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

DOP208-L

Delighting developers: Builder experience at AWS

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Vice President, Developer Experience
Amazon Web Services

Emily Freeman (she/her)

Head of Community Engagement
Amazon Web Services

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Developer productivity

ONLY ONE PART OF THE STORY



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Adam Seligman

VICE PRESIDENT, DEVELOPER EXPERIENCE
AMAZON WEB SERVICES

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Emily Freeman

HEAD OF COMMUNITY ENGAGEMENT
AMAZON WEB SERVICES

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Flow

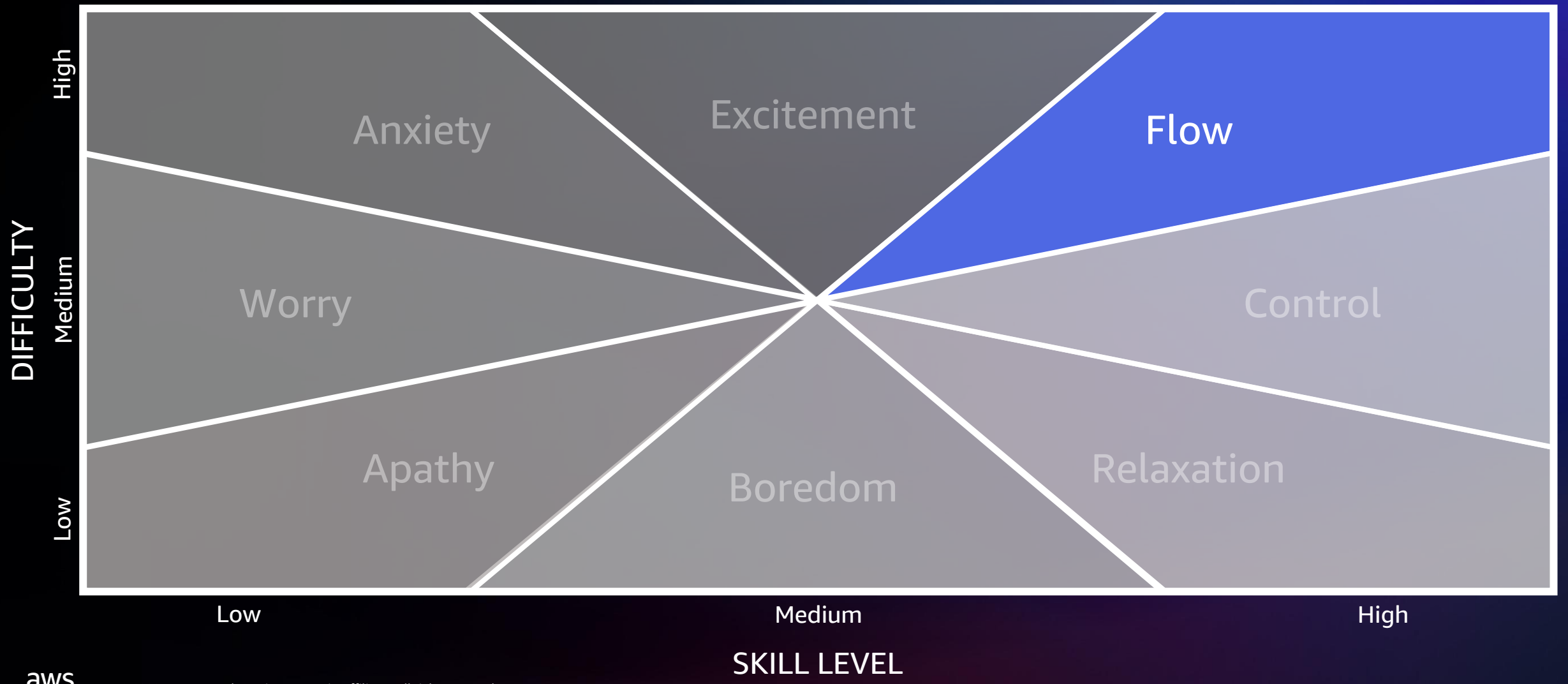
A STATE OF BEING COMPLETELY INVOLVED IN AN ACTIVITY



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Flow

THE PSYCHOLOGY OF OPTIMAL EXPERIENCE

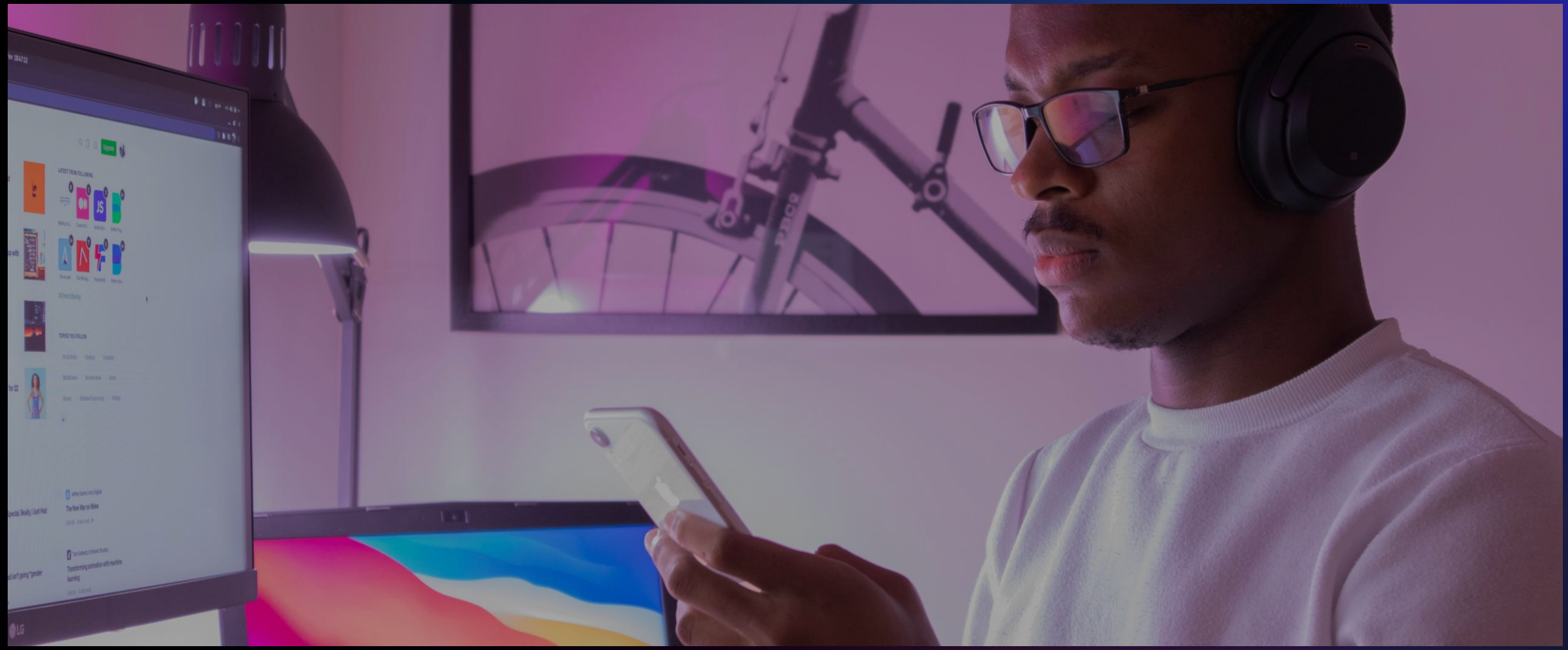


aws

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Friction

THE INSIDIOUS INTERRUPTIONS TO YOUR CREATIVE WORK



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Collaboration

A KEY ELEMENT OF FLOW



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Endless choices

A KEY CAUSE OF FRICTION



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Endless choices

A KEY CAUSE OF FRICTION



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Our vision for developer experience

