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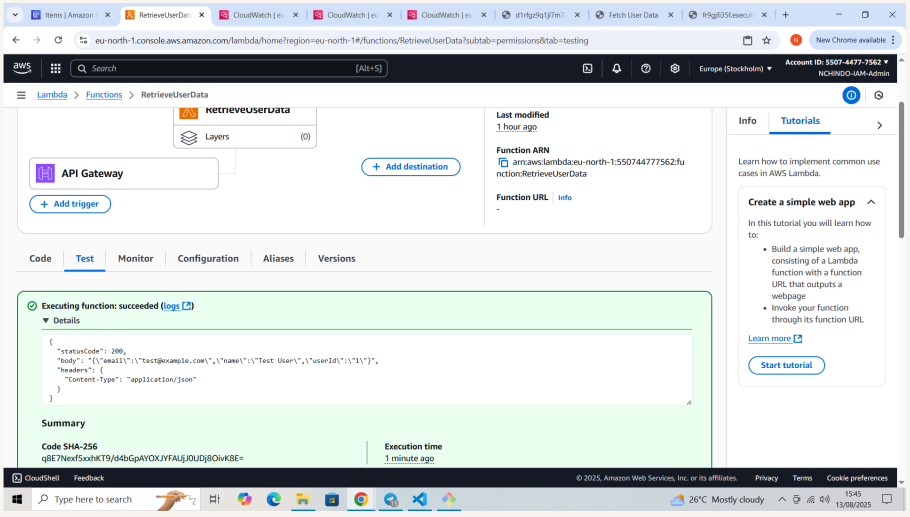
Fetch Data with AWS Lambda

Nchindo Boris



Introducing Today's Project!

In this project, I will; - Create a database table to store user data. - Create a serverless function to retrieve user data. - Write tests to validate if my function can fetch data from DynamoDB. - Secure my serverless function with proper permissions.

Tools and concepts

Services I used were AWS Lambda Amazon DynamoDB Amazon API Gateway Key concepts I learnt include Lambda functions to fetch data from DynamoDB

Project reflection

This project took me approximately 1 hour to complete. It was not a challenging project. It was most rewarding to succesfully fetch and display data from DynamoDB

I did this project today as it is one of the essential projects and goals in getting a cloud career

Nchindo Boris
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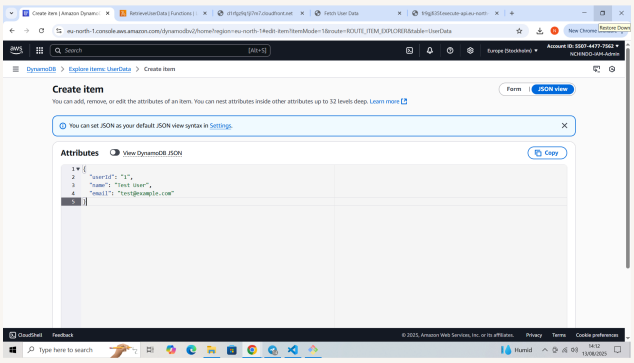
Project Setup

To set up my project, I created a database using DynamoDB. The partition key is userId which means all items for users should be stored in the same partition

In my DynamoDB table, I added attributes to an item using JSON code. DynamoDB is schemaless, which means you can add attributes as you need, and every item in your database can have a different set of attributes. This flexibility is one of the key benefits of using a NoSQL database like DynamoDB.



AWS Lambda

AWS Lambda is a service that lets you run code without needing to manage any computers/servers. I'm using Lambda in this project to Create and configure a new Lambda function with its settings. Proceed to add some code to retrieve user data.

AWS Lambda Function

My Lambda function has an execution role, which isis an IAM role for your Lambda function. It defines what the function is allowed to do, e.g. accessing other AWS services like DynamoDB. By default, the role grants basic permissions for writing logs to CloudWatch. That's why I could see an error message when you tested my Lambda function!

The code I added to my function will sets up a Lambda function that retrieves data from a DynamoDB table still to be created

The code uses AWS SDK, which is a set of tools that let developers build apps that interact with AWS. My code uses SDK to use pre-written functions for communicating with DynamoDB and getting data from a table. Without the SDK, you'd have to manually write the code to interact with AWS, which would be much more complex and error-prone.

