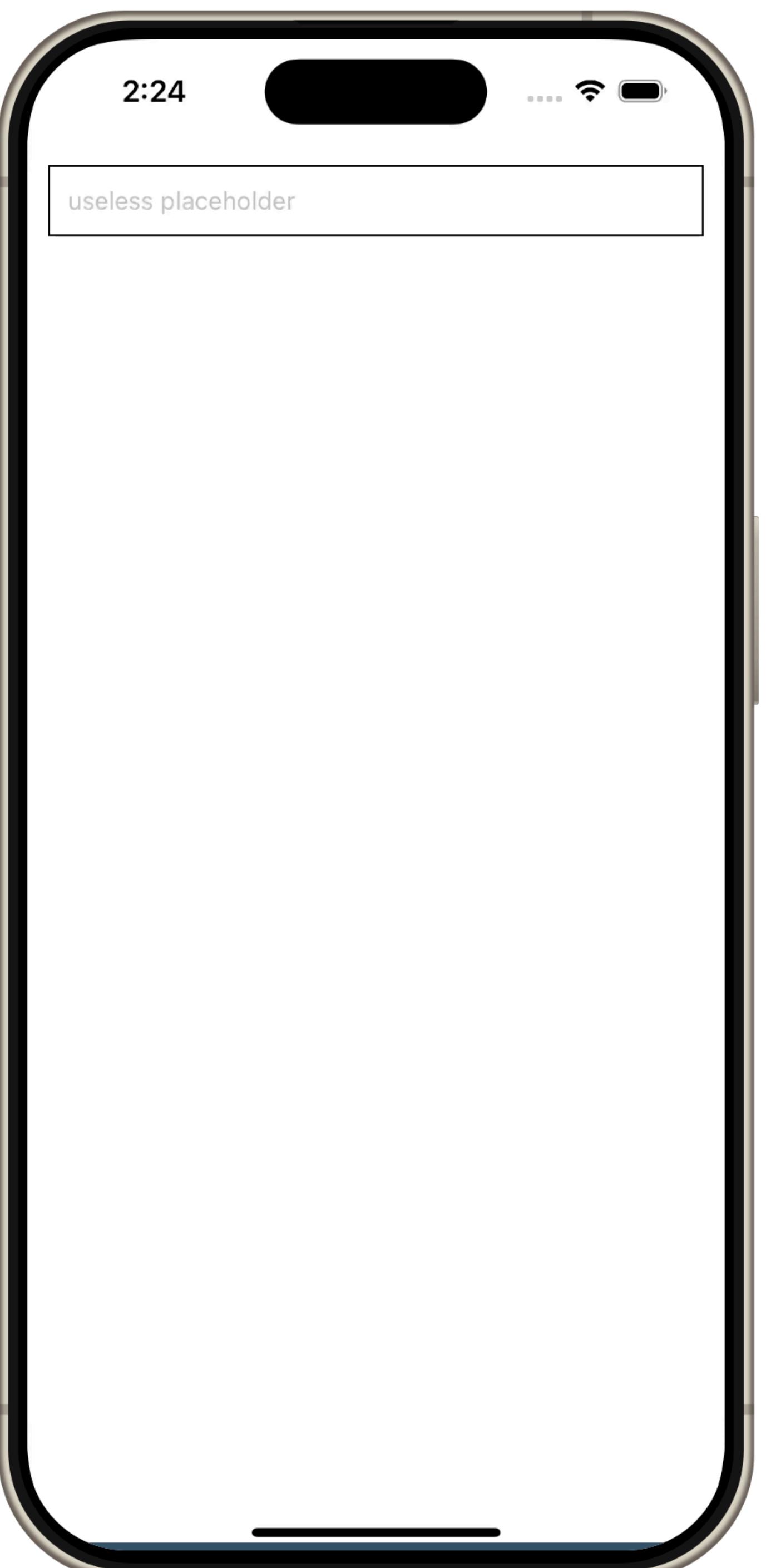
# Common Components

```
<View style={styles.outline}>  
  <Button  
    title="I am but a button"  
    onPress={() => Alert.alert('You won!')}>  
  />  
</View>
```



# Common Components

```
<SafeAreaView>
  <TextInput
    style={styles.input}
    onChangeText={onChangeNumber}
    value={number}
    placeholder="useless placeholder"
    keyboardType="numeric"
  />
</SafeAreaView>
```



