
AWS
re:Invent
NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

FWM311

Build offline-first apps for iOS, macOS, and Android using AWS Amplify

Harshita Daddala (she/her)

Sr. Product Manager – Tech, AWS Amplify
AWS

Kyle Lee (he/him)

Sr. Developer Advocate, AWS Amplify
AWS

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Agenda

What is offline-first?

AWS Amplify libraries

Amplify and mobile developers

Demo

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Expectations of modern apps

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Performant

- Launches quickly
- Little to no delay for interaction

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Offline capable

- App isn't a brick without internet
- Functionality available with varying signal
- Sync data on reconnect

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Real-time

- No need to wait set amount of time for updates
- Communication between devices is instant
- Updates don't require interaction

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Offline-first as a paradigm

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

What happens when you rely on internet connectivity?

- Users can't use the app without internet
- Interactions are delayed
- Higher user data usage

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Switching to offline

- Request data from backend
- Persist data locally in a database
- Render UI from local data

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Introducing AWS Amplify

- Suite of tools for front-end and mobile developers
- Provides categories for common use cases
- Develop, deliver, and manage

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amplify meets you where you're at

- Android
- Flutter
- iOS
- JavaScript

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Categories

- Analytics
- API
- Authentication
- Amplify DataStore
- Predictions
- Storage

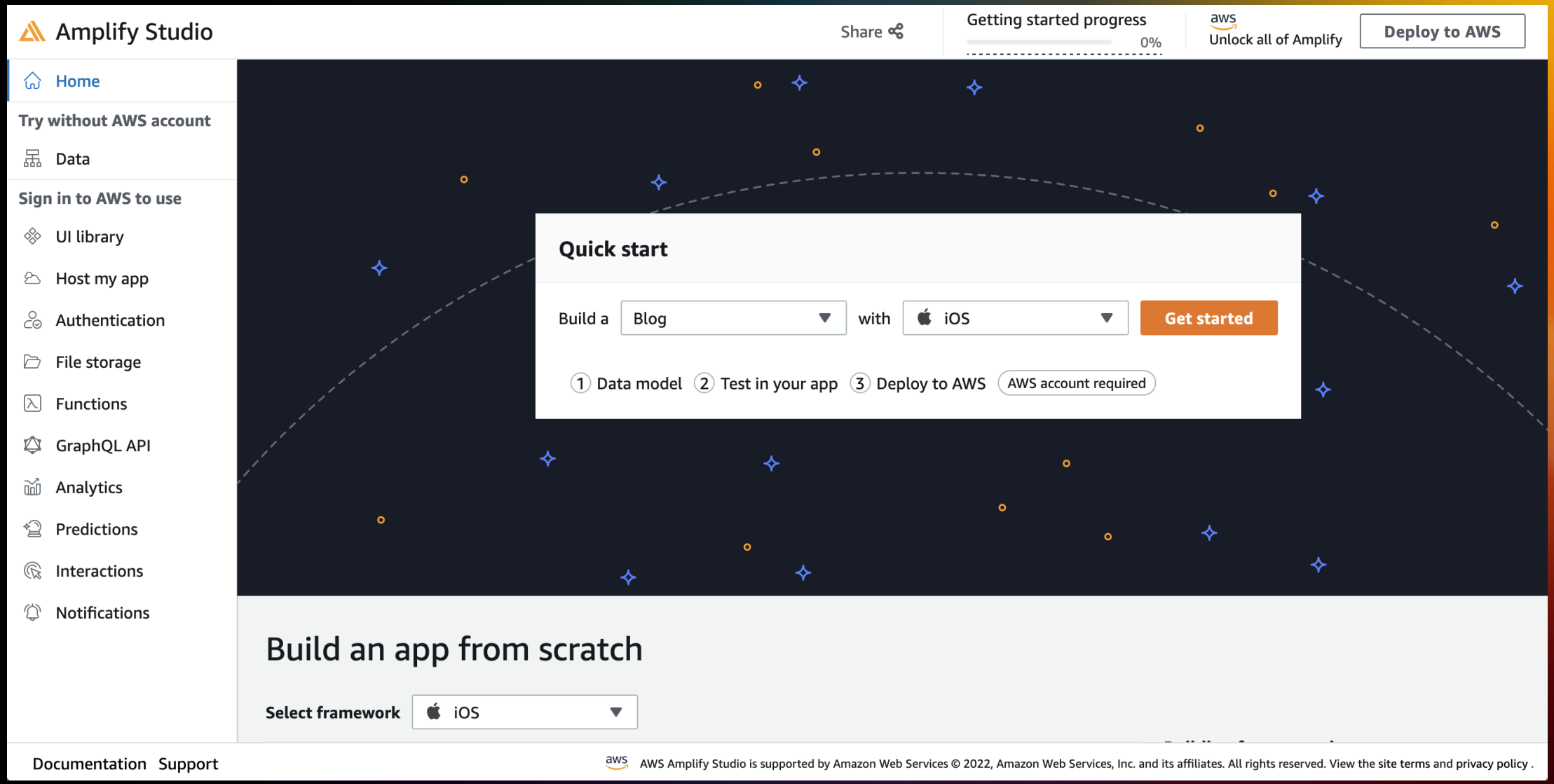
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amplify DataStore for offline