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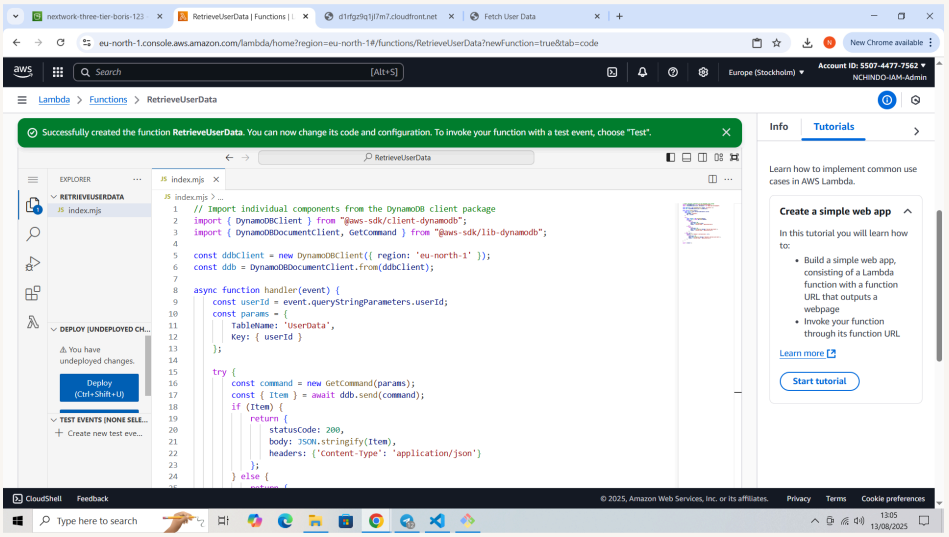
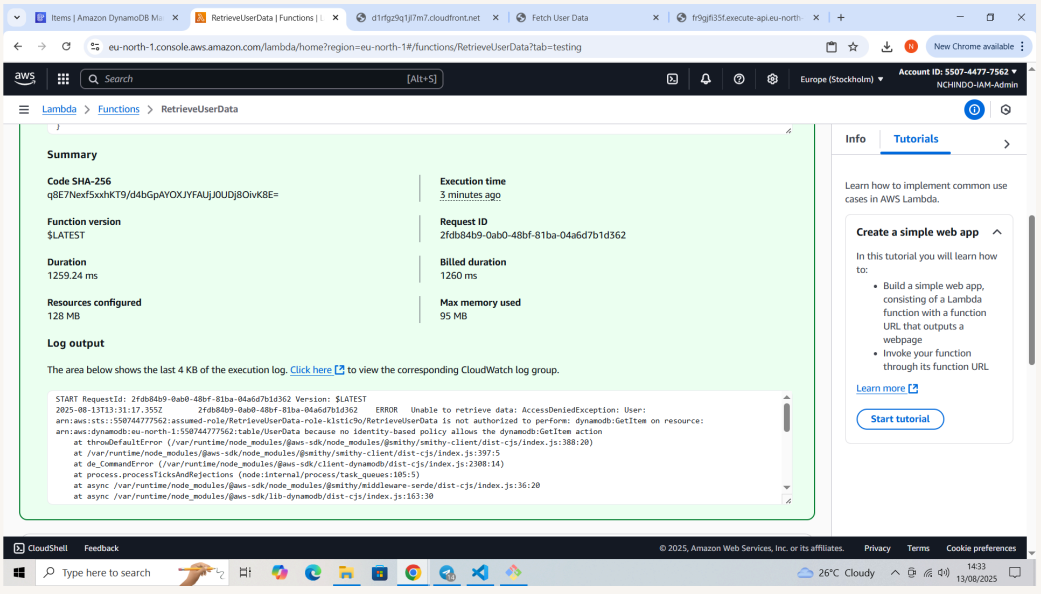


Function Testing

To test whether my Lambda function works, I ran a test code; { "userId": "1" } The test is written in JSON. If the test is successful, I'd see Executing function: succeeded

The test displayed a 'success' because the function itself could run (there are no errors with the code) but the function's response was actually that access is denied because DynamoDB is currently blocking off my Lambda function from reading the table's items!



Function Permissions

To resolve the AccessDenied error we can add a permission policy that give us the permissions we're lacking.

There were four DynamoDB permission policies I could choose from, but I didn't pick AWSLambdaDynamoDBExecutionRole and AWSLambdaInvocation-DynamoDB because they do not have GetItem permission.

