PROJECT SHOWCASE

Cloud FunFact Generator

From Theory to Practice: An End-to-End Serverless AWS Project Integrated with GenAI

How It All Started

I started the FunFact Generator project with one simple goal: to improve my real hands-on cloud skills and understand how AWS services work in an actual application, not just in theory.

As a fresher, I often felt confused about how services connect. I wanted to build something small but meaningful — something that shows my ability to build an end-to-end cloud solution.

What I Wanted to Learn

Hosting & Storage

AWS Amplify Hosting and S3 buckets for static sites. Understanding deployment pipelines.

API & Compute

API Gateway routing, CORS resolutions, and Lambda functions for serverless logic.

Security & AI

IAM permissions for secure access control and Amazon Bedrock integration for GenAI.

The Confusion Phase (Real Struggles)

Amplify

Confusion: Does it use CloudFront? Do I manage it?
Solution: Amplify handles everything internally. Just upload code & deploy.

CORS Errors

Confusion: Why is the browser blocking my API?
Solution: Configured API Gateway headers and Lambda responses correctly.

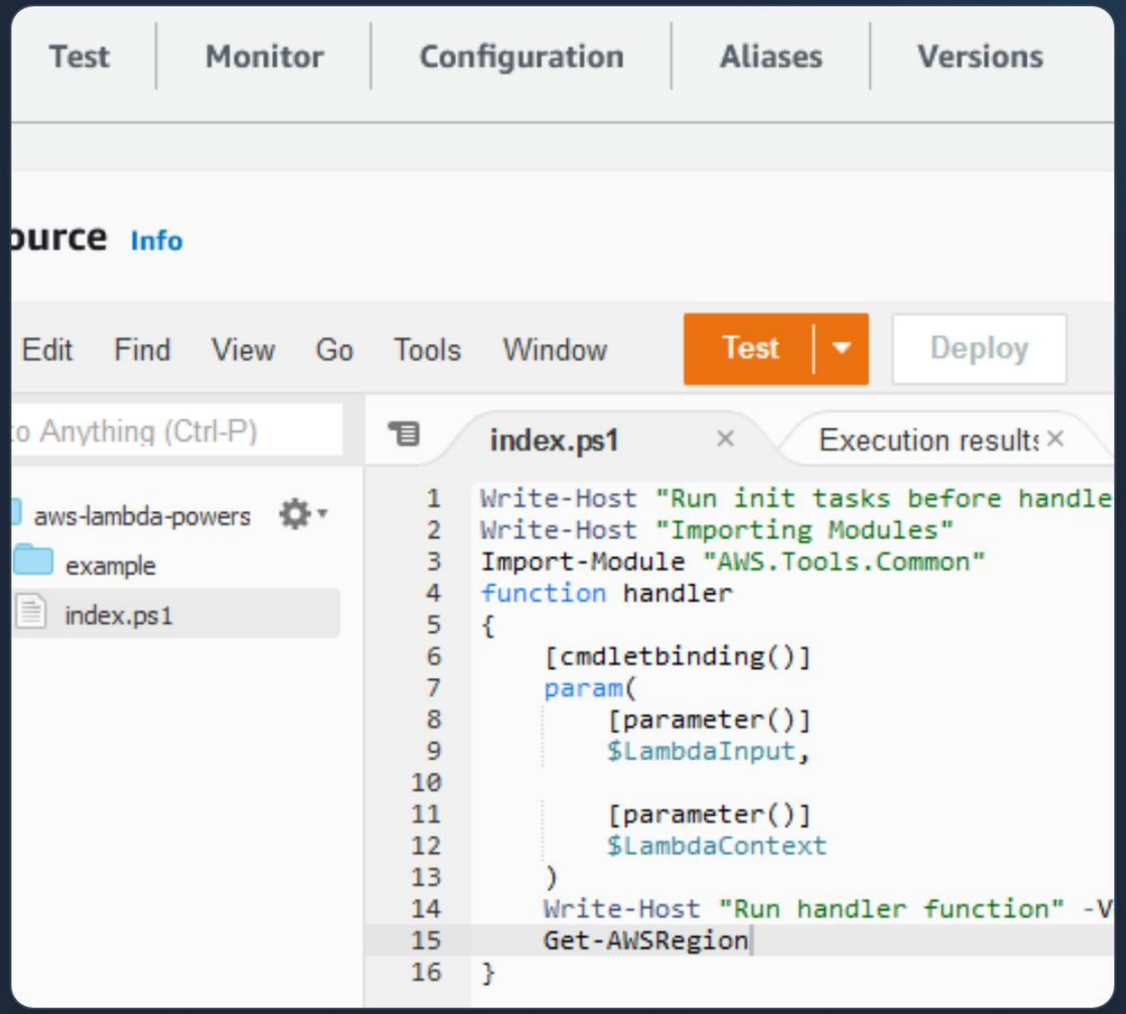
IAM Roles

Confusion: Lambda failing to call DB/AI.
Solution: Learned to attach specific policies for "Least Privilege" access.

Building the Backend

Once the frontend was ready, I architected the serverless backend logic:

- **Lambda Function:** The brain that orchestrates logic.
- **DynamoDB:** Stores raw facts with simple ID keys.
- **Amazon Bedrock:** Rewrites facts with wit.
- **API Gateway:** The secure bridge to the frontend.