LET'S BUILD TOGETHER

A delightful flow
for all the developers
and every dev team

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Amazon CodeCatalyst

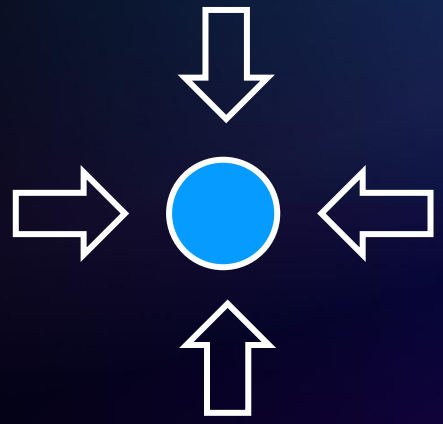
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Amazon CodeCatalyst

IN PREVIEW

NEW



Integrated experience

Unified interface that eliminates the need to configure, operate, integrate, or switch between disjointed tools

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Amazon CodeCatalyst

IN PREVIEW

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Managed by AWS

Managed, scalable service operated by AWS
for high availability and security

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Amazon CodeCatalyst

IN PREVIEW

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Integrates with popular tools

Continue working with popular tools like Jira and GitHub while maintaining a consistent software lifecycle experience

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Amazon CodeCatalyst

KEY FEATURES



Project blueprints

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Amazon CodeCatalyst

KEY FEATURES



Project blueprints



Managed CI/CD pipelines

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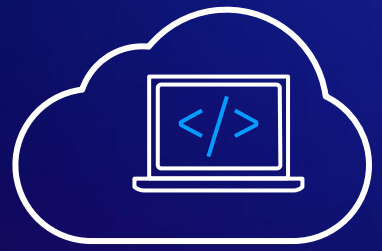
KEY FEATURES



Project blueprints



Managed CI/CD pipelines



Dev environments

aws

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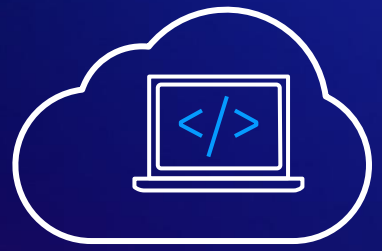
KEY FEATURES



Project blueprints



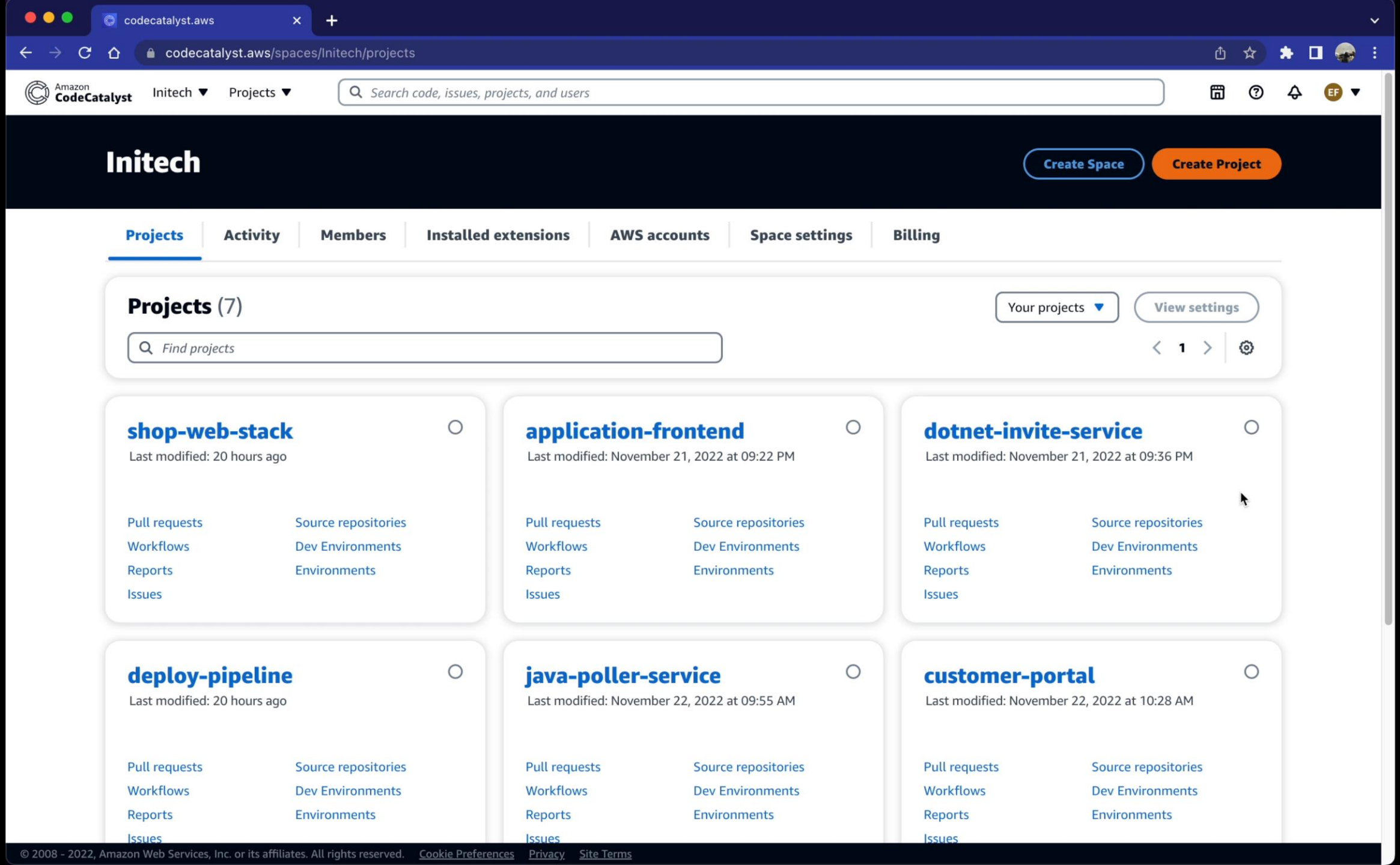
Managed CI/CD pipelines



Dev environments

aws

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EF
Initech
Create Space
Create Project
Projects
Activity
Members
Installed extensions
AWS accounts
Space settings
Billing
Projects (7)
Your projects
View settings
Find projects
1
shop-web-stack
Last modified: 20 hours ago
Pull requests
Source repositories
Workflows
Dev Environments
Reports
Environments
Issues
application-frontend
Last modified: November 21, 2022 at 09:22 PM
Pull requests
Source repositories
Workflows
Dev Environments
Reports
Environments
Issues
dotnet-invite-service
Last modified: November 21, 2022 at 09:36 PM
Pull requests
Source repositories
Workflows
Dev Environments
Reports
Environments
Issues
deploy-pipeline
Last modified: 20 hours ago
Pull requests
Source repositories
Workflows
Dev Environments
Reports
Environments
Issues
java-poller-service
Last modified: November 22, 2022 at 09:55 AM
Pull requests
Source repositories
Workflows
Dev Environments
Reports
Environments
Issues
customer-portal
Last modified: November 22, 2022 at 10:28 AM
Pull requests
Source repositories
Workflows
Dev Environments
Reports
Environments
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IN PREVIEW



Collaborate fluidly

Easily invite a teammate to your project and provide immediate access to shared resources for efficient collaboration

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application-frontend summary

Members +

KS kk AS EF AS View all

Repositories

View repository

spa-app

main / README.md

Project overview

This projects creates a React SPA (single-page application) project as the front-end. The project uses the Typescript AWS Cloud Development Kit (CDK) to deploy to AWS Amplify Hosting.