I also didn't pick AmazonDynamoDBFullAccess because it lets you do everything with DynamoDB but the Lambda function only needs to read data, so I don't need this level of access as it can make my resources less secure.
AmazonDynamoDBReadOnlyAccess was the right choice because it has ReadOnlyAccess with GetItem permission

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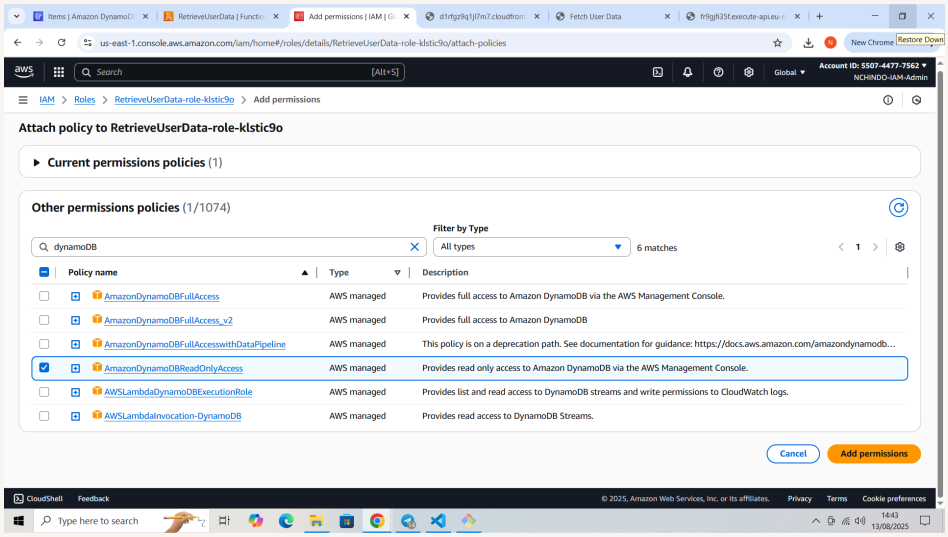
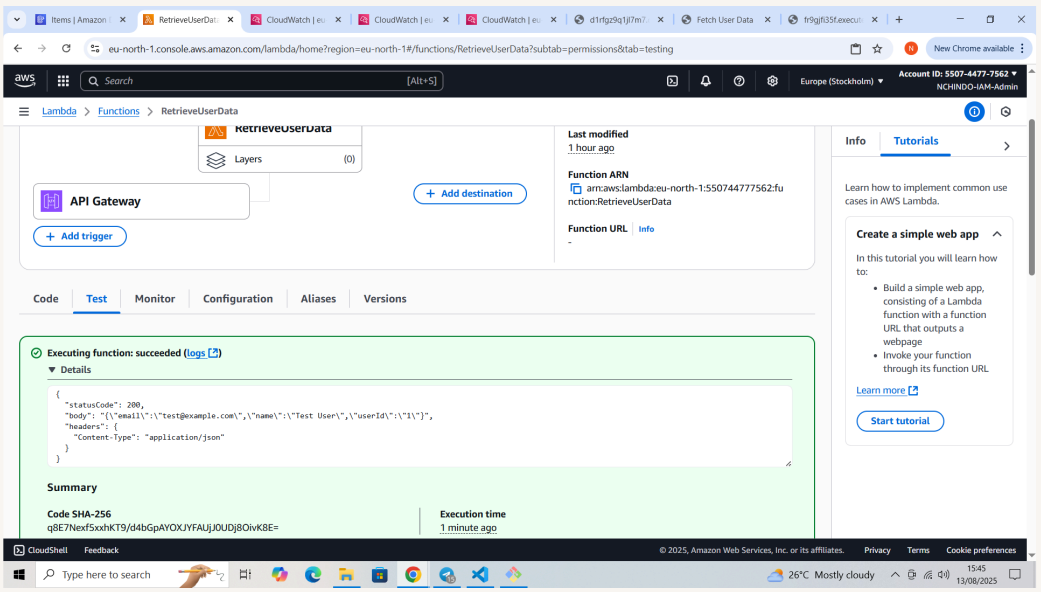


Final Testing and Reflection

To validate my new permission settings, I re-ran the test. The results were a successful test execution without the AccessDeniedException error. This is because the new permisssion settings allows the Lambda function to read DynamoDB table items.

Web apps are a popular use case of using Lambda and DynamoDB. For example, Lambda can help customers find products, get product information or see their order history by fetching data from DynamoDB



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