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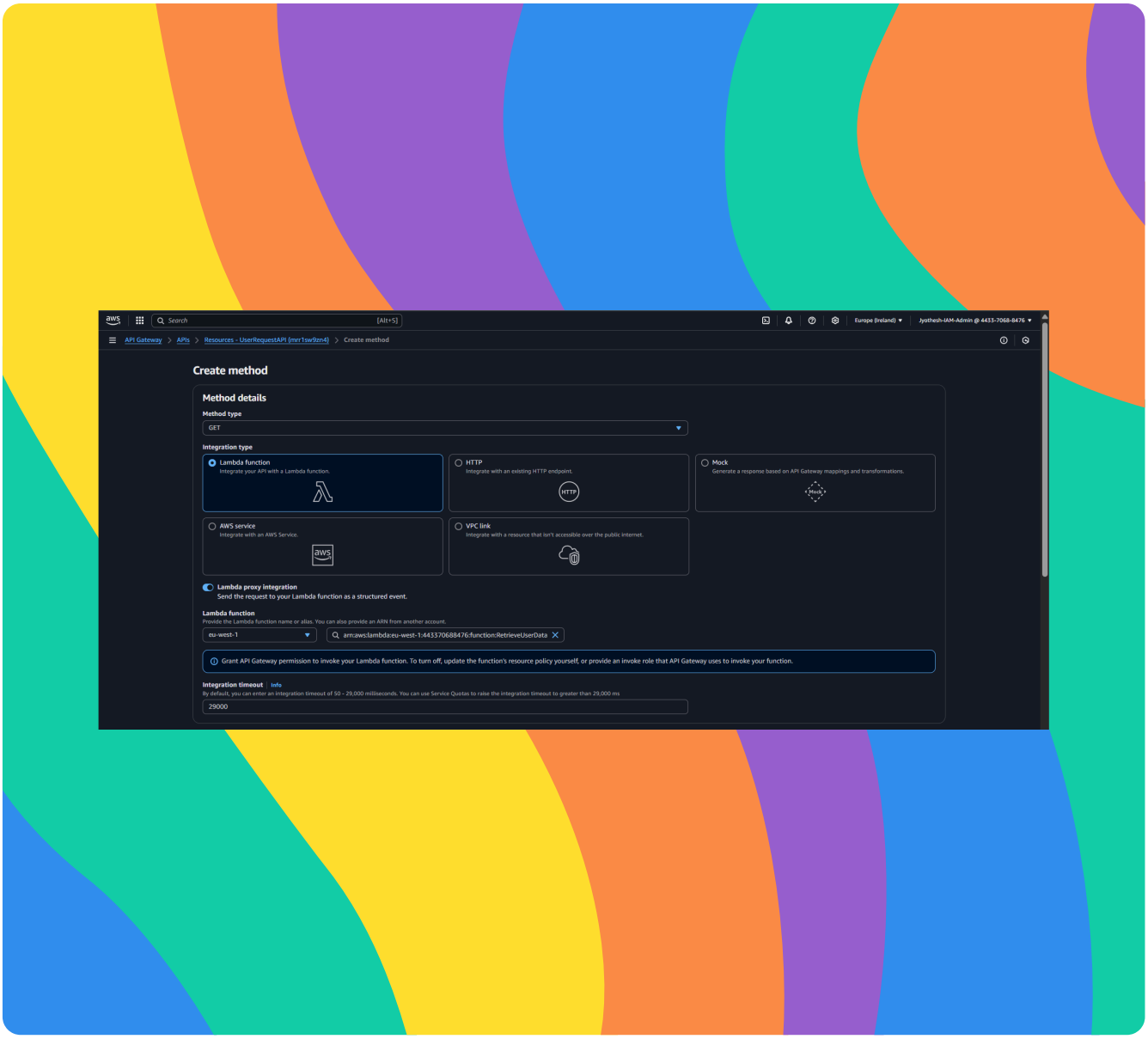
APIs with Lambda + API Gateway

jyothesh karnam



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Introducing Today's Project!

In this project, I will demonstrate how to set up an API using AWS Lambda and Amazon API Gateway. I'm doing this project to learn how API's work and also setup a snazzy logic tier in our three-tier architecture.

Tools and concepts

Services I used were Amazon API Gateway and AWS Lambda. Key concepts I learnt include Lambda functions, API resources and methods, Lambda proxy integration, writing API documentation. API stages, deploying Lambda functions, invole URLs for an API.

