Submitted files:-

CarImageDetector.java :- Logic to detect car in an image with confidence > 90.

CarRecognitionEngine :- The main class for controlling logic to be run on ec2 – 1.

S3Manager :- Performs S3 related operations.

SqsHandler :- Handles all sqs related operations including creation of queue if not present.

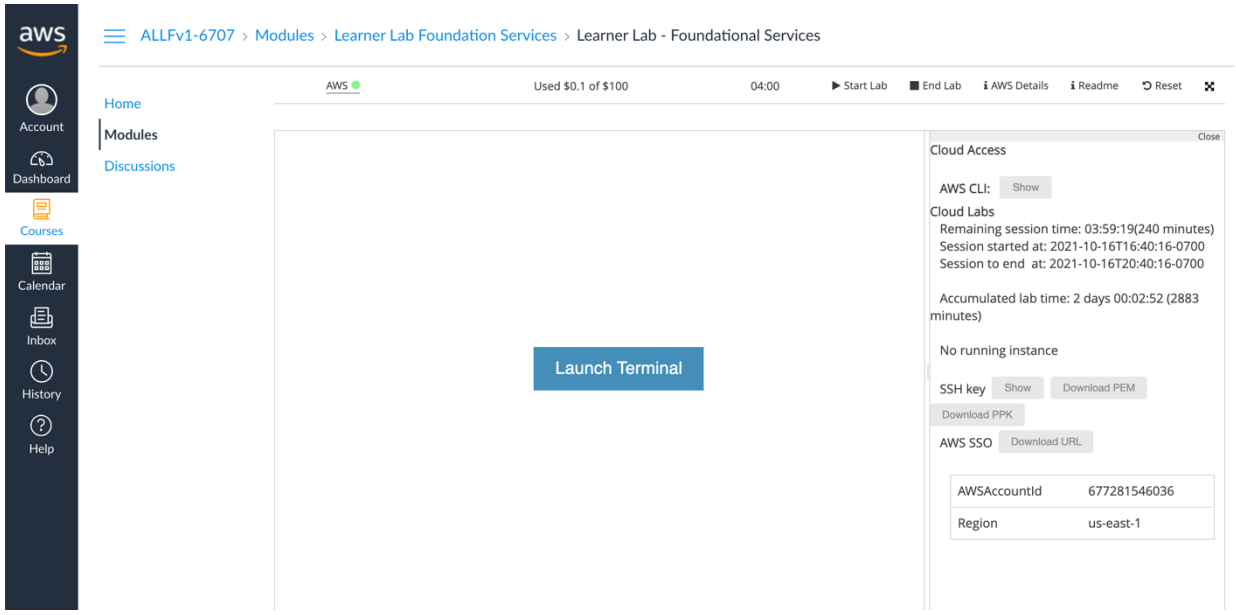
TextDetector :- Extracts text from an image using Rekognition.

TextRecognitionEngine :- Main class to control logic to be run on ec2 -2 including writing to a output file.