Architecture overview

A the front-end is a single-page application and loads a web document and updates it by using JavaScript APIs.The deployment pipeline deploys the SPA front-end to the development environment by default, using the connected AWS account.

Web application framework

React - powered by Create React App

Hosting

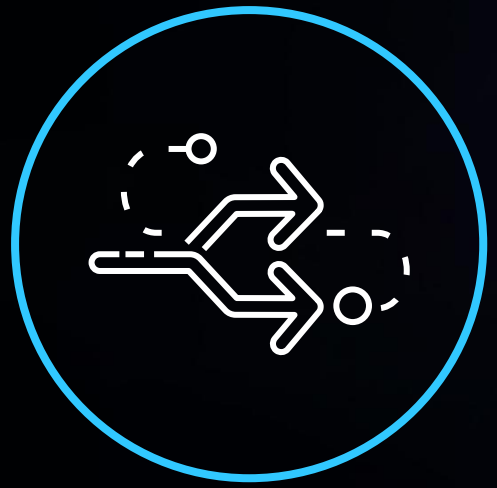
AWS Amplify Hosting

AWS Amplify Hosting offers a fully managed hosting service for web apps and static websites that can be accessed directly from the AWS console.

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Get started with CodeCatalyst

VISIT CODECATALYST.AWS



Accelerate project setup



Automate daily workflows



Initiate cloud environments



Collaborate fluidly

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Frictionless coding

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Amazon CodeWhisperer

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Amazon CodeWhisperer

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Amazon CodeWhisperer

AVAILABLE IN PYTHON, JAVA, JAVASCRIPT

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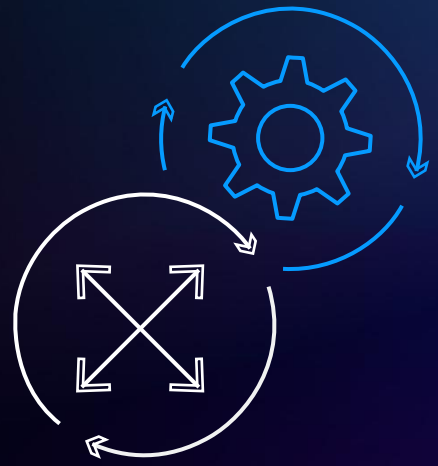
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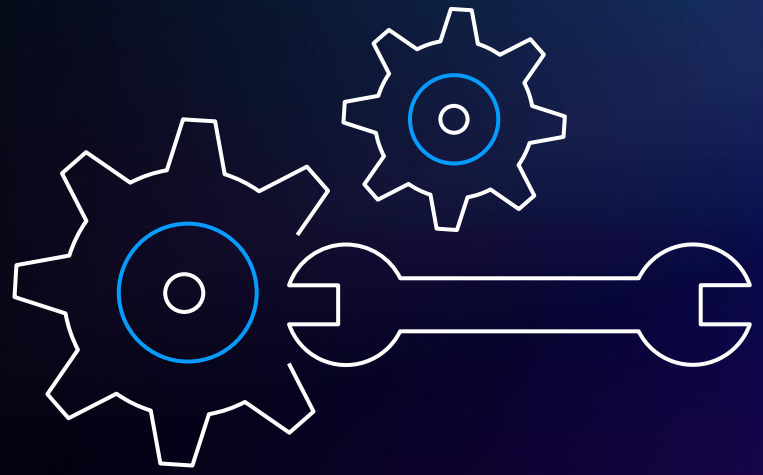
Accelerate developer productivity

Support for the most popular programming languages and IDEs

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Unmatched support for AWS APIs

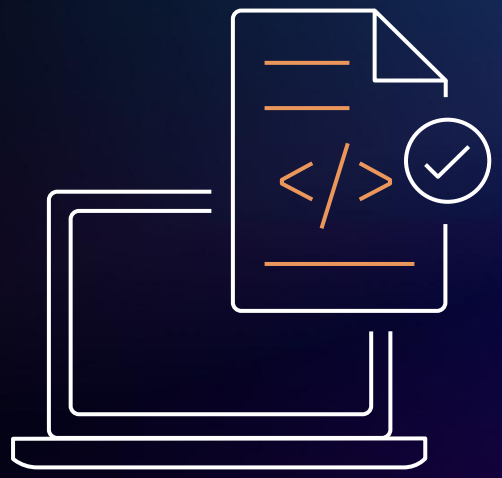
Speed up development process with generated code recommendations for AWS APIs

aws

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IN PREVIEW



Responsible use of AI/ML

Built-in security scans, code reference tracker, and bias avoidance to help build applications responsibly

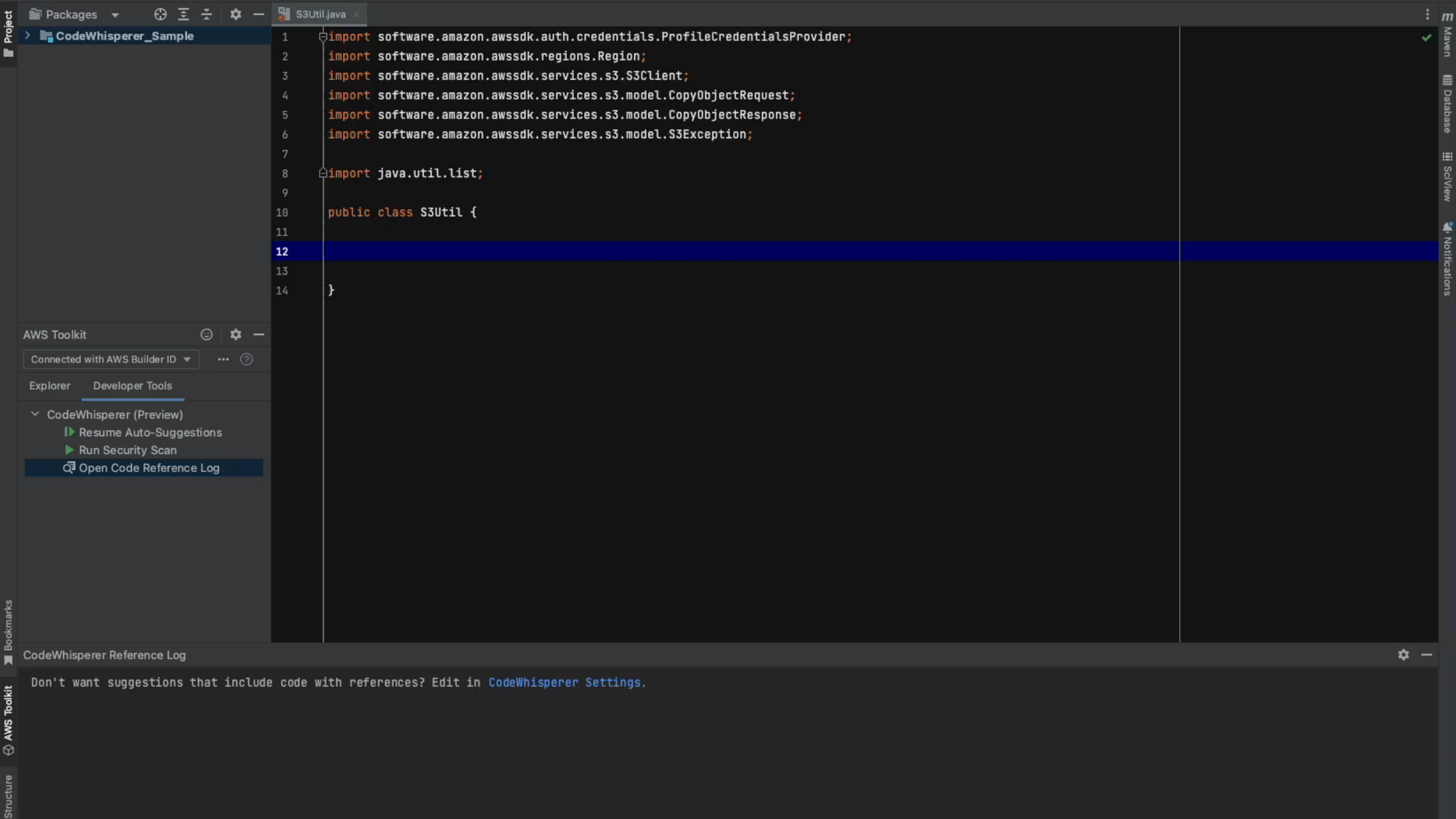
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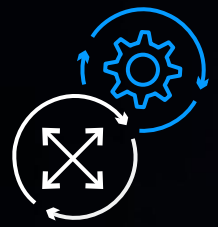
1