Project reflection

This project took me approximately 2 hours. The most challenging part was understanding and writing the Lambda function code. It was most rewarding to create the resources and methods. Super informative about the API structure.

I did this project to learn how to set up the Logic tier of a web app i.e. backend or the brains of my web app. This project definetly met my goals and i learnt lots about how an API works along.

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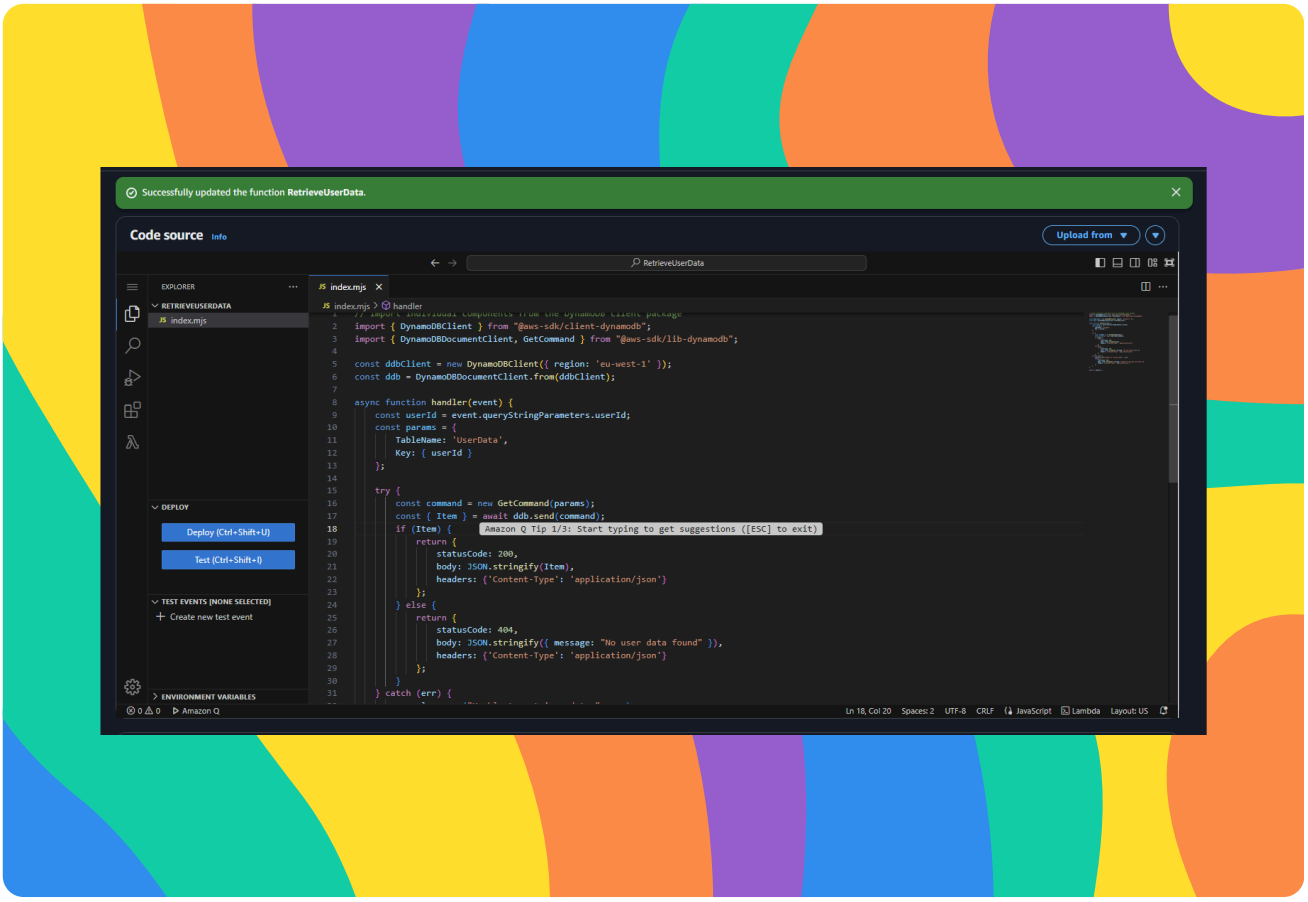
Lambda functions

AWS Lambda is a service that lets us run code without having to manage any servers ourselves. That's why it is called a serverless service, or a Function as a Service (FaaS). I'm using Lambda in this project to run code that helps us retrieve data.