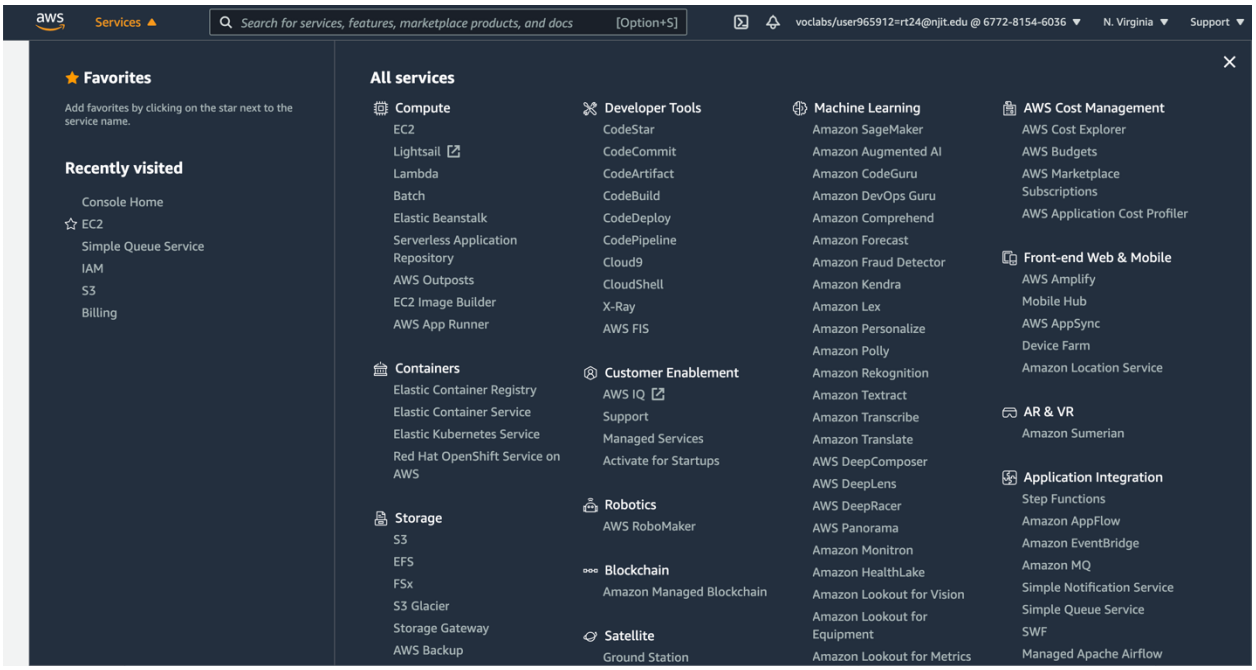
Readme file :- Contains instructions to setup AWS services and steps to execute the application.

Steps to create instances:-

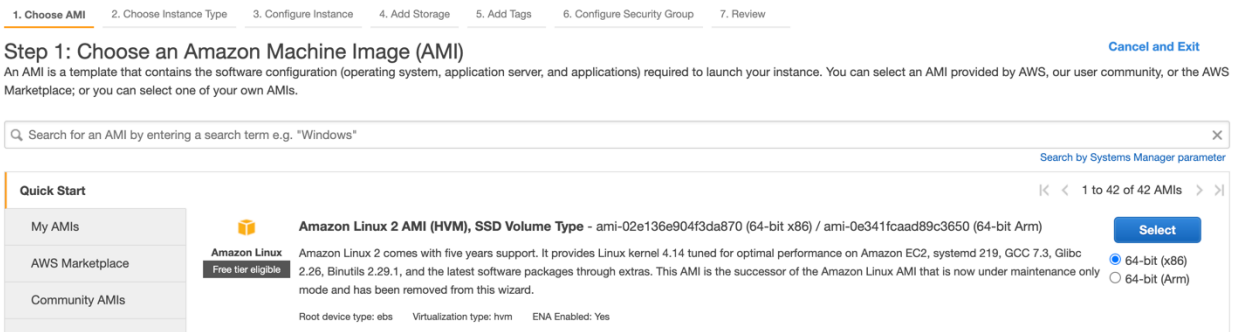
1. Start the lab session in the aws academy. Click on aws.



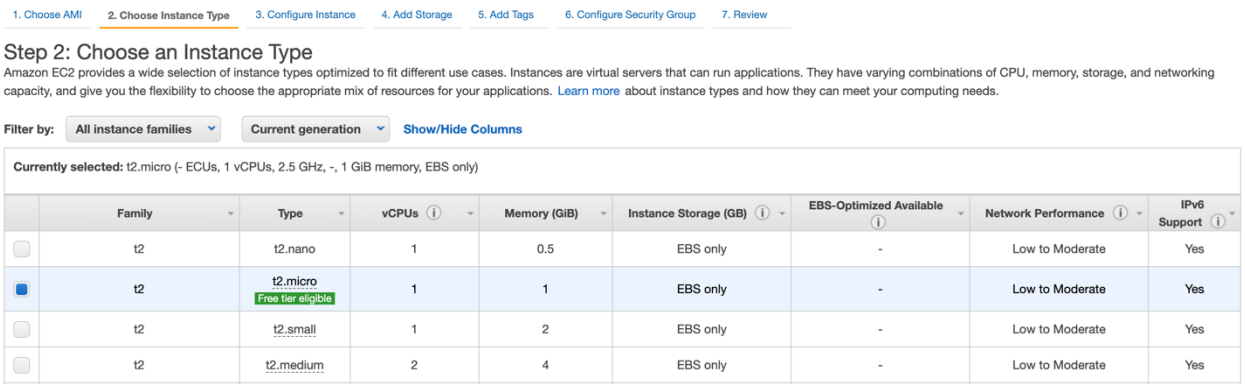
2. Go to the aws console and from the services drop down select ec2 and click launch