- The data storage category (database)
- Stores data locally on the device
- Allows for updates when changes are detected

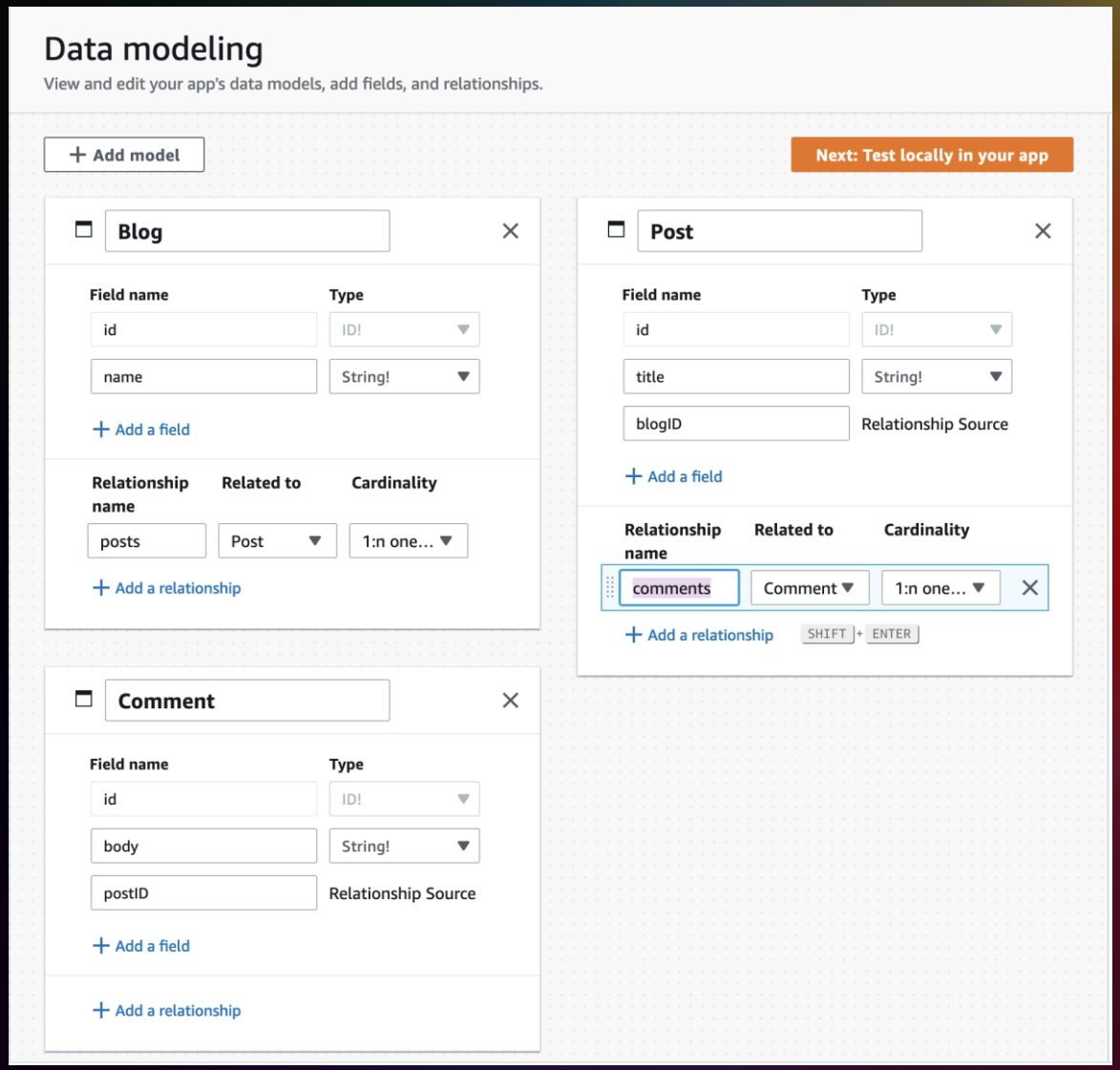
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amplify Studio



aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Modeling the data



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Test locally offline

Local setup instructions for iOS

Skip and se

1. Install Amplify CLI to pull the data model
2. Install Amplify library and initialize Amplify
3. **Test CRUD APIs locally with Amplify DataStore**

Amplify DataStore allows you to manage your app data without writing additional code for offline and online scenarios.

Add the following code snippets to an `.onAppear()` function in your **ContentView.swift**

Use the code generator below to test and explore the DataStore API:

Select a model: Blog Select an operation: Create | Update | Delete

```
Amplify.DataStore.query(Blog.self) { result in
    switch(result) {
    case .success(let items):
        for item in items {
            print("Blog ID: \(item.id)")
        }
    case .failure(let error):
        print("Could not query DataStore: \(error)")
    }
}
```

When you're ready, deploy to AWS to sync your data to the cloud.

Back | Deploy to AWS

Local setup instructions for Android (Kotlin)

Skip and setup later

1. Install Amplify CLI to pull the data model
2. Install Amplify library and initialize Amplify
3. **Test CRUD APIs locally with Amplify DataStore**

Amplify DataStore allows you to manage your app data without writing additional code for offline and online scenarios.

Use the code generator below to test and explore the DataStore API:

Select a model: Blog Select an operation: Create | Update | Delete | Query

```
val item: Blog = Blog.builder()
                .name("Lorem ipsum dolor sit amet")
                .posts([])
                .build()
Amplify.DataStore.save(
        item,
        { success -> Log.i("Amplify", "Saved item: " + success.item().name) },
        { error -> Log.e("Amplify", "Could not save item to DataStore", error) }
)
```

When you're ready, deploy to AWS to sync your data to the cloud.

Back | Deploy to AWS

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

API for online

- AWS AppSync for GraphQL and AWS Lambda for REST
- Works with Amplify DataStore to sync detected changes
- Can be used on its own

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Working with API only

- Custom GraphQL mutations/subscriptions
- Don't want built-in offline capabilities