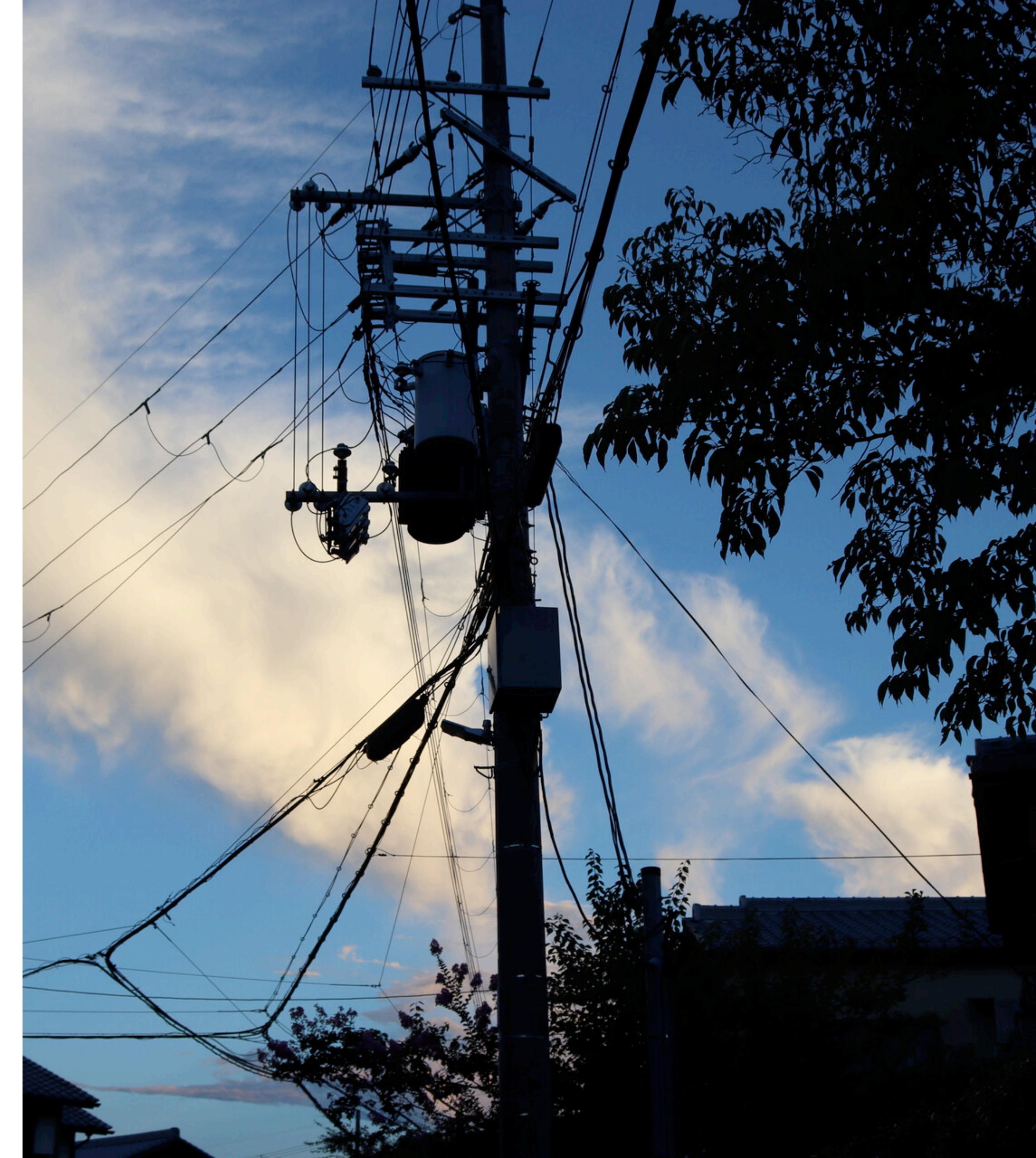
# Building with Expo

React Native  
Simplifies the coding

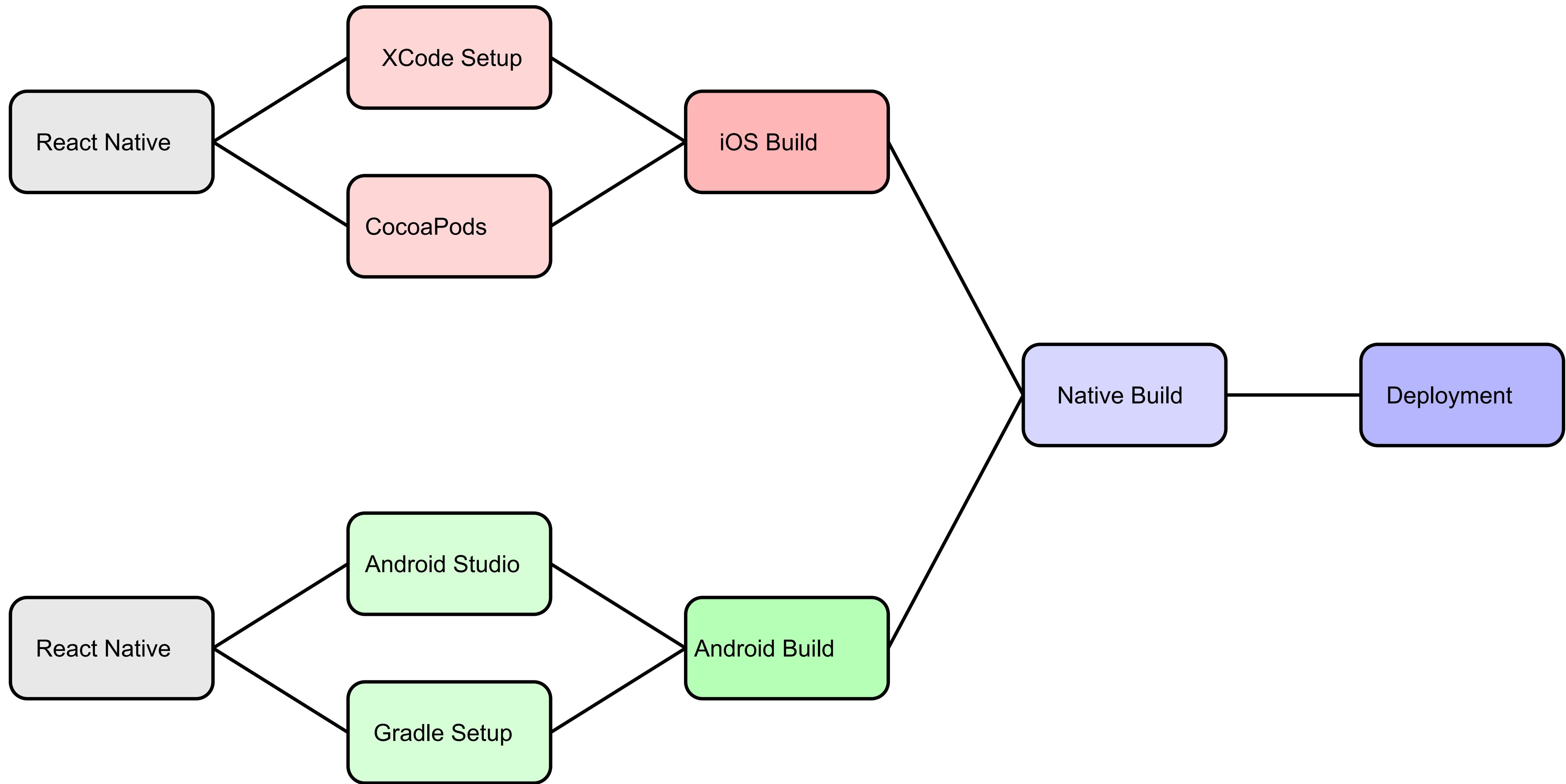
Expo  
Simplifies the processes

# Without Expo

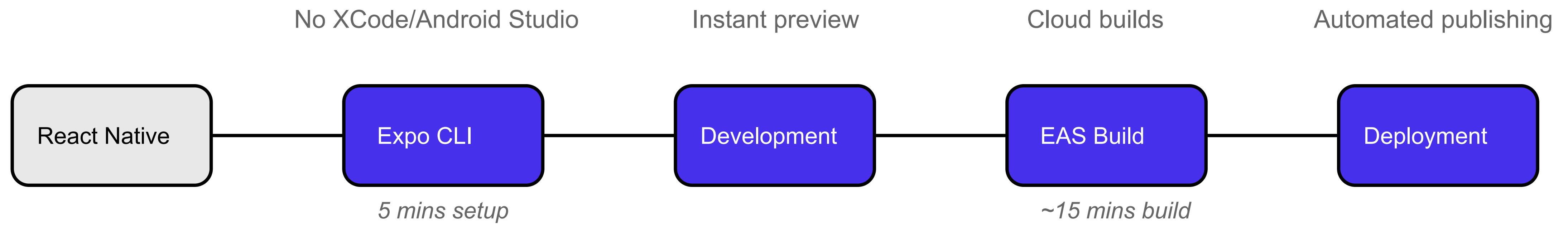
- Complex local setup
- Complex builds
- Tedious and lengthy submission



