

Please Follow the Steps below to the run the code.

EC2 Setup [Perform for EC2_A and EC2_B]

Click on "Services" -> "EC2"

Click on "Instances" in the drop down "Instances" Section

Click on "Launch Instances" -> "Launch Instances"

Select the **"Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type - ami-0cff7528ff583bf9a (64-bit x86) / ami-00bf5f1c358708486 (64-bit Arm)"**

Select the "t2.micro type (Free tier eligible)"

Click "Next: Configure Instance Details"

Ensure "Number of instances" is "1"

Click "Next: Add Storage"

Click "Next: Add Tags"

Click "Next: Configure Security Group"

Click "Add Rule" to include the following and it will autofill:

SSH, HTTP, HTTPS

Under 'Source' drop down for each rule, select 'My IP'

Click "Review and Launch"

Click on "Launch" after reviewing your information

On the dialog that pops up, select "Create a new key pair" in the drop down

Name it "EC2_A_CS643" and "EC2_B_CS643" for 2nd EC2

Hit "Download key pair."

Note: Use the same keypair for 2nd EC2 aka EC2_B. Do not create a new one

Hit "Launch Instances"

Hit "View Instances"

Run the following command to set the correct permissions for the .pem file: (I used Windows Subsystem Linux for this)

```
$ chmod 400 EC2_A_CS643.pem
```

I used Putty to Connect to instance. [Refer this](#) if you do not know how to connect using PUTT

Install Java on Amazon Linux

- Run below commands to **install Java 11 on Amazon Linux**:

```
sudo amazon-linux-extras install java-openjdk11
```

- Run below commands to **install Java 8 on Amazon Linux**:

```
sudo yum install java-1.8.0-openjdk
```

Check Active Java Version

After successfully installing Java on Amazon Linux using the above steps, Let's verify the installed version using the following command.

```
$ java -version
```

```
openjdk version "1.8.0_222"
```

```
OpenJDK Runtime Environment (build 1.8.0_222-8u222-b10-1ubuntu1~18.04.1-b10)
```

```
OpenJDK 64-Bit Server VM (build 25.222-b10, mixed mode)
```

Switch Java Version

Use alternatives command-line utility to switch active Java version on your Amazon Linux system. Run below command from the command line and select the appropriate Java version to make it default.

```
alternatives --config java
```

Note: *You will need to complete this step on BOTH EC2's.*

Credentials Setup [Access and Secret Keys]

Click on "Services" -> "IAM"

On the left tab side, under "Access Management" -> "Users"

Click on user created (e.g., Chetan)

Open the "Security credentials" tab, and then choose "Create access key"

To see the new access key, choose "Show". Your credentials resemble the following:

Access key ID: AKIAQB2SHQLRR6NF57M5

Secret access key: 73IWqwYi2nyPG0f16AnCjDARbBPK3zS6Uuts+p8i

To download the key pair, choose 'Download .csv' file.

Store the .csv file with keys in a secure location.

Connect into both EC2's that you created, and on each one, create a file:

```
$mkdir .aws
```

```
$touch .aws/credentials
```

```
$vi .aws/credentials
```

Paste those copied credentials into the credential file on each EC2 as follows:

```
[default]
```

```
aws_access_key_id= TH15I5NOTTH3ACCE55K3Y
```

```
aws_secret_access_key= TH15I5NOTTH3S3CR3TACCE55K3Y
```

Note: You will need to re-copy and paste these credentials onto both EC2's whenever they change (after your session ends).

Git Installation

[Refer this](#) to install git in your EC's.

SSH into EC2-B and run the following command:

```
$ java -jar **locate the jar file for text recognition
```

**This will begin running the code for text recognition. However, since it depends on items in the SQS queue to process, it will simply wait until we begin running the car recognition code. To begin running the car recognition code.

SSH into EC2-A and run the following command:

```
$ java -jar **locate the jar file for car recognition
```

Now, both programs will be running simultaneously. The program on EC2-A is processing all images in the S3 bucket (njit-cs-643) and sending the indexes of images that include cars to EC2-B through SQS, which in turn is processing these images to find out which ones include text as well.