**Assignment2**

**What I do:**

JAVA programs leveraging:

* AWS S3 service as storage to store images user uploaded.
* AWS Lambda as serverless application function to response when photos are uploaded.
* AWS DynamoDB as database to collect data as key-pair value for later retrieve.
* JPEGMetadataReader as an extractor to extract data I needed from the image metadata.

**The process of my serverless application:**

1. PhotoUploadS3v2.java

This program is used for user to upload multiple photos. User can enter the file path directory as the program arguments. Then the program will upload all files under the directory to AWS S3.

**Input of the program:**

**A screenshot of a cell phone

Description automatically generated**

In this user case, I entered ‘/Users/lzhang13/Desktop/test’ as args and run the program.

(Here attached screenshot of all jpeg files under this directory)

A screenshot of a cell phone

Description automatically generated

**Output of the program:**

A screenshot of a computer

Description automatically generated

In the S3 console, we can see that, all images are uploaded to the bucket I specified in the program (cloud6225assignment2).

1. LambdaHandler.java

This is the lambda handler function. I write the handle function locally and upload code to a new bucket (new6225assign2) and then upload the handler function to Lambda AWS account.

I added a S3 trigger to this handler so that every time a S3 event (object created) happened, the handler function will get the metadata from the object and parse the metadata into the information we need, and save the info into the DynamoDB. Each object metadata will be parsed to extract ‘object name’, ‘date taken’, ‘device used’, ‘geographical information’, ‘image’ details and save into the database as one piece of item.

(screenshot of the bucket where I store my handler function)

A screenshot of a cell phone

Description automatically generated

(screenshot of the lambda function console where I set the S3 trigger)

A screenshot of a cell phone

Description automatically generated

**Output of the program:**

Since we have add the S3 trigger to the lambda function, so when I run the *PhotoUploadS3v2.java,* not only S3 console can get objects, but *,* in DynamoDB console, items are also saved into the table ‘img’.

A screenshot of a social media post

Description automatically generated

1. DisplayPhotoDetails.java

This program is used to display photo details for user. After the *PhotoUploadS3v2.java* file is built and run, all info is saved into database, so then user run this program, it will scan the table ‘img’ from DynamoDB and automatically generate a html file to display all items details.

**Output of the program:**

See attached *index.html* file.