# Without Expo

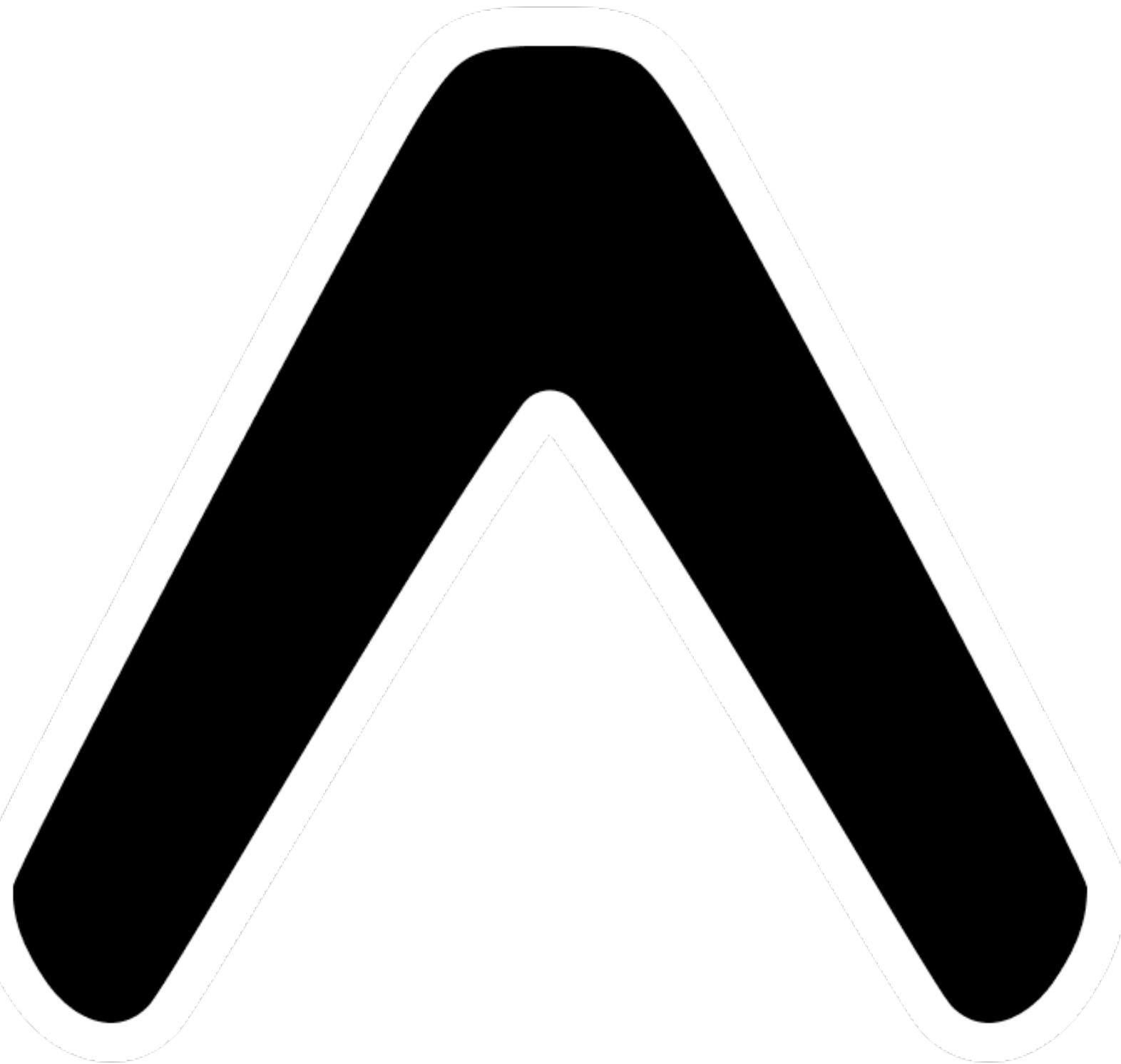


# With Expo



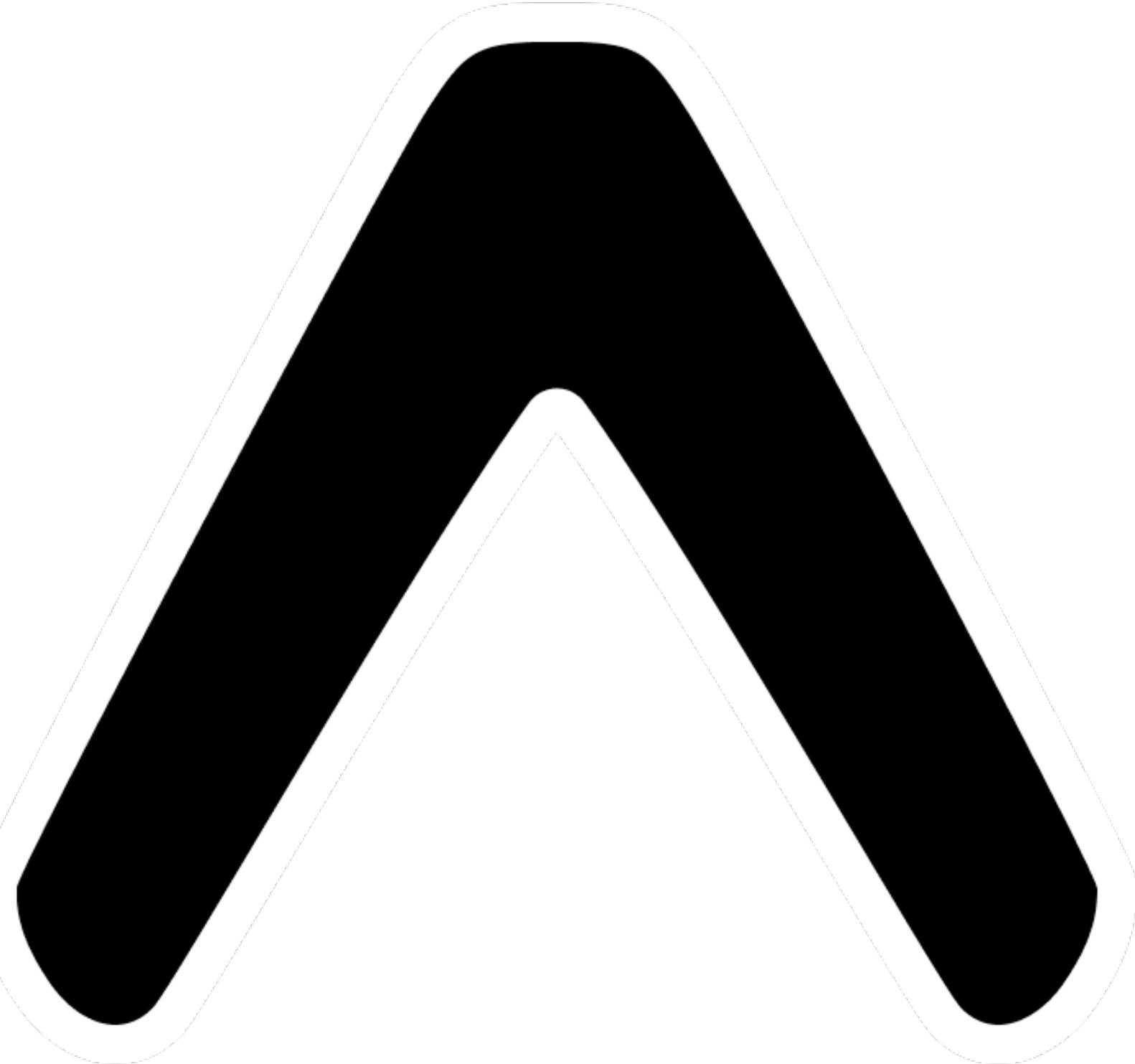
# What Expo offers

- Streamlined local setup
- Automated builds
- Simplified local and device testing
- Guided, automated app submission
- Free\* and open source



# Additional features in Expo

- Comprehensive CLI
- Fast refresh
- Native API access
- End to end testing



# Native API Access

## Via Expo



```
1 import * as Haptics from 'expo-haptics';
2
3 function triggerBingo() {