1

```
4  import com.amazonaws.services.s3.AmazonS3ClientBuilder;
5  import com.amazonaws.services.s3.model.AccessControlList;
6  import com.amazonaws.services.s3.model.EmailAddressGrantee;
7
8  import java.util.list;
9
10 public class S3Util {
11
12
13 }
```

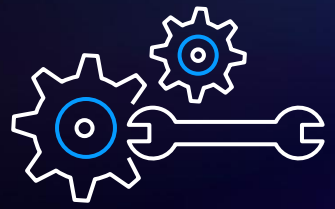

Packages
CodeWhisperer_Sample
S3Util.java
1 import software.amazon.awssdk.auth.credentials.ProfileCredentialsProvider;
2 import software.amazon.awssdk.regions.Region;
3 import software.amazon.awssdk.services.s3.S3Client;
4 import software.amazon.awssdk.services.s3.model.CopyObjectRequest;
5 import software.amazon.awssdk.services.s3.model.CopyObjectResponse;
6 import software.amazon.awssdk.services.s3.model.S3Exception;
7
8 import java.util.list;
9
10 public class S3Util {
11
12
13
14 }
AWS Toolkit
Connected with AWS Builder ID
Explorer
Developer Tools
CodeWhisperer (Preview)
Resume Auto-Suggestions
Run Security Scan
Open Code Reference Log
CodeWhisperer Reference Log
Don't want suggestions that include code with references? Edit in CodeWhisperer Settings.
Project
Maven
Database
SciView
Notifications
Bookmarks
AWS Toolkit
Structure

Amazon CodeWhisperer features



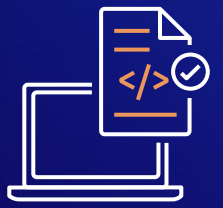
Accelerate developer productivity

Support for the most popular programming languages and IDEs



Unmatched support for AWS APIs

Speed up development process with generated code recommendations for AWS APIs



Responsible use of AI/ML

Built-in security scans, code reference tracker, and bias avoidance

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Building together

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AWS Application Composer

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AWS Application Composer

IN PREVIEW

NEW



Visual canvas

Drag, drop, and connect serverless resources to simplify designing applications

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AWS Application Composer

IN PREVIEW

NEW



Configures services automatically

Rapidly generate resource configuration
and ready-to-deploy infrastructure as code
(IaC) that follows best practices by default

