**PROGRAMMING ASSIGNMENT 1 CS643 852:   
Cloud Computing**

**Name: SHIVA PRAKASH PERUMAL  
NJIT ID: 31620225 UCID: sp3244**

**Email: sp3244@njit.edu**

***AWS Image and Text Recognition Pipeline***

**Introduction:**

This README provides comprehensive instructions for setting up an AWS environment and launching a pipeline that runs concurrently on two different EC2 instances to accomplish image and text recognition. The Amazon Web Services (AWS) suite, which includes S3, SQS, and Rekognition, is utilized by this pipeline.

**Setting up 2 EC2 instance to work parallelly:**

1. Click “Launch instance.”
2. Enter the name of the EC2 instance you want to create.
3. Under “AMI,” select “Amazon Linux 2023 AMI” and choose the “t2.micro” instance type.

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1. Select vockey in key pair

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1. Under Network Settings, select Create security group and check the below settings.
   1. Allow SSH traffic from
   2. And instead of **Anywhere**, select **My IP** to only send traffic from your IP address.

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Follow the Above steps to create another EC2 instance. My instances are named **EC2\_C** and **EC2\_T** and looks like this:

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**Add IAM roles to the created instances:**

1. Once you create your instances, head over to EC2 instances to see your instances. If your instances aren't running select an instance, click on **Instance state** dropdown and **Start instance**.
2. Once instances are running, select an instance (one-by-one) head over to Actions > Security > Modify IAM role.
3. From the dropdown select the **LabInstanceProfile**

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**Configuring SQS:**  
1. Use the AWS Management Console to access the SQS Service.  
2. Form a New Queue. Select a FIFO queue.

3. Configure the Queue:

1. Enter a unique name ending with “.fifo”
2. Enable Content-Based Deduplication and High Throughput

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Then click create queue.

**Working on the Java programs for car recognition and Text recognition**

1. Build both the java projects. And, Generating Executable JAR Files**.**

**Add SSH access for you PC:**

1. Download PEM file
2. Open terminal in the location of the Pem file and run

chmod 400 labsuser.pem

ssh -i <filename>.pem ec2-user@<public-ip>

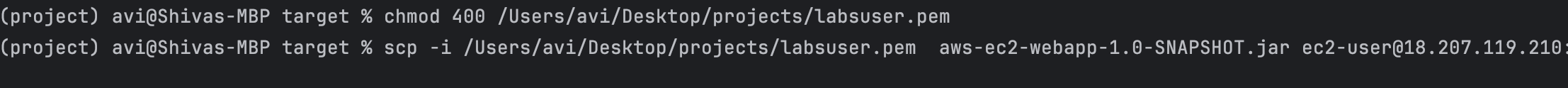
1. Type yes and Enter

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Now we are connected to the EC2 instance

1. Now use the scp command to upload the java programs to the EC2 instance



**Run the programs on respective EC2 instance:**

Once the jar files are uploaded to the EC2 instance

1. Run ls to check for the jar file.
2. Run the JAR File.

**Syntax : java -jar your-jar-file.jar**

**Output for EC2\_C**

here we detect images with Car in them. Below is the output of the detection and the messages sent via sqs queue

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There are 7 messages in the system at the moment. 6 of these messages are related to photographs that include cars, and the last message indicates the end of the image index that has been posted to SQS with a value of -1.

**Output for EC2\_T**

Here, we print the car label and the text detected on the images and write them to a out.txt file

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Above is the final required output.