4   playVictorySound();
5   Haptics.impactAsync(Haptics.ImpactFeedbackStyle.Medium);
6   setIsBingo(true);
7   removeData(board.id.toString());
8 }
```

# Native API Access

## Via Expo

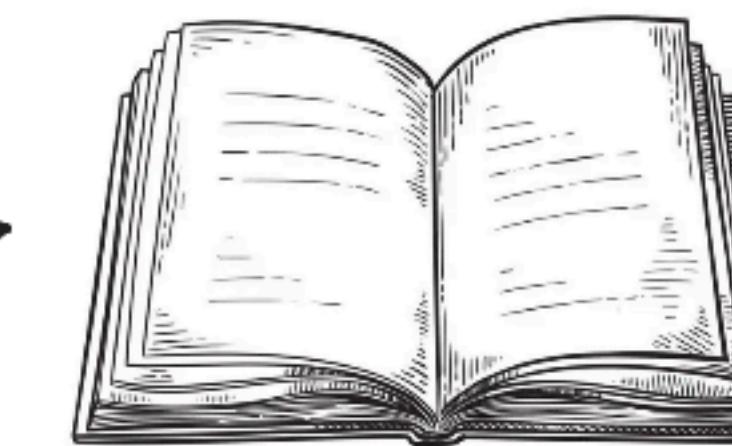


```
1 import { Audio } from 'expo-av';
2
3 async function playVictorySound() {
4   if (isSoundEnabled && !isGameOver) {
5     const { sound } =
6       await Audio.Sound.createAsync( require('../assets/victory.mp3' )
7     );
8     await sound.playAsync();
9   }
10 }
```