The code i added to my function will grab a user ID from a triggered event which is submitting a userid through a form/field in a website and queries for a peice of data in DynamoDB that matches the userid. The code also takes of error handling.



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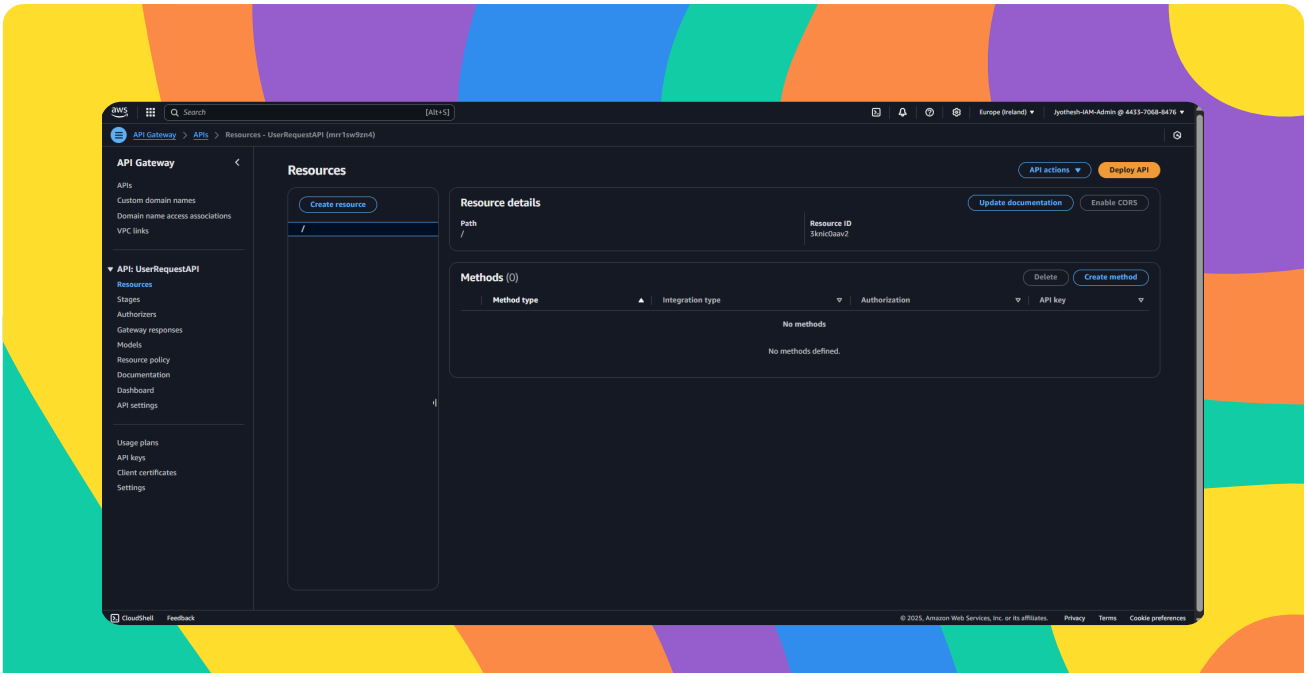
API Gateway

APIs are tools that enable communication between systems. There are different types of APIs, like REST APIs or HTTP or WebSocket API. My API is REST API, which means it uses HTTP methods and is compatable with most programming languages + Lambda.

Amazon API Gateway is an AWS service that helps developers with creating, maintaining and monitoring APIs. I am using API Gateway in this project to connect our user with the Lambda function which is the serverless backend for the webapp

When a user makes a request i.e. click on a "Get User Data" button. API Gateway's role is to receive the traffic, determine whether or not it's authorized, and pass it through to Lambda if it is. API Gateway is also a traffic manager for requests.



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API Resources and Methods

An API is made up of resources, which are different sectiond or different parts of the same API. Foor example, an API could have different sections for retrieving user data vs retrieving message data vs retrieving product data in the same app.

Each resource consists of methods, which are actions that can be performed on the resource. These methods define how a client can interact with the resource, such as retrieving data, creating new data, updating existing data, or deleting it. In the context of web APIs, common methods include GET, POST, PUT, DELETE, and PATCH. Each method has a specific role in the communication between the client and the server.