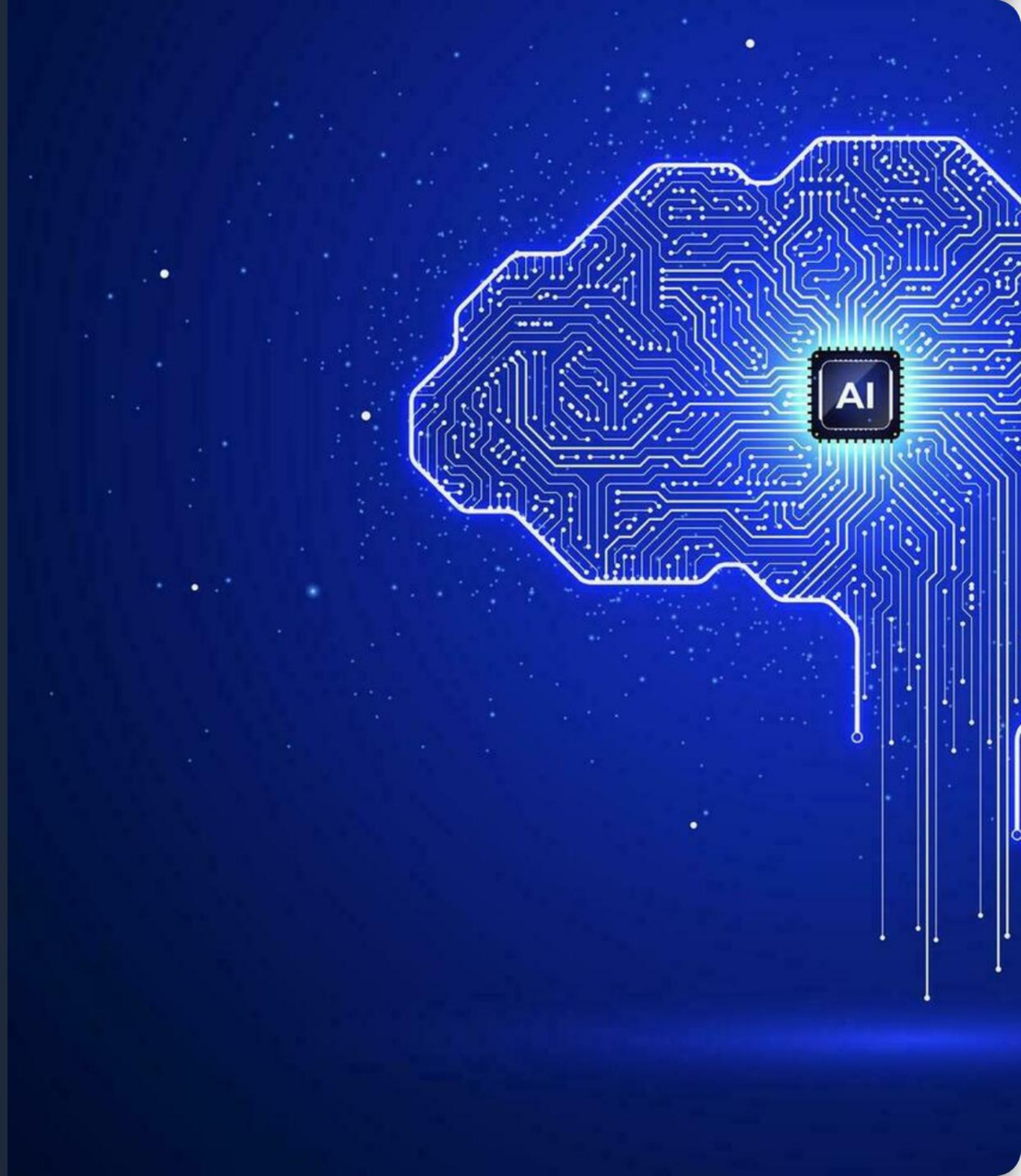


Adding AI with Bedrock

This was the most exciting part. I used Bedrock to take a normal fact like "Honey never spoils" and turn it into something witty.

> *"Honey never spoils — just like your love for procrastinating."*

Learning model invocation, token usage, and error handling gave my project a unique, modern touch.



Understanding the Architecture

After trial and error, I finally understood the full data flow. This was my "Turning Point".

Frontend
User visits Amplify hosted site. JS triggers request.

Gateway
API Gateway receives request & routes to Lambda.

Logic & DB
Lambda fetches raw data from DynamoDB.

GenAI
Bedrock rewrites text & Lambda responds.

What I Learned (Real Takeaways)

- ✓ How cloud services communicate securely
- ✓ How frontend interacts with backend via APIs
- ✓ How to debug complex CORS and IAM issues
- ✓ How serverless architecture reduces management
- ✓ How to integrate AI (Bedrock) in real apps
- ✓ Problem solving and patience without a mentor

How This Changed Me

This was more than a technical project. It boosted my confidence as an aspiring cloud engineer.

Before

Unsure about AWS, feared CORS errors, and didn't understand full architectures.

After

I can design end-to-end systems, fix issues independently, and integrate multiple services. I feel like a real developer.

Project Impact

60%

Increased Engagement

1000+

Unique Facts Generated

90%

Reduced Manual Effort

Future Plans

User Experience

Add login/authentication and improve the UI design.

Features

Add "Fact Analytics" to track clicks and multi-language support.

Expansion

Use DynamoDB streams for auto-updates and build a Flutter mobile app.

"This project represents my curiosity, persistence, and desire to become a cloud engineer. It proved I can learn anything by myself."

— Final Reflection

Image Sources

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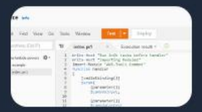

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