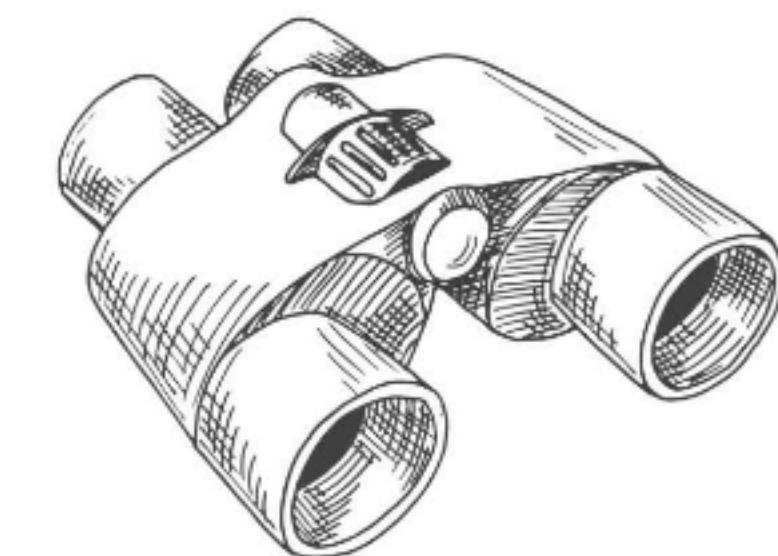
From idea to development

# Storyboard

Idea



Plan ahead



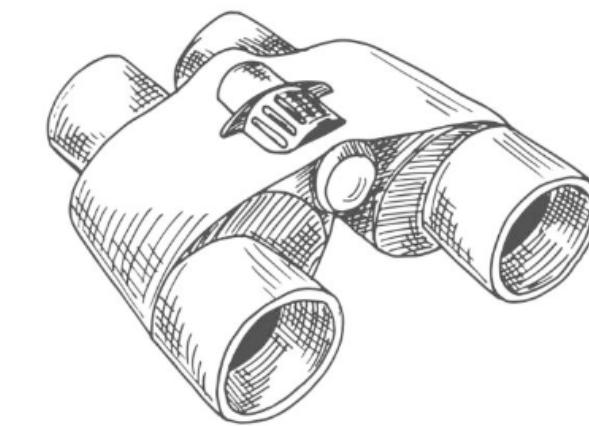
Publish



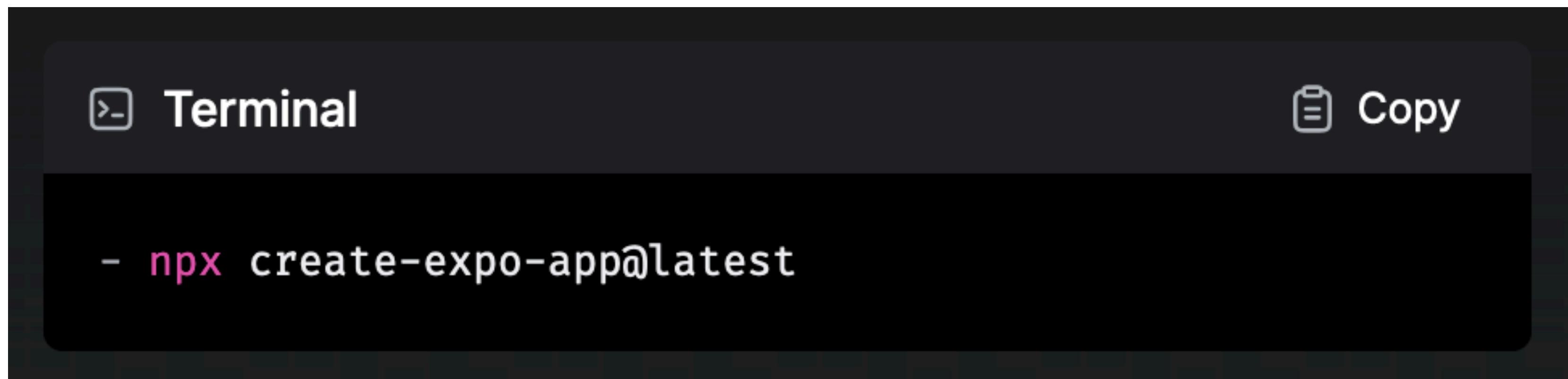
Develop



# Plan ahead



# Develop

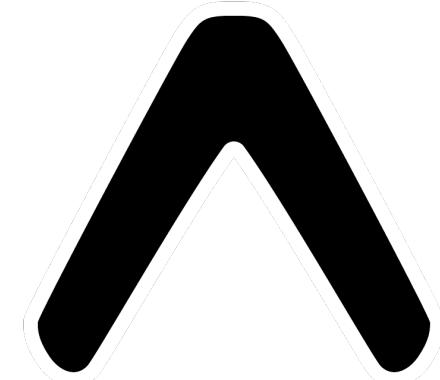


[docs.expo.dev/get-started](https://docs.expo.dev/get-started)

# Publishing

# Prerequisites

## Developer Accounts

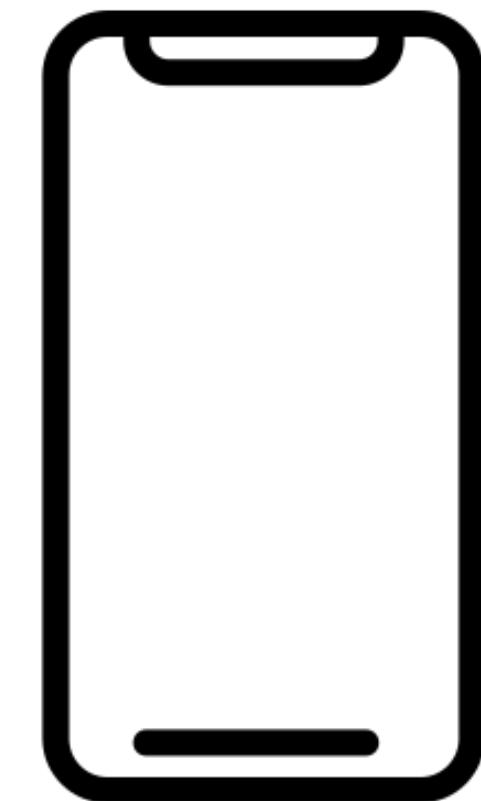


Account	\$	Term
Apple Developer	99	Yearly
Google Play Console	25	Lifetime
Google Cloud Service Account	Free	Lifetime
Expo.dev	Free	Lifetime

