From Pixels to Identifications: Guidelines

This document will provide a step-by-step guide to successfully completing this workshop.

Step1: Pre-requisites

Please make sure you have installed and configured the following prerequisites on your system path…

1. AWS Cli
2. Python3.7
3. Pip
4. AWS SDK for Python
5. Jupyter Notebook
6. Git

You can execute the following commands in your cmd/terminal/power-shell to check if they are installed…

```
aws --version
python --version
pip --version
pip show boto3
pip show notebook
git --version
```

Otherwise you can consult following links to install the pre-requisites…

1. AWS Cli : https://docs.aws.amazon.com/cli/latest/userguide/getting-started-install.html
2. Python3.7 or above : https://www.python.org/downloads/
3. Pip : https://pip.pypa.io/en/stable/installation/
4. AWS SDK for Python : https://aws.amazon.com/sdk-for-python/
5. Jupyter Notebook : https://jupyter.org/install
6. Git : https://git-scm.com/downloads
7. Anaconda3 (Optional) : https://www.anaconda.com/

Step2: Configure AWS CLI

Let's configure AWS Cli first. Open your cmd/terminal/power-shell and execute following command

```
aws configure
```

and provide the following inputs

AWS Access Key ID [None]:
AWS Secret Access Key [None]:
Default region name [None]: us-east-2
Default output format [None]: json

Step3: Create AWS Resources

- Create a collection in AWS Rekognition to store face-prints. Amazon Rekognition doesn't store copies of the analyzed images. Instead, it stores face feature vectors as the mathematic representation of a face within the collection.

  Before proceeding we need to create a ***unique name*** for our collection.
  face-recognition-<FullName>-<Date OF Birth or any Unique Identifier>

For example my name is shehrooz sattar and my date of birth is 01-02-1994 so it would become…
face-recognition-shehroozsattar-01021994

Replace the collection-id with your unique name and execute the command below.

```
aws rekognition create-collection --collection-id <face-recognition-shehroozsattar-01021994> --region us-east-2
```

- Next we'll create a table in DynamoDB to store reference to our face-print and the name of the person to whom the face-print belongs to. Replace the `table-name` with your unique name and execute the command below.

```
aws dynamodb create-table --table-name <face-recognition-shehroozsattar-01021994> --attribute-definitions AttributeName=RekognitionId, AttributeType=S --key-schema AttributeName=RekognitionId,KeyType=HASH --provisioned-throughput ReadCapacityUnits=1,WriteCapacityUnits=1 --region us-east-2
```

- Let's create an S3 bucket now which will store our actual images that we would be using for face recognition

  Replace the bucket name with your own unique name and execute the command below.

```
aws s3 mb s3://<face-recognition-shehroozsattar-01021994> --region us-east-2
```

- Let's Copy images to our Newly Created S3 bucket

```
aws s3 ls --recursive s3://<face-recognition-shehroozsattar-01021994> --summarize

aws s3 sync s3://face-recognition-all-images s3://<face-recognition-shehroozsattar-01021994>

aws s3 ls --recursive s3://<face-recognition-shehroozsattar-01021994> --summarize
```

- Let's check the data in our rekognition collection and DynamoDB table. It should be empty.

```
aws rekognition list-faces --collection-id "face-recognition-shehroozsattar-01021994"
aws dynamodb scan --table-name face-recognition-shehroozsattar-01021994
```

Step4: Let's Code

Let’s Download the Code Repository from the github first

```
git clone https://github.com/shehrooz-10p/faceRecognition.git
```

Open terminal/power-shell/cmd as administrator or root user then go to the downloaded code repo and open Jupyter Notebook.

```
jupyter notebook
```

Select and Open “face-recognition.ipynb“ notebook. It’ll open in your browser.

Step5: Update the Variable

Before getting started with the execution update the following variable to the resources that you have created.