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AWS Application Composer

IN PREVIEW

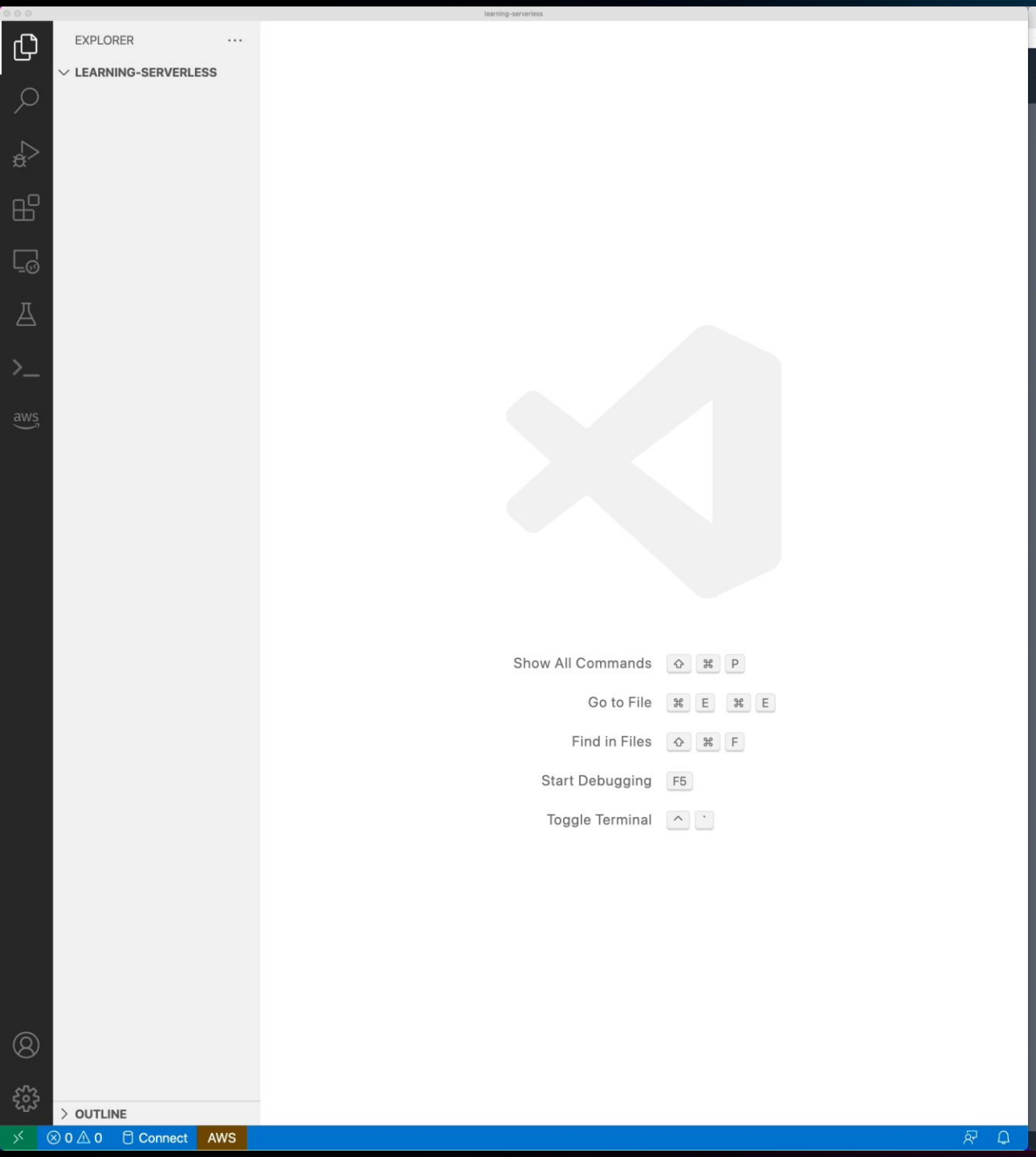
NEW

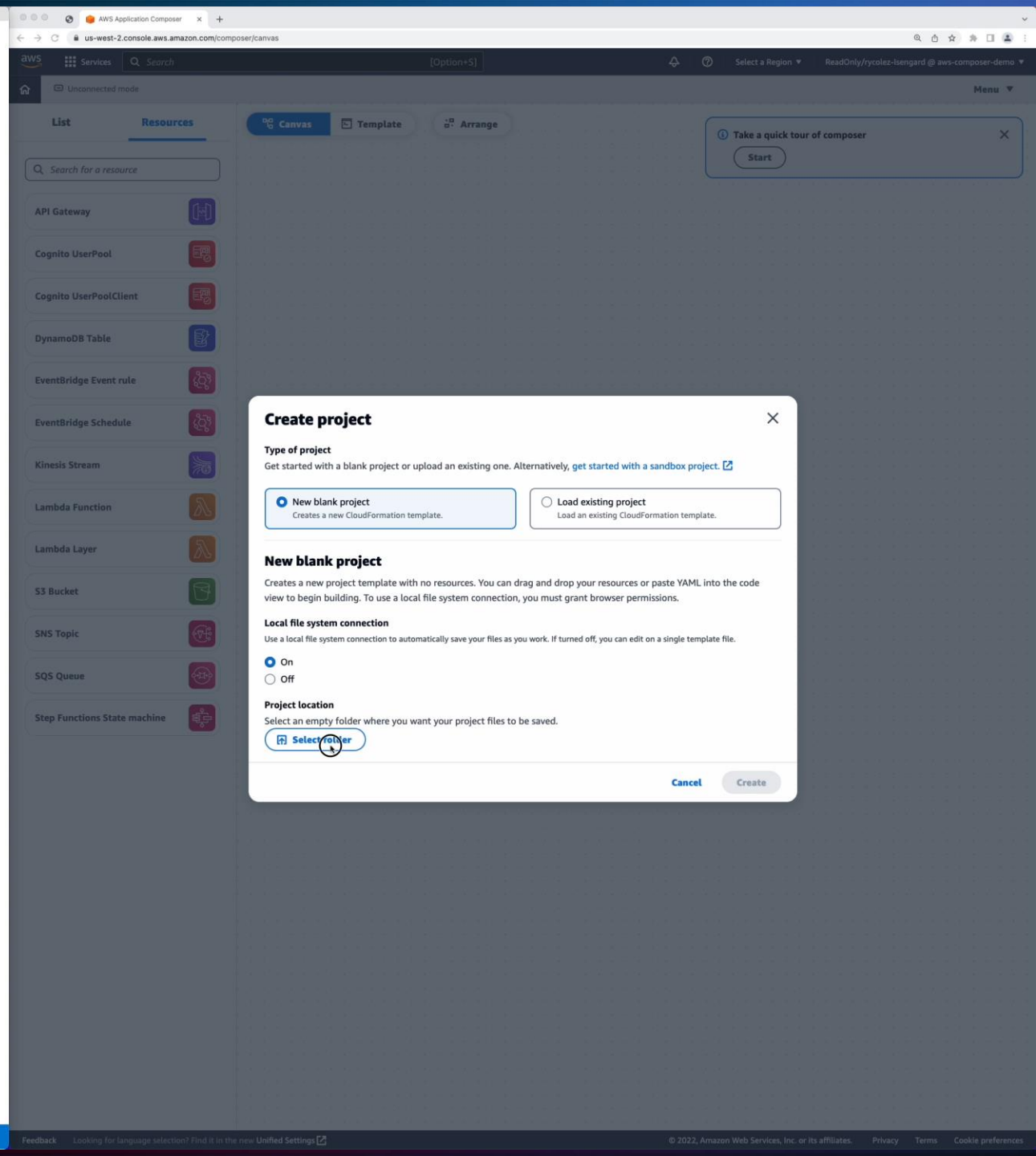


Architecture in real time

Keeps visual architectural
representation and IaC in sync

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learning-serverless
EXPLORER
LEARNING-SERVERLESS
Show All Commands
Go to File
Find in Files
Start Debugging
F5
Toggle Terminal
OUTLINE
Connect
AWS


AWS Application Composer
us-west-2.console.aws.amazon.com/composer/canvas
Services
Search
Select a Region
Unconnected mode
Menu
List
Resources
Canvas
Template
Arrange
Take a quick tour of composer
Start
Search for a resource
API Gateway
Cognito UserPool
Cognito UserPoolClient
DynamoDB Table
EventBridge Event rule
EventBridge Schedule
Kinesis Stream
Lambda Function
Lambda Layer
S3 Bucket
SNS Topic
SQS Queue
Step Functions State machine
Create project
Type of project
Get started with a blank project or upload an existing one. Alternatively, get started with a sandbox project.
New blank project
Creates a new CloudFormation template.
Load existing project
Load an existing CloudFormation template.
New blank project
Creates a new project template with no resources. You can drag and drop your resources or paste YAML into the code view to begin building. To use a local file system connection, you must grant browser permissions.
Local file system connection
Use a local file system connection to automatically save your files as you work. If turned off, you can edit on a single template file.
On
Off
Project location
Select an empty folder where you want your project files to be saved.
Select folder
Cancel
Create
Feedback
Looking for language selection? Find it in the new Unified Settings
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AWS Application Composer

IN PREVIEW

NEW



Visual canvas

Drag, drop, and connect serverless resources to simplify designing applications



Configures services automatically

Rapidly generate resource configuration and ready-to-deploy infrastructure as code (IaC) that follows best practices by default



Architecture in real time

Visualize your architecture in real time to keep your team in sync

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Innovating together

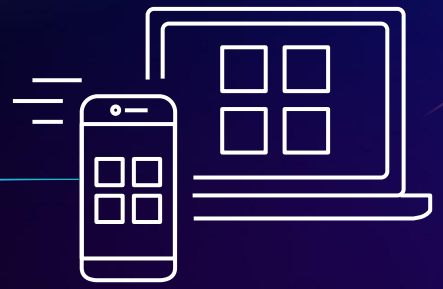
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Frontend development