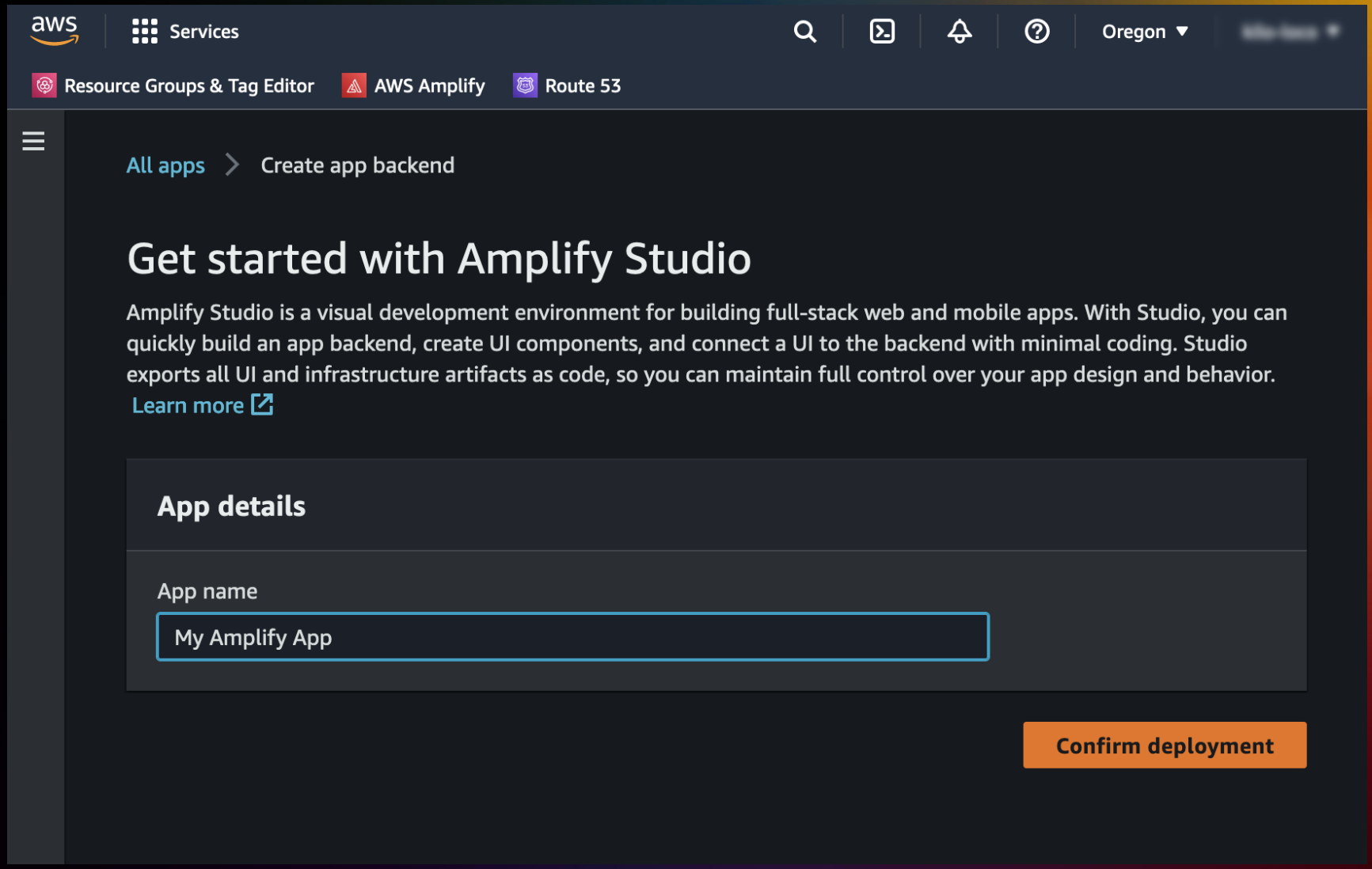
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Deploying to the cloud

- Deploy using either Amplify Studio or CLI
- AWS AppSync will be set up based on GraphQL schemas
- Data is stored to Amazon DynamoDB