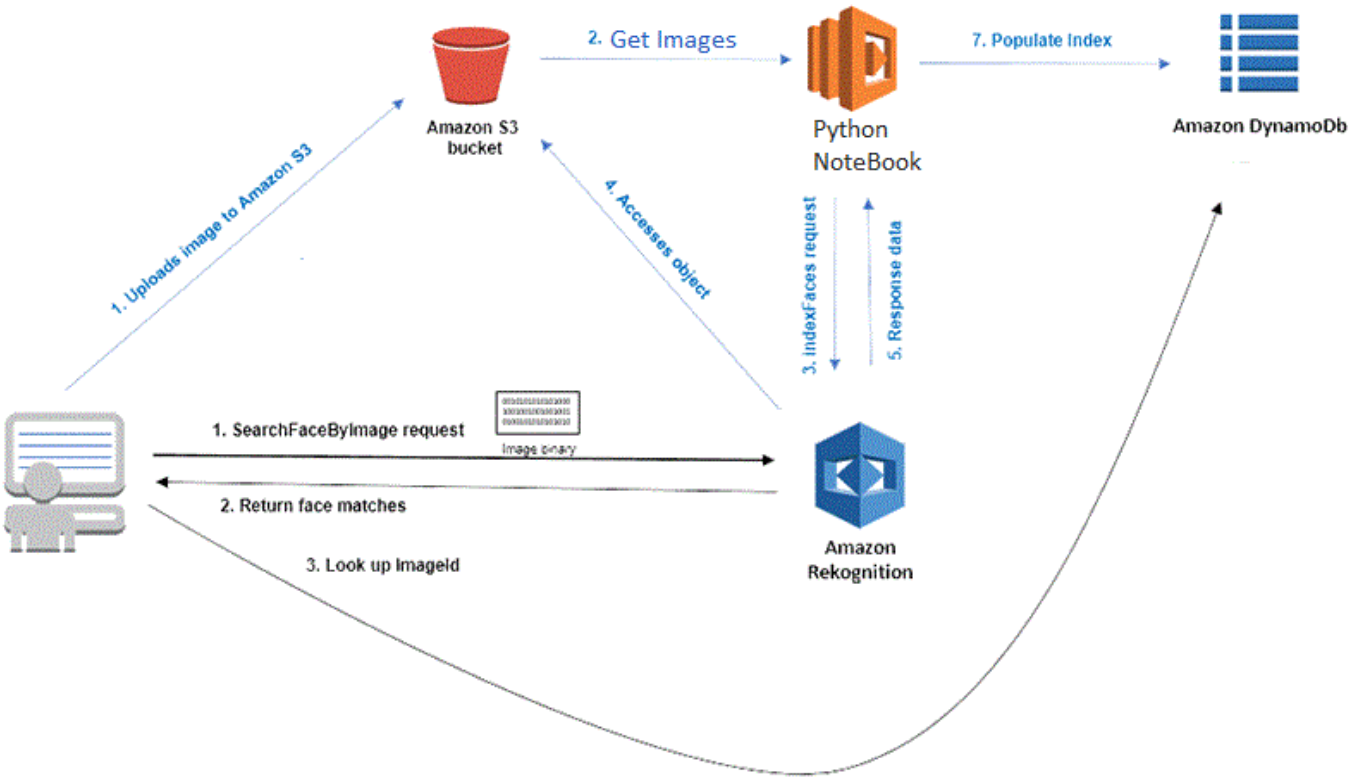
```
bucket = '<face-recognition-shehroozsattar-01021994>'
tableName = '<face-recognition-shehroozsattar-01021994>'
collectionName = '<face-recognition-shehroozsattar-01021994>'
```

Let’s get started with the execution.

Step6: Check Data in AWS resources

```
aws rekognition list-faces --collection-id "<face-recognition-
shehroozsattar-01021994>"
aws dynamodb scan --table-name <face-recognition-shehroozsattar-
01021994>
```

Solution Architecture


2. Get Images
7. Populate Index
Amazon S3 bucket
Python NoteBook
Amazon DynamoDb
1. Uploads image to Amazon S3
4. Accesses object
3. IndexFaces request
5. Response data
1. SearchFaceByImage request
Image binary
2. Return face matches
3. Look up ImageId
Amazon Rekognition