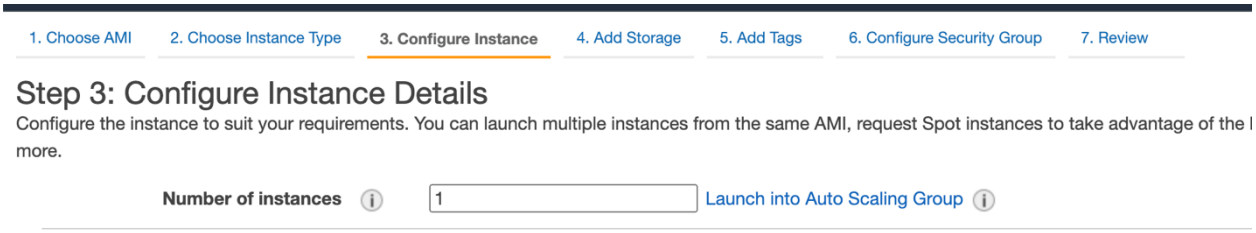
3. From the AMI machine choose the Amazon Linux 2 AMI.



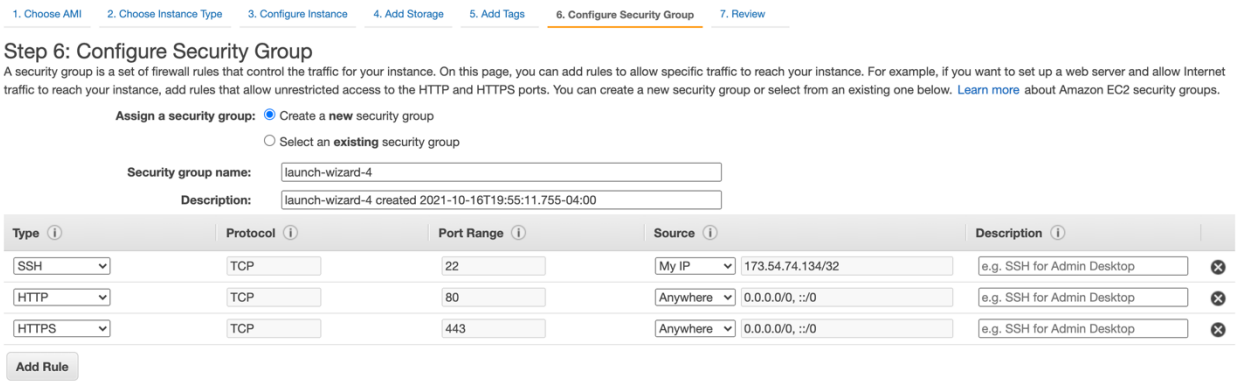
4. Choose t2.micro(free tier) as instance type.