Frontend development needs

Frontend developers



Backend for frontend developers



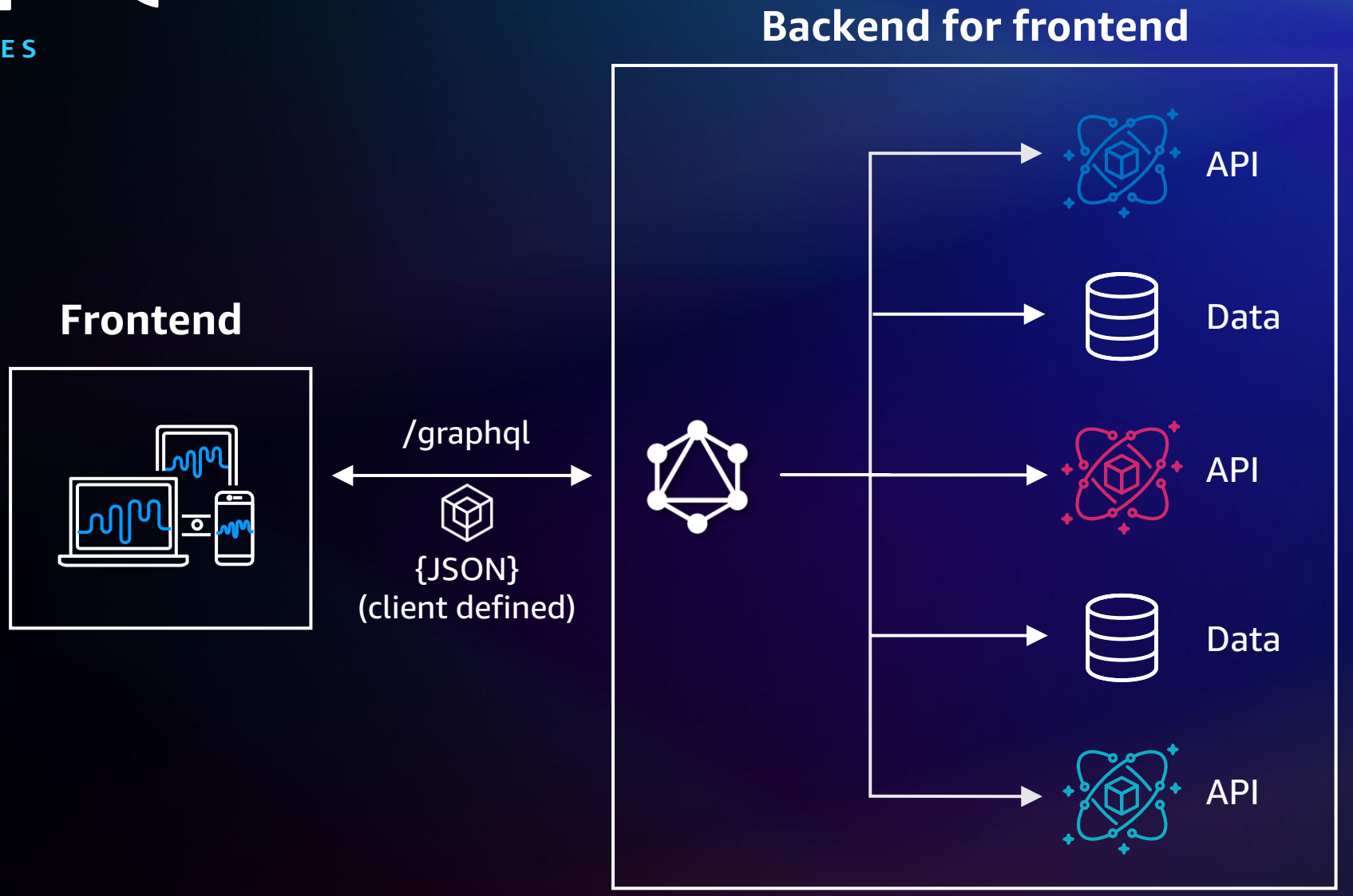
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What is GraphQL?

SIMPLIFIED API STRUCTURES

Unified to access to fetch only the data you need through a single API call

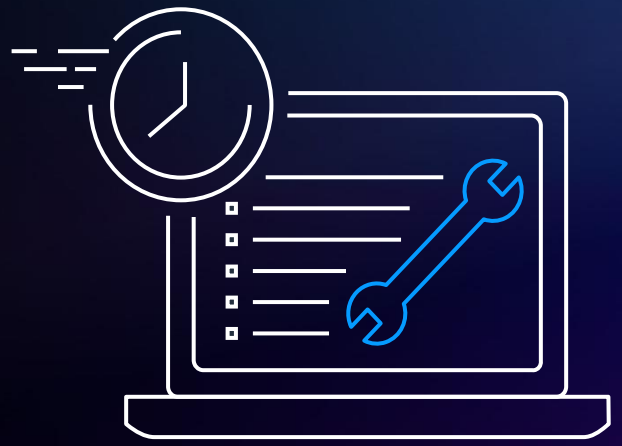


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AWS AppSync

FULLY MANAGED SERVERLESS GRAPHQL AND PUB/SUB API SERVICE



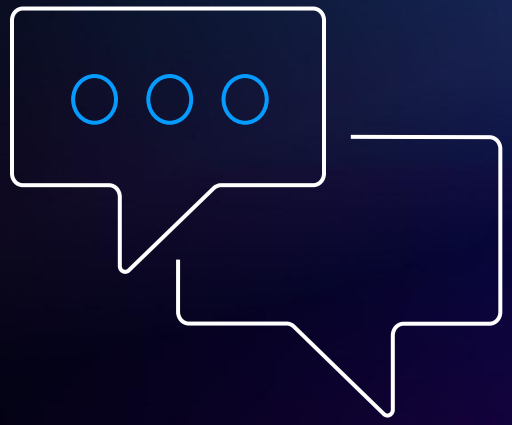
A single data API

Access data from one or more sources
or microservices with a single
network request

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AWS AppSync

FULLY MANAGED SERVERLESS GRAPHQL AND PUB/SUB API SERVICE



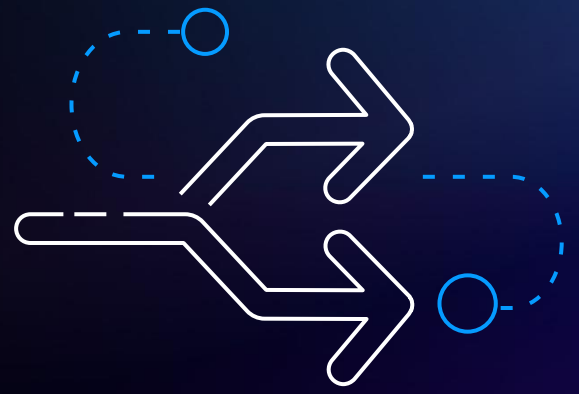
Real-time and offline

Build engaging real-time features;
automatically sync data between apps
and the cloud

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AWS AppSync

FULLY MANAGED SERVERLESS GRAPHQL AND PUB/SUB API SERVICE



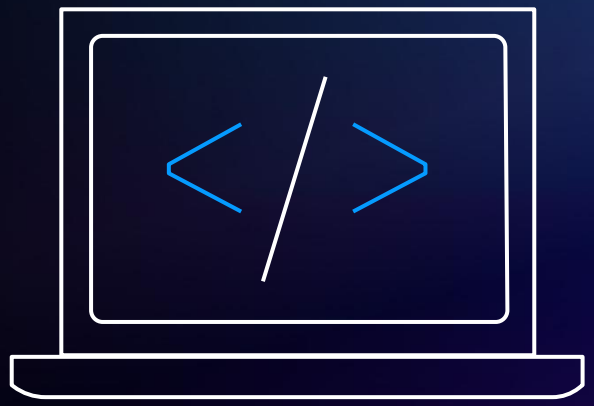
Serverless

Simplify operations with fully managed setup, administration, auto-scaling, and high availability

