OPT Volunteering Progress Report

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

Week: 01/14/2025 – 01/27/2025

Report Date: 01/28/2025

INTRODUCTION

Project Overview:

This section of the report involved creation and implementation of Lambda function that converts text that is stored in the DynamoDB table into an audio file.

Work Progress:

Functions of the Code

Retrieving Text: The function receives a post ID from an SNS event. It queries DynamoDB to get the text and voice type for audio conversion.

Dividing Large Text: Since Amazon Polly has a 3000-character limit, the function splits long text into blocks (~2500 characters) by searching for punctuation or spaces to maintain proper sentences.

Text-to-Speech Conversion: The synthesize_speech() function from Amazon Polly converts each text block to an audio stream.

Audio File Handling: Audio streams are combined and stored as a single MP3 file in Lambda's temporary directory (/tmp/).

Storing in S3: The MP3 file is uploaded to an S3 bucket, and public access permissions are set.

Updating DynamoDB: The DynamoDB entry is updated with the audio file URL and status.

Key Functions:
synthesize_speech(): Converts text to speech with a selected voice. Returns audio data as a stream.
upload_file(): Uploads the generated MP3 to an S3 bucket.
update_item(): Updates the DynamoDB record with audio URL and status.

By completing this task, The Lambda function does the following:

- Retrieves the ID of the DynamoDB item (post ID) which should be converted into an audio file from the input message (SNS event)
- Retrieves the item from DynamoDB
- Converts the text into an audio stream
- Places the audio (MP3) file into an S3 bucket
- Updates the DynamoDB table with a reference to the S3 bucket and the new status

Future Work:
The next steps in the project include:
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.