App Development using React Native, Expo and AWS

Shiraz Ali, Shubham

Department of Computer Science and Engineering, Dronacharya College of Engineering, Khentawas Farukhnagar, Gurugram, Haryana, India

ABSTRACT

App development often requires the developer to have the knowledge of different platforms like android, ios, the two leading operating systems for mobile devices. To develop android apps one need to learn complex language like Java or Kotlin and Android Studio IDE (Integrated Development Environment) whereas for ios languages are Swift, C#, objective C and Xcode as environment. The two applications may have the same layout and logic but several components of the user interface (UI) will differ and the applications themselves need to be developed in two different languages. Besides, certain hybrid mobile application frameworks existing in the market were not able to cater similar experience to the same user on all native platforms.

This thesis has evaluated the newly released framework React Native that can create both iOS and Android applications by compiling the code written in React. The resulting applications can share code and consist of the UI components which are unique for each platform. The thesis focused on Android and tried to replicate an existing Android Application in order to measure user experience and performance. The result was surprisingly positive for React Native as some users could not tell the two applications apart and nearly all users did not mind using a React Native application.

The overall experience is that React Native a very interesting framework that can simplify the development process for mobile applications to a high degree. As long as the application itself is not too complex, the development is uncomplicated and one is able to create an application in very short time and be compiled to both Android and iOS. The application base was set up using Expo. Expo is a framework and a platform for universal React applications. It is a set of tools and services built around React Native and native platforms that help you develop, build, deploy, and quickly iterate on iOS, Android, and web apps from the same JavaScript/TypeScript codebase.

KEYWORDS: React-Native, AWS, Amplify, Expo, Android, Ios

INTRODUCTION TO APP

App is created using expo-cli with a blank template providing javascript codebase. This project integrates a React Native front-end with an AWS Amplify back-end that has user authentication (AWS Cognito) and the Storage API from AWS Amplify. This configuration allows us to perform CRUD operations to interact with Amazon S3 from our React native front end.

App Overview

- Users can sign up/in to the app.
- Users can upload pictures by pressing the add button.
- Users can delete pictures by pressing the trash button.
- Users can update the feed by pressing the reload button.

Requirements

NodeJS, npm, expo-cli, react-native, aws-amplify

Configuring the project

1. Initialize the project in your directory using blank template
   ```
   expo init S3 Image Upload
   ```

2. Configure your AWS account
   ```
   amplify configure
   ```


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3. Initialize amplify project
amplify init

Enter a name for the project react-native-s3
Enter a name for the environment rnstorage
Choose your default editor: Visual Studio Code
Choose the type of app that you're building javascript
Please tell us about your project
What javascript framework are you using react-native
Source Directory Path: /
Distribution Directory Path: /
Build Command: npm run-script build
Start Command: npm run-script start
Using default provider awscloudformation

For more information on AWS Profiles, see:
https://docs.aws.amazon.com/cli/latest/userguide/cli-multiple-profiles.html

Do you want to use an AWS profile? Yes
Please choose the profile you want to use default
Initializing project in the cloud...

4. Add auth
amplify add auth
# When prompt, choose: Yes, use the default configuration.

5. Add Storage
amplify add storage
# Choose: Content (Images, audio, video, etc.)
# Give access to only authenticated users.
# Give users read/write access.

6. Deploy your project to AWS
amplify push

<table>
<thead>
<tr>
<th>Category</th>
<th>Resource name</th>
<th>Operation</th>
<th>Provider plugin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auth</td>
<td>cognito251d55d7</td>
<td>Create</td>
<td>awscloudformation</td>
</tr>
<tr>
<td>Storage</td>
<td>s32f8c2338</td>
<td>Create</td>
<td>awscloudformation</td>
</tr>
</tbody>
</table>

Are you sure you want to continue? Yes
 Updating resources in the cloud. This may take a few minutes...
Running the Application

1. Install client dependencies.
   
   `npm install`

2. Launch the React Native app in your simulator under your project directory.
   
   `expo start --android`

   # or
   
   `expo start --android`

   Link to access app
   
   https://expo.io/@shirazali1997/image-upload

**Screenshots**

- **Create a new account**
  
  Username:
  
  Password:
  
  Email:

- **Sign in to your account**
  
  Username:
  
  Password:

- Hello shirazali1997
  
  Sign Out

- **CAN YOU CATCH KOJO?**
  
  Thu Apr 09 2020

- **Ab Hydroxychloroquine. Word Aa Gaya.**
  
  Thu Apr 09 2020