# Get your docs in a row



[privacypolicies.com](https://privacypolicies.com)



Screenshots



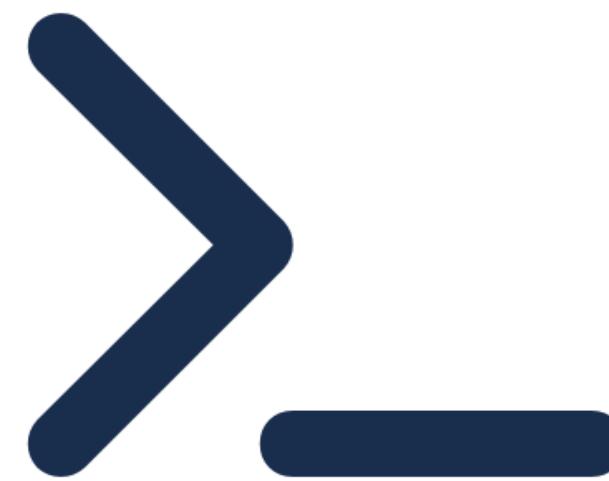
Iconography



Writeup

# Prerequisites

EAS CLI



```
npm install -g eas-cli && eas login
```

[docs.expo.dev/submit/introduction/](https://docs.expo.dev/submit/introduction/)

# Android

# Google Play

## API account

- Google Service account
  - Needed for automated submission
  - Create and download JSON key
  - Take note of file location



# Google Play

## App Store submission

app.json



```
1 "android": {  
2   "package": "com.carrollmedia.travelbingo",  
3   "versionCode": 7  
4 }
```

# Google Play Console

## App Store submission

- Category

- Age rating survey

- Privacy declaration

← Store listings

### Default store listing

Live • Edit your app's name, icon, screenshots and more to present how your app looks to users on Google Play. [Show more](#)

Default – English (United States) – en-US [Manage translations](#) ▾

\* – Required fields. Enter all fields in English (United States) – en-US

#### Listing assets

Check the [Metadata policy](#) and [Help Center guidance](#) to avoid common issues with your store listing. Review all [program policies](#) before submitting your app.

If you're eligible to [provide advance notice](#) to the app review team, contact us before publishing your store listing.

App name \*

Travel Bingo - Road trip bingo

This is how your app will appear on Google Play

30 / 30

Short description \*

Make travel an adventure: Play Bingo and discover hidden gems

A short description for your app. Users can expand to view your full description.

61 / 80

Full description \*

airplane rides.

Family-friendly: A fun activity for the whole family, creating lasting travel memories.

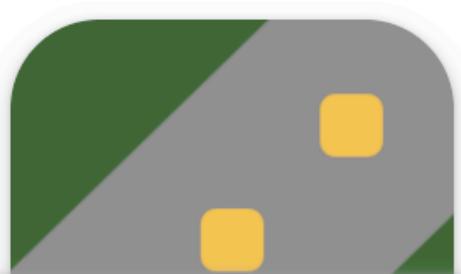
Download Travel Bingo today and transform your next trip into an unforgettable adventure!

1096 / 4000

#### Graphics

Manage your app icon, screenshots, and videos to promote your app on Google Play. Review the [content guidelines](#) before uploading new graphics. If you add translations for your store listing without localized graphics, we will use the graphics from your default language.

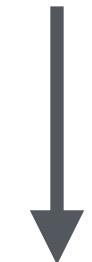
App icon \*



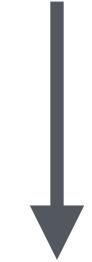
# Google Play

App Store submission

eas build --platform android



apk

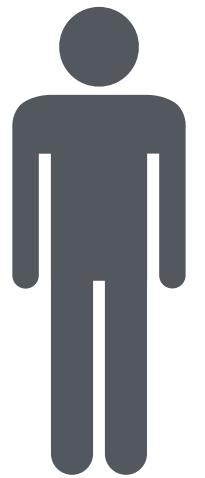


eas submit

Google Play Console

# Google Play

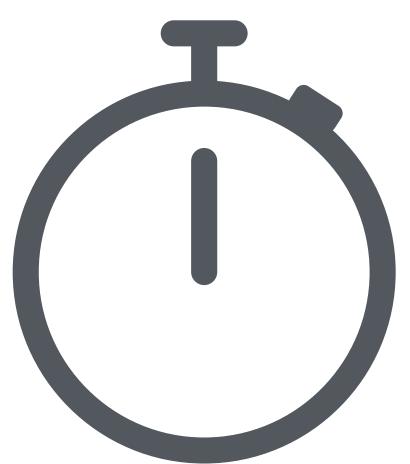
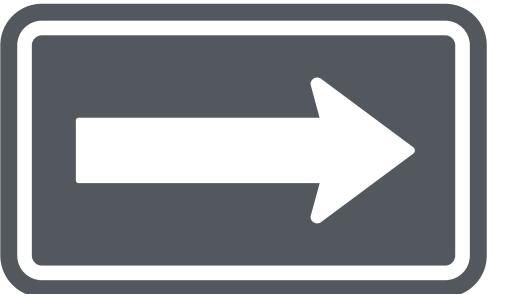
Closed Beta



**12**

Users

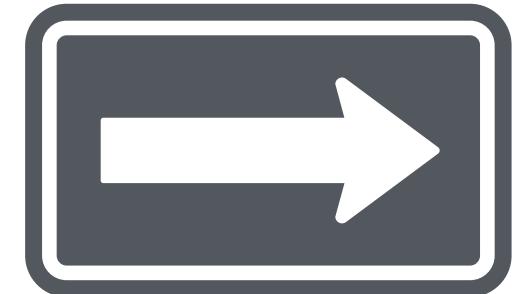
**Pre survey**



**14**

Days

**Post survey**



Production app review

Apple

# Apple App Store

## Privacy Declarations



```
1  "ios": {
2    "supportsTablet": true,
3    "bundleIdentifier": "com.carrollmedia.travelbingo",
4    "infoPlist": {
5      "NSPrivacyAccessedAPITypes": [
6        {
7          "NSPrivacyAccessedAPIType": "NSPrivacyAccessedAPICategorySystemBootTime",
8          "NSPrivacyAccessedAPITypeReasons": [
9            "8FFB.1"
10           ]
11         },
12       ],
13     }
14   },
```

app.json

# Apple App Store

Who needs privacy?



