

OPT Volunteering Progress Report

Project Title: Serverless application that uses the Amazon Polly service to convert text to speech

Week: 01/28/2025 – 02/10/2025

Report Date: 02/11/2025

INTRODUCTION

Project Overview:

This section of the report involved Testing of the workflows and creation of The final Get Post Lambda function that provides a method for retrieving information about posts from the database.

Work Progress:

1. Tested the Lambda Functions Workflow

Triggered the New Post Lambda function manually, which:

- Stored data in DynamoDB.
- Sent a message to the SNS topic.
- Verified SNS functionality, which:
- Triggered the Convert To Audio Lambda function.
- Used Amazon Polly to convert text into an audio file.
- Stored the generated MP3 file in an S3 bucket.

Checked DynamoDB Entries:

- Verified that two test entries existed (indicating successful execution).

- Confirmed the second execution updated the post with the S3 audio file URL.

Monitored the Convert To Audio Lambda function execution:

- Used AWS Lambda monitoring to ensure successful function invocation.
- Checked CloudWatch logs in case of errors and verified that the correct S3 bucket name was used.

Validated S3 Storage:

- Navigated to the S3 bucket (audioposts-<number>).
- Located and downloaded the MP3 file.
- Played the file to confirm successful text-to-speech conversion using Polly's Joanna voice.

2. Implemented the Get Post Lambda Function

Created a Lambda function (PostReader_GetPost) to retrieve post details from DynamoDB.

Configured the function:

- Used Python 3.12 runtime.
- Assigned an existing IAM execution role (Lab-Lambda-Role).

Developed functionality:

- Fetched a post's details using its postId from DynamoDB.
- If postId is *, retrieved all posts (useful for small datasets).
- Returned stored metadata, including the S3 URL for the generated MP3 file.

Set up environment variables:

- Added DB_TABLE_NAME as an environment variable with the value posts.

Tested the function:

- Created and executed a test event (AllPosts) with {"postId": "*"}

- Verified that all posts, including their associated audio file links, were correctly retrieved from DynamoDB.

Completion Summary:

Successfully tested the end-to-end workflow for storing, processing, and retrieving text-to-speech converted posts. The New Post Lambda function, SNS integration, Convert To Audio function, and S3 storage were validated. The Get Post function was also implemented and tested, enabling efficient retrieval of stored posts.

Future Work:

The next steps in the project include:

- Expose the Lambda function as a RESTful web service
- Creation of a Serverless User Interface