I created a GET methof that will connect the API gateway with our Lambda function. This means that when an end user makes a request with our API e.g. "api.com/users", this means that when an end user makes a request, my API knows to pass the event/information to our Lambda function if its a GET request.

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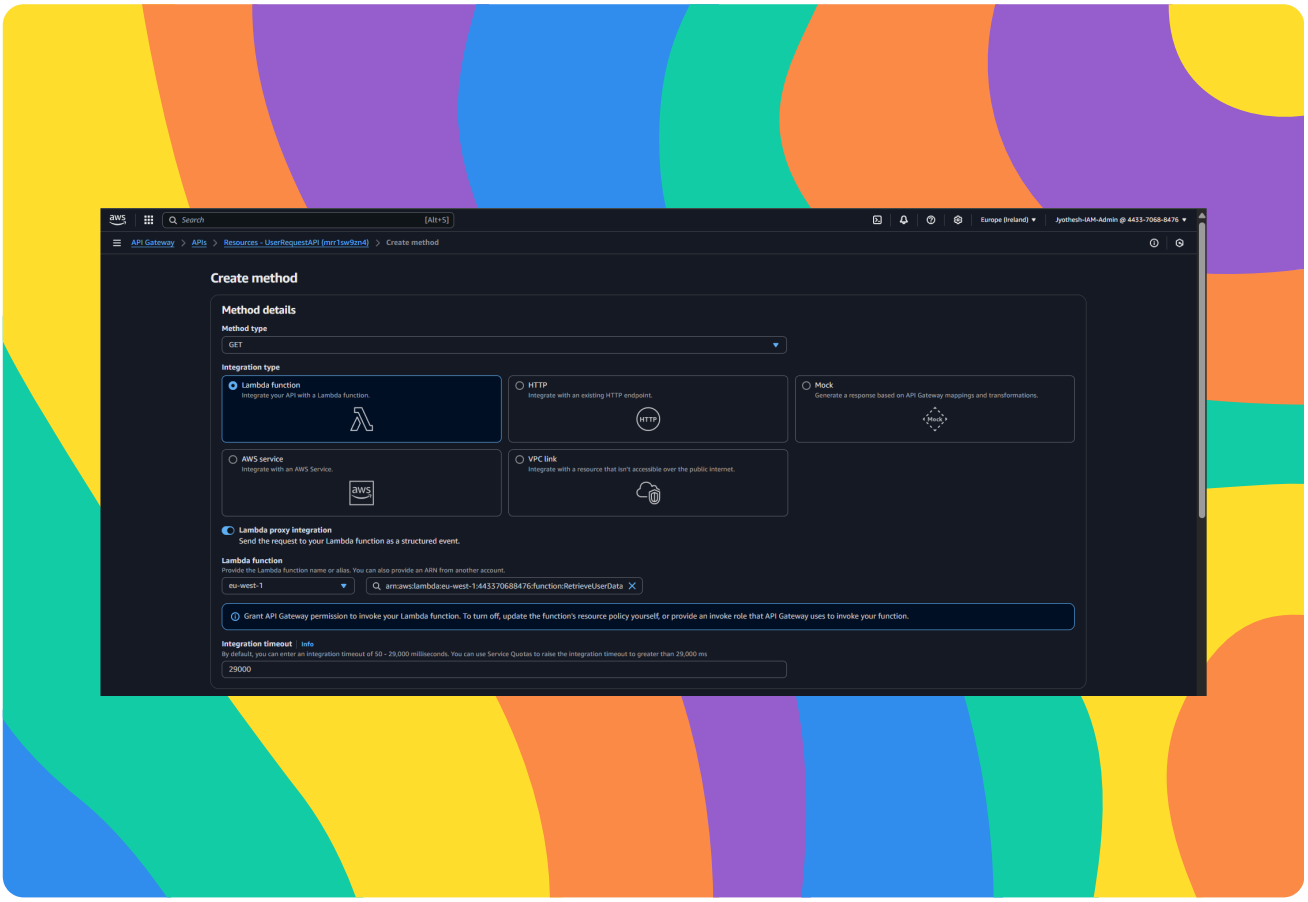