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AWS AppSync

FULLY MANAGED SERVERLESS GRAPHQL AND PUB/SUB API SERVICE



JavaScript support

Use JavaScript to connect AppSync GraphQL and Pub/Sub APIs to data

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AppSync benefits for teams

ACCELERATE DEVELOPMENT WITH SIMPLIFIED DATA ACCESS



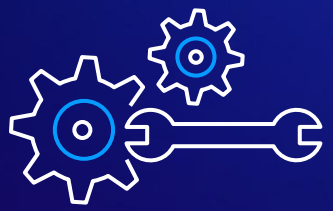
Create apps faster

Backend and frontend teams can work faster and independently



Build performant apps

Reduce network requests by fetching only the data you need



Built-in security

Utilize auth, encryption, activity logging, and other AWS services for compliance

aws

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AWS Amplify

SET OF TOOLS AND SERVICES FOR EASILY BUILDING, DEPLOYING, AND HOSTING FULL-STACK APPS FASTER



Host a web app

Amplify hosting



Build AWS backend

Amplify Studio
Amplify CLI



Build a web app UI

Amplify Studio



Connect to backend

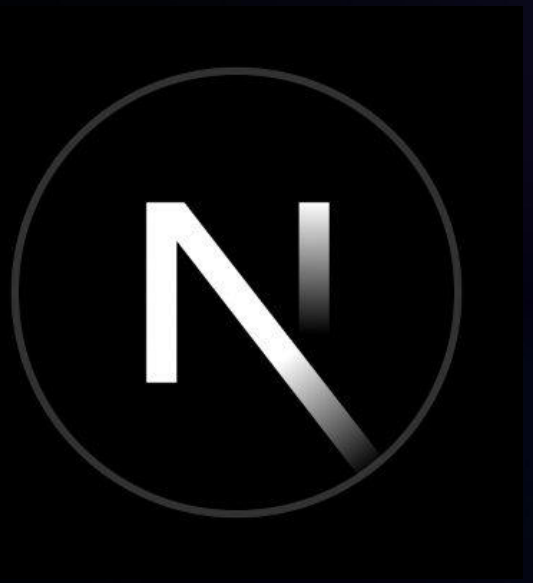
Amplify Libraries
UI components

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Amplify Hosting for Next.js

FULLY MANAGED HOSTING FOR SERVER SIDE RENDERED APPS BUILT WITH NEXT.JS 13

NEW



Server-side rendering

Zero-config development

Integration with AWS services

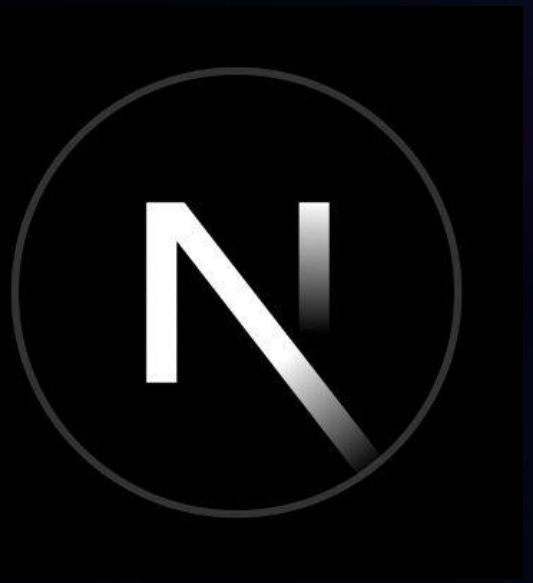
Fully managed infrastructure

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Amplify Hosting for Next.js

FULLY MANAGED HOSTING FOR SERVER SIDE RENDERED APPS BUILT WITH NEXT.JS 13

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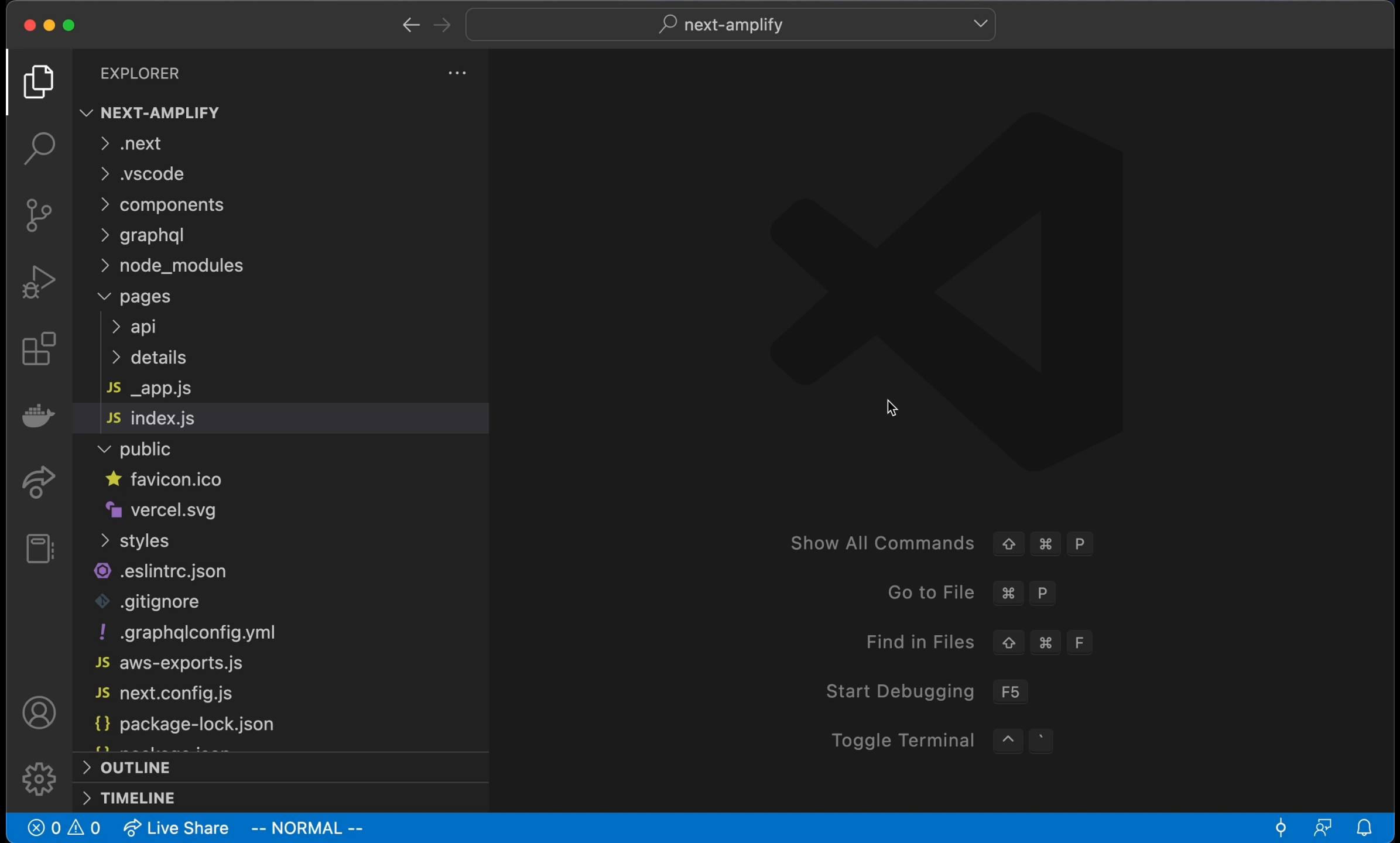
Server-side rendering

