

App Development using React Native, Expo and AWS

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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

How to cite this paper: Shiraz Ali | Shubham "App Development using React Native, Expo and AWS" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-4 | Issue-4, June 2020, pp.1307-1309, URL: www.ijtsrd.com/papers/ijtsrd31360.pdf



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```
shiraz@shiraz-Inspiron-3521:~/Desktop/Diagnosis$ amplify configure
Follow these steps to set up access to your AWS account:

Sign in to your AWS administrator account:
https://console.aws.amazon.com/
Press Enter to continue

Specify the AWS Region
? region: ap-south-1
Specify the username of the new IAM user:
? user name: Shiraz
Complete the user creation using the AWS console
https://console.aws.amazon.com/iam/home?region=undefined#/users\$new?step=final&accessKey&userNames=Shiraz&permissionType=policies&policies=arn:aws:iam::aws:policy%2FAdministratorAccess
Press Enter to continue

Enter the access key of the newly created user:
? accessKeyId: AKIAQ2IR4Z*****
? secretAccessKey: hUdzwyfg/DLzmdM2nCul*****
This would update/create the AWS Profile in your local machine
? Profile Name: Amplify

Successfully set up the new user.
```

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

```
| Category | Resource name | Operation | Provider plugin |
| - - - - - | - - - - - | - - - - - | - - - - - |
| Auth | cognito251d55d7 | Create | awscloudformation |
| Storage | s32f8c2338 | Create | awscloudformation |
[?] 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 --ios

or
expo start --android

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

Screenshots