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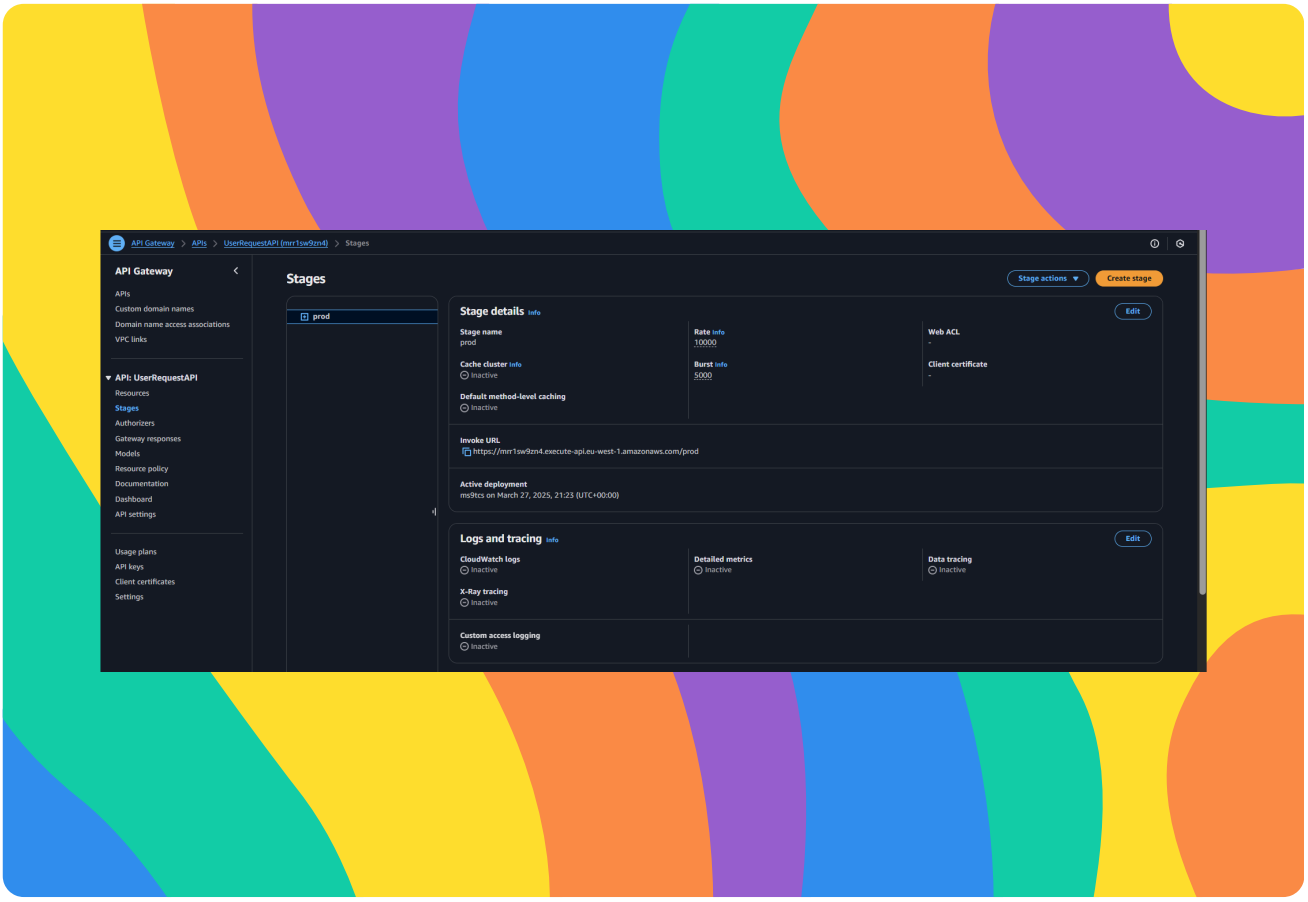
API Deployment

When you deploy an API, you deploy it to a specific stage. A stage is a snapshot of your API to manage different API versions. I deployed to the production stage, aka 'prod'. which there is live traffic and users that can access it.

To visit my API, i visited the prod API's invoke URL for the API that is in production. The API displayed an error because the API is connected to a Lambda function that doesn't have permisssions to DynamoDB (which might trigger authentication issue). Also DynamoDB does not exist currently.



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API Documentation

For my project's extension, I am writing API documentation because it is crucial for other developers to know how to use the API. Otherwise, if developers did'nt have instructions, my API might not get used at all. You can write the documentation in the API Gateway console.