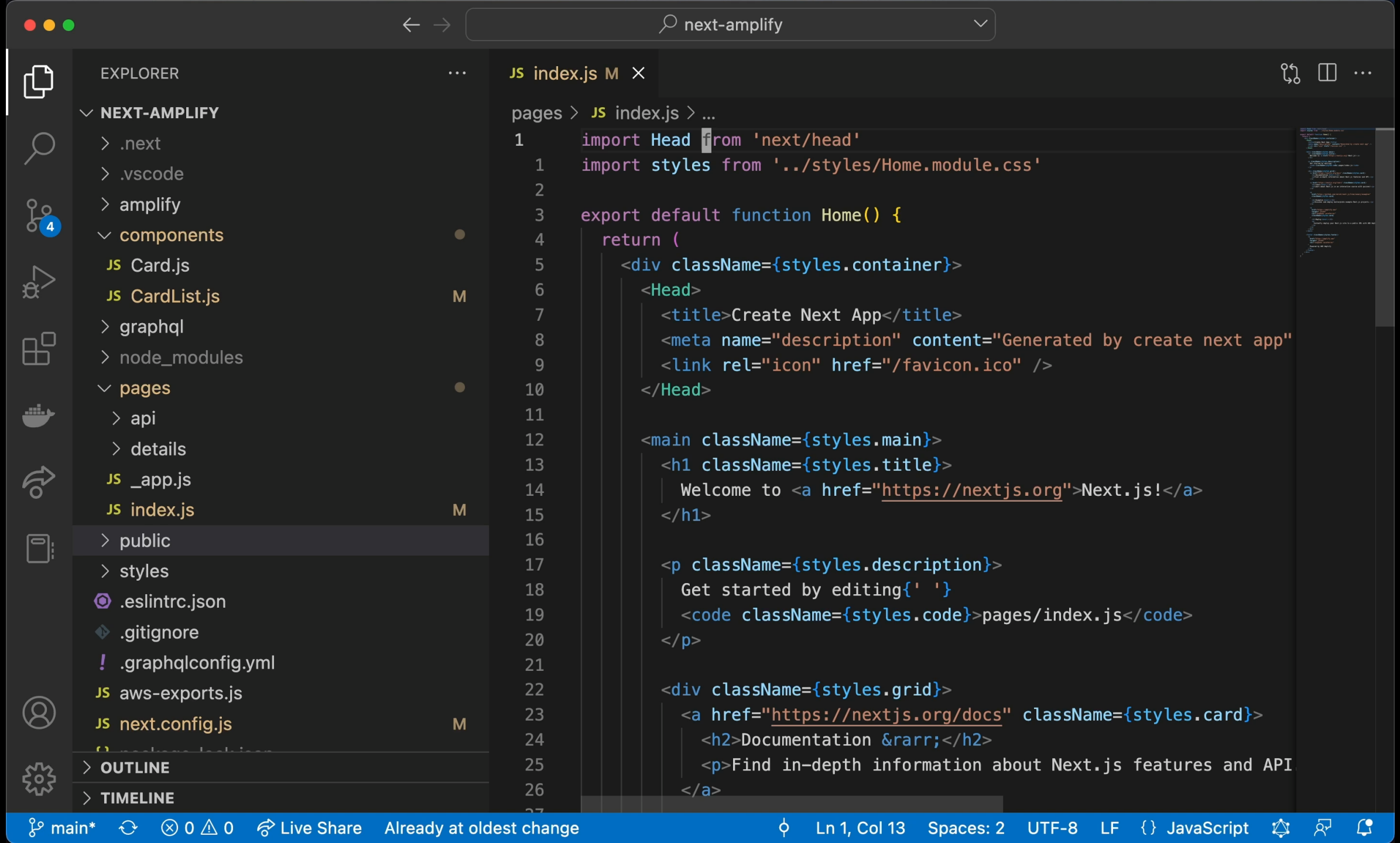
Zero-config development

Integration with AWS services

Fully managed infrastructure

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next-amplify
EXPLORER
NEXT-AMPLIFY
.next
.vscode
components
graphql
node_modules
pages
api
details
_app.js
index.js
public
favicon.ico
vercel.svg
styles
.eslintrc.json
.gitignore
.graphqlconfig.yml
aws-exports.js
next.config.js
package-lock.json
OUTLINE
TIMELINE
Show All Commands ⇧ ⌘ P
Go to File ⌘ P
Find in Files ⇧ ⌘ F
Start Debugging F5
Toggle Terminal ^ `
0 0
Live Share
-- NORMAL --


next-amplify
EXPLORER
NEXT-AMPLIFY
.next
.vscode
amplify
components
Card.js
CardList.js
M
graphql
node_modules
pages
api
details
_app.js
index.js
M
public
styles
.eslintrc.json
.gitignore
.graphqlconfig.yml
aws-exports.js
next.config.js
M
OUTLINE
TIMELINE
index.js M
pages > index.js > ...
import Head from 'next/head'
import styles from '../styles/Home.module.css'
export default function Home() {
return (

<Head>
<title>Create Next App</title>
<meta name="description" content="Generated by create next app"
<link rel="icon" href="/favicon.ico" />
</Head>
<main className={styles.main}>
<h1 className={styles.title}>
Welcome to Next.js!
</h1>

Get started by editing{' '}
<code className={styles.code}>pages/index.js</code>

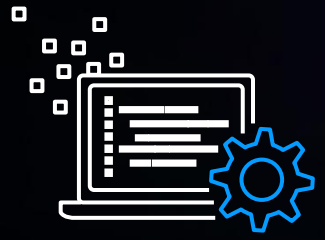
<h2>Documentation →</h2>
Find in-depth information about Next.js features and API

main*
0 0
Live Share
Already at oldest change
Ln 1, Col 13
Spaces: 2
UTF-8
LF
JavaScript

Amplify Studio form builder

BUILD, DESIGN, AND RENDER CLOUD-CONNECTED FORMS FOR ANY API WITH NEW REACT FORM BUILDER

NEW



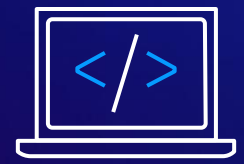
Forms for any API

Generate forms from an API definition or create new forms from scratch



Design visually

Save time by visually configuring common validation rules



Extend via code

Customize validation rules and form styling in code

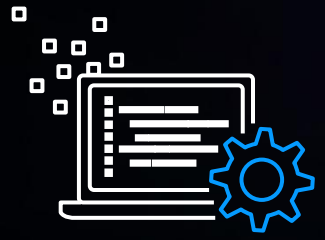
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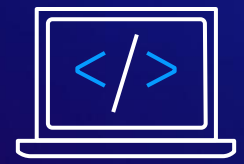
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Build React forms with Amplify

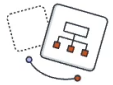
Quickly build React forms that are cloud-enabled, fully-customizable, and ready to deploy in your app.

Blank form | JSON object

Create form



Configure form inputs
Select form inputs to edit, remove, or add in to your existing form



Customize display
Click on any input to edit label, placeholder, or description text



Add validation
Add custom validation rules and error messages to any input

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Thank you!

Adam Seligman

Emily Freeman



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