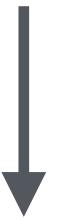
Saving data?



...DiskSpace



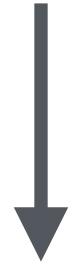
Using a timer?



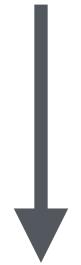
...SystemBootTime

# Apple App Store Submission

App Store Connect



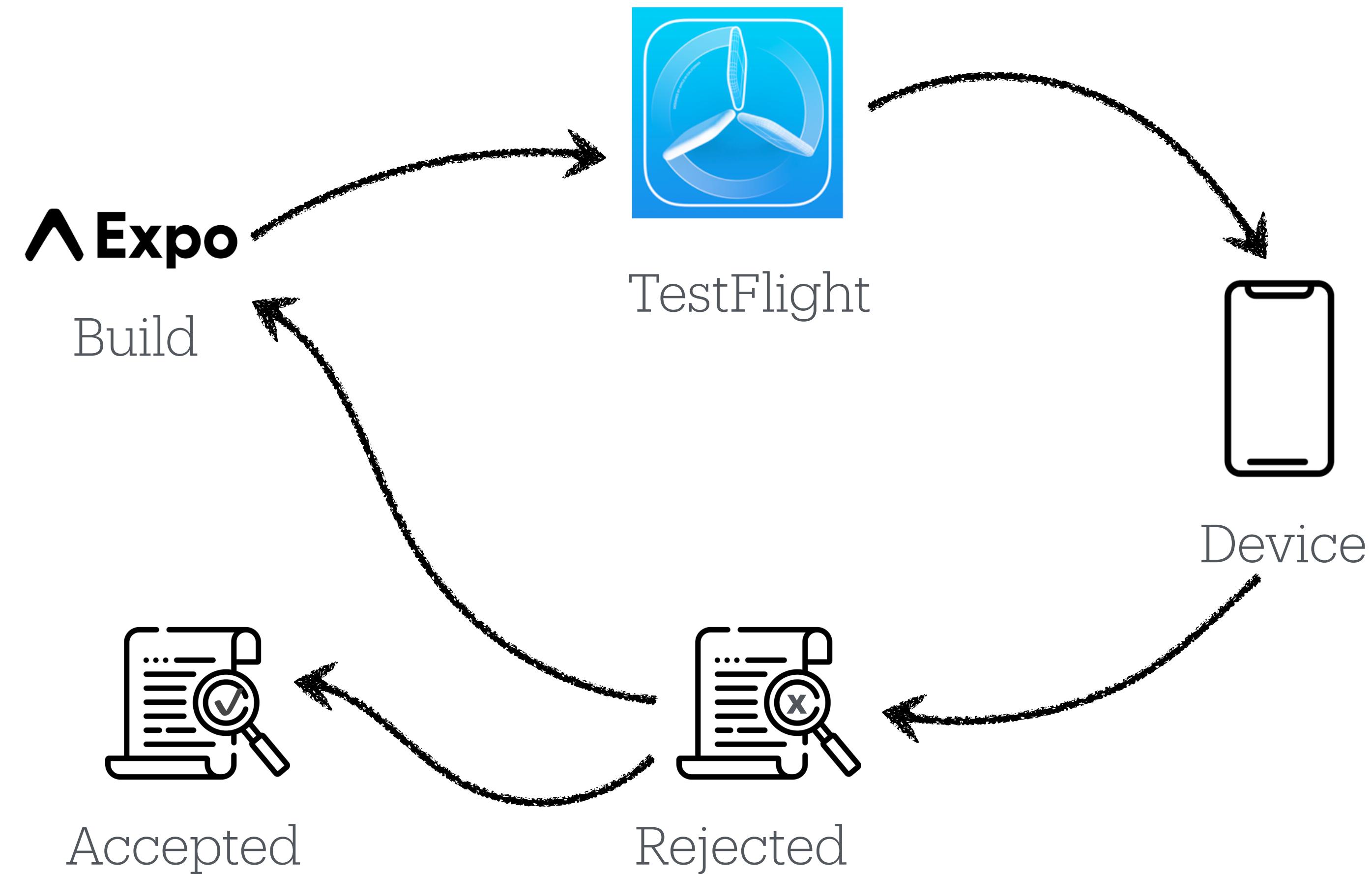
eas build --platform ios



eas submit

# Apple App Store

## Testing flow





Your app is live!