Once I prepared my documentation, I can publish it to the prod stage. You have to publish your API to a specific stage because different stages have different versions of the same API, so different explanations/requirements would be handy.

My published and downloaded documentation showed me both my manually written work and some automatically generated documentation from API Gateway. We can upload this into tools like swagger or Redoc to generate beautiful web pages about my API

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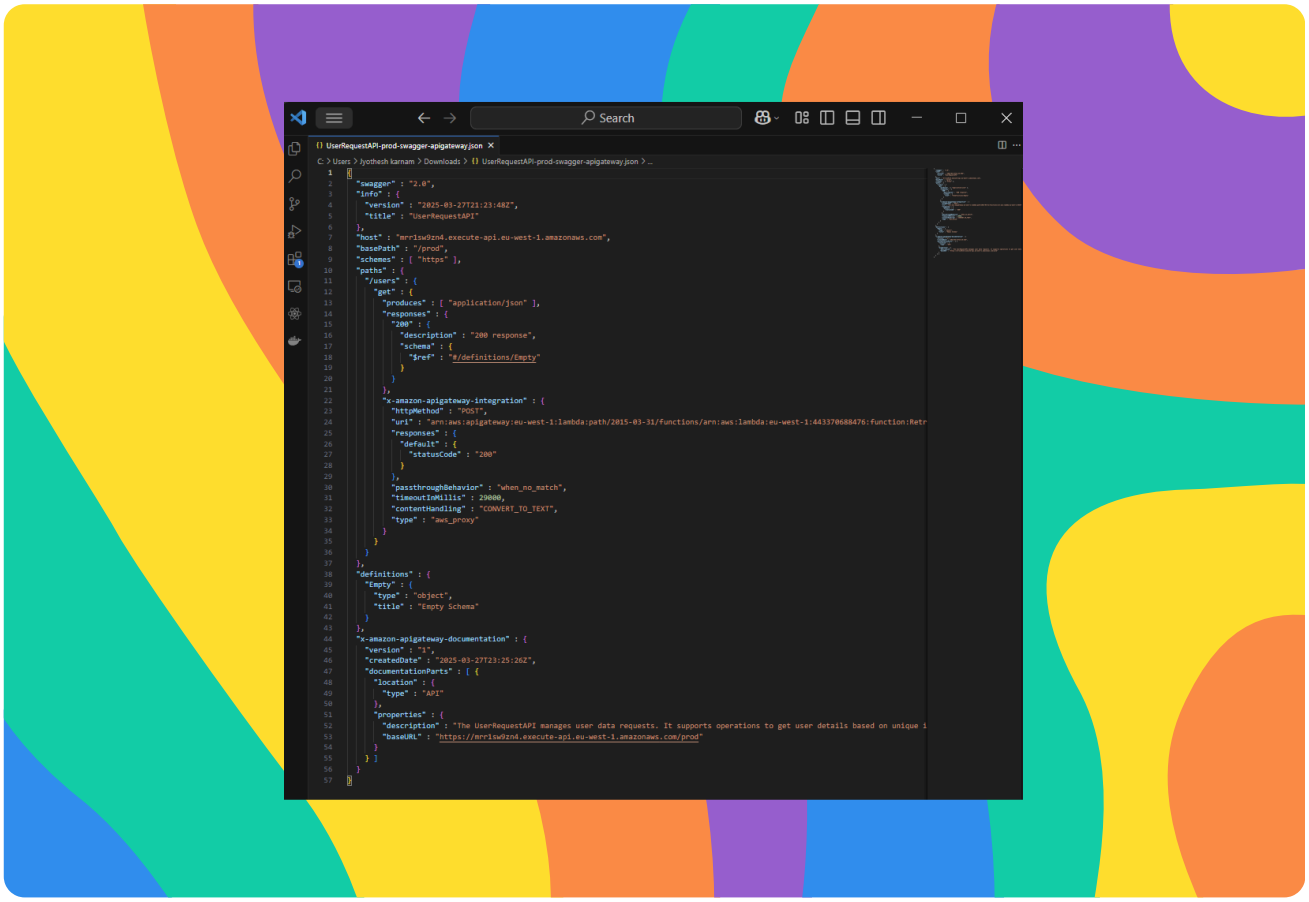

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