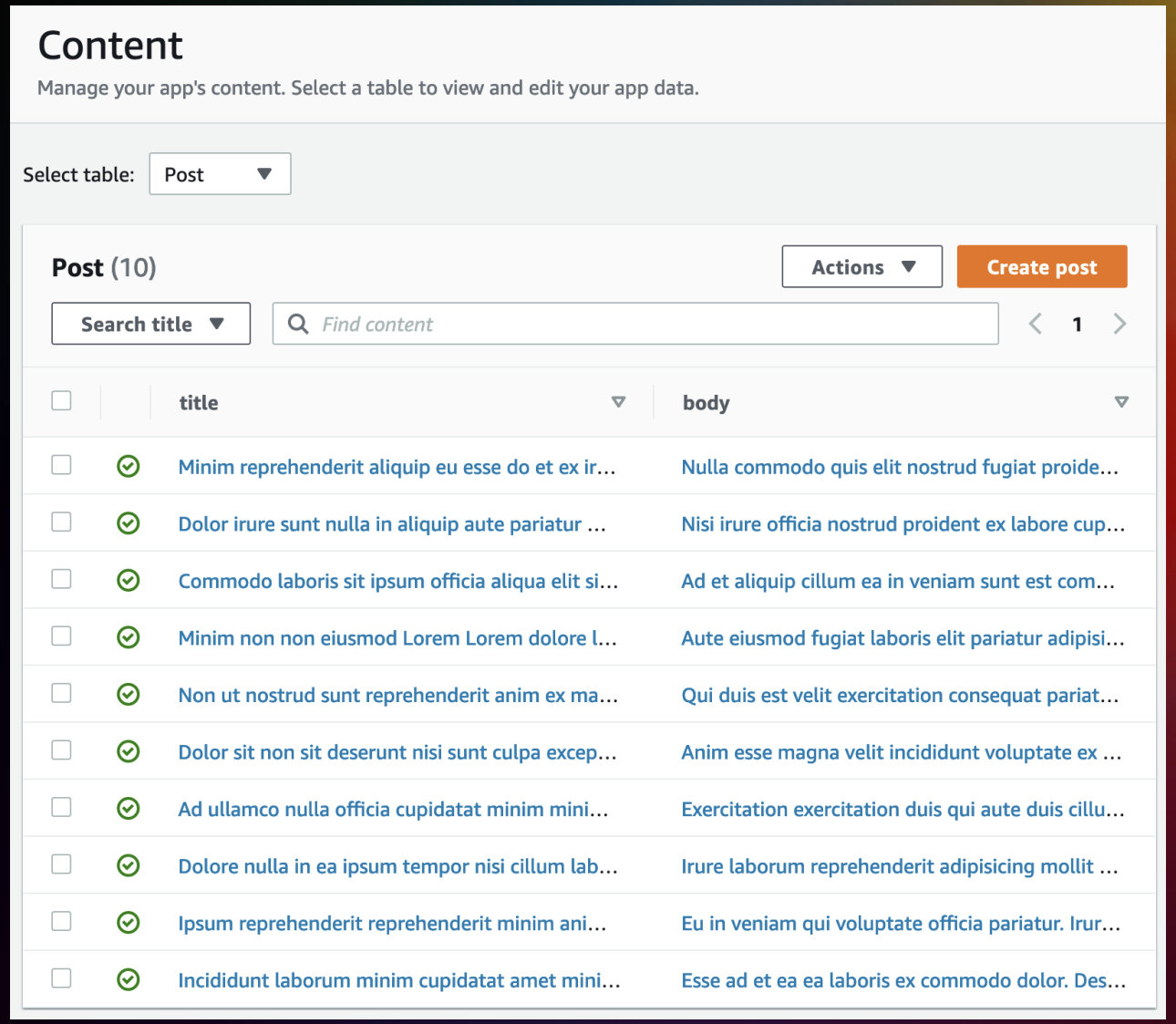
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Create an Amplify app in the cloud



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Viewing content



aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Thank you!

Harshita Daddala
daddala@amazon.com

Kyle Lee
kyleez@amazon.com



Please complete the session survey in the **mobile app**

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.