Let's talk about burnout

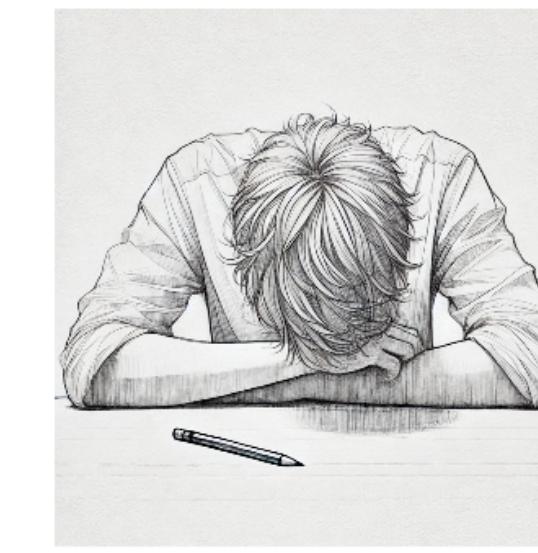
# The project death cycle



Idea



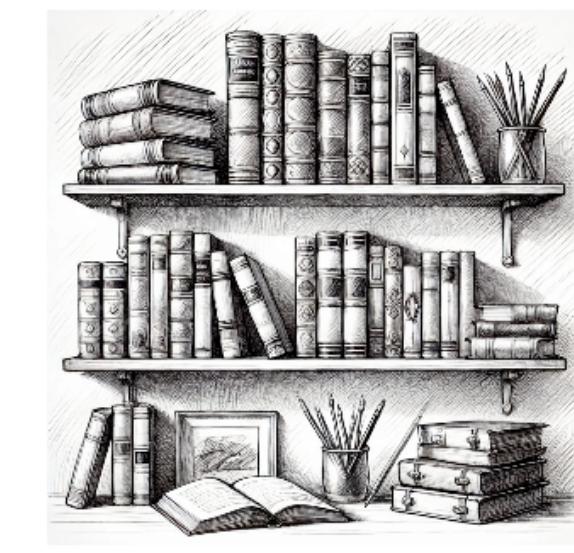
Excitement



Slog



Distraction

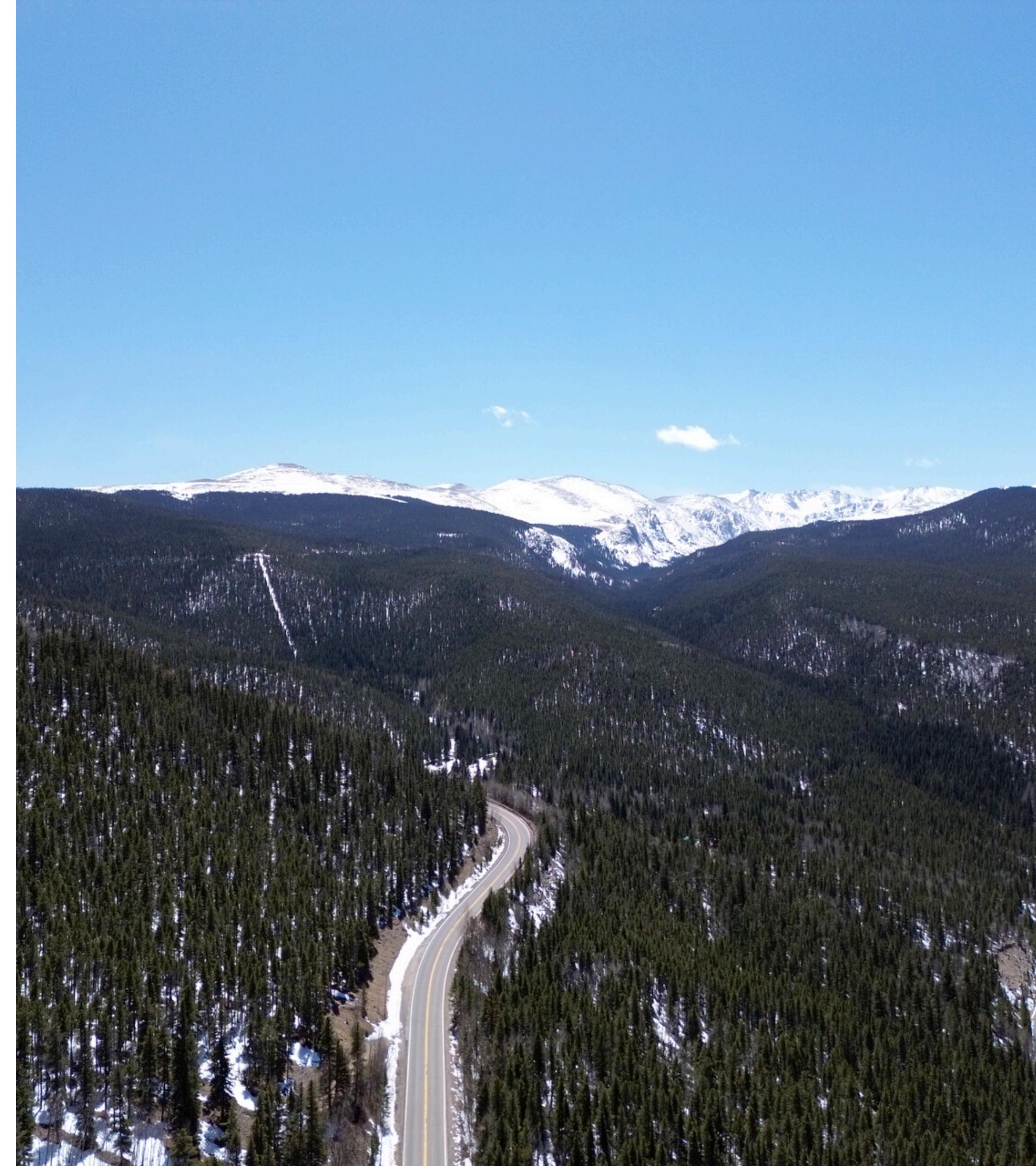


Shelf



# Tips for success

- Balance your time
- Be patient
- Plan to get stuck
- Don't compare yourself to others
- Involve others



“The journey of a  
thousand miles begins  
with a single step”

- Lao Tzu

# Questions?



[carrollmedia.dev/react-native](https://carrollmedia.dev/react-native)

# Appendix

Devices - <https://www.statista.com/statistics/245501/multiple-mobile-device-ownership-worldwide/>

Downloads - <https://www.statista.com/statistics/271644/worldwide-free-and-paid-mobile-app-store-downloads/>

Revenue - <https://www.statista.com/outlook/amo/app/worldwide>

Icons designed by Freepik and Shutterstock, Flaticon