5. Configure Instances Details by selecting number of instances as 2.

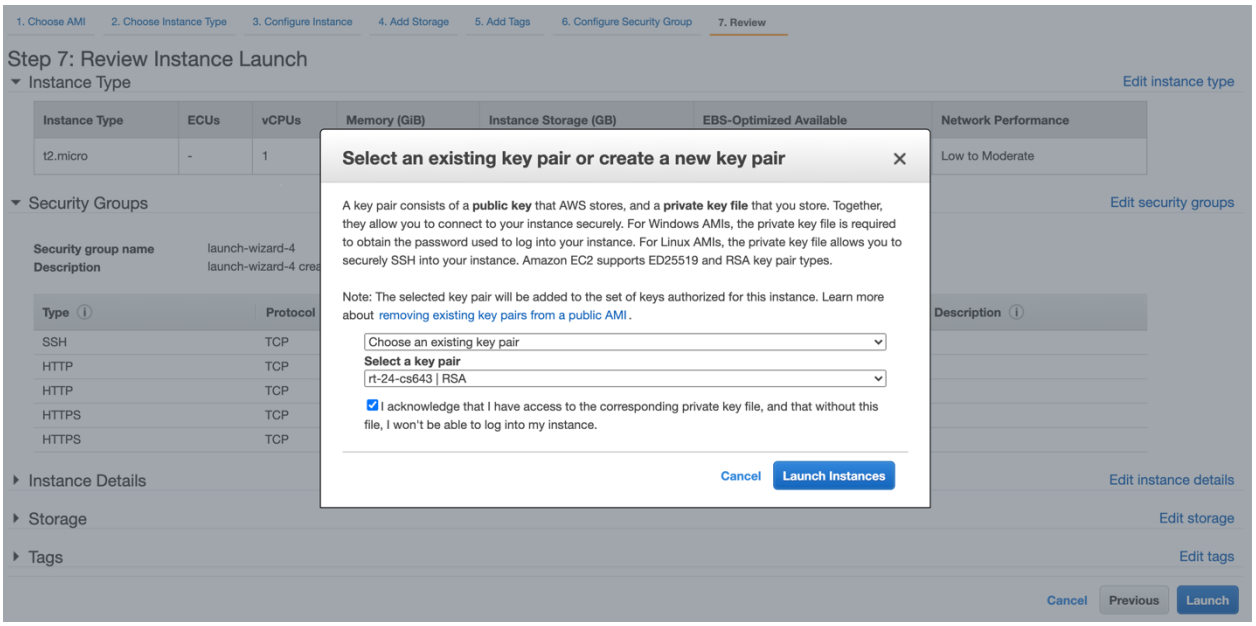


6. Configure Security Groups: Create a new security group with three ports for SSH, HTTP and HTTPS with source as My IP. We initially set the HTTP and HTTPS to Anywhere so that we can install java onto the ec2 instances.



7. Review and Launch the instances.

8. Choose an existing key pair or create a new key pair and download the pem file. Change the permission of the pem file to 660.



9. Launch and view the instances. Rename the instances as ec2-1 and ec2-2 for easy reference.

Connecting to the aws machine:

1. Ssh to the aws machine with the following command.

ssh -i <path to the pem file> ec2-user@<ec2-1 instance public IPv4 DNS name>

Run the above command for both the instances in two different terminals with their respective IPv4 address.

2. Create a directory ".aws" in the home directory. Create a file named "credentials " in the .aws folder. In his file add the "aws_access_key_id", "aws_secret_access_key", "aws_session_token". This can be found from the lab session we started under the AWS CLI section.

3. Check if java is installed in the ec2 instnces with the command “java –version”. If not install java using the following command.

sudo amazon-linux-extras install java-openjdk11

4. Create a directory “cs643” in the home directory of both the instances.

5. Open a new tab in the terminal. Update the aws credentials file in your local machine too.

6. Copy the jar files to the ec2 instances using the following command.

a) scp -i “pem file location” “absolute path of cartextrekog-car-rekon.jar” ec2-user@”ec2-1 instance public IPv4 DNS name”:/home/ec2-user/cs643
b) scp -i “pem file location” “absolute path of cartextrekog-text-rekon.jar” ec2-user@”ec2-2 instance public IPv4 DNS name”:/home/ec2-user/cs643

7. Once the jar files are copied into their respective instances. Run the jar using the below command (move to the directory where jar is located).

a) For ec2-1 run “java -jar cartextrekog-car-rekon.jar”
b) For ec2-2 run “java -jar cartextrekog-text-rekon.jar

Output:

Below are snippets of the output generated.

```
/home/ec2-user/cs643
[ec2-user@ip-172-31-19-25 cs643]$ java -jar cartextrekog-car-rekon.jar
Car Detected in image: 1.jpg
Car Detected in image: 2.jpg
Car Detected in image: 4.jpg
Car Detected in image: 5.jpg
Car Detected in image: 6.jpg
Car Detected in image: 7.jpg
```

```
[ec2-user@ip-172-31-25-225 cs643]$ pwd
/home/ec2-user/cs643
[ec2-user@ip-172-31-25-225 cs643]$ java -jar cartextrekog-text-rekon.jar
[ec2-user@ip-172-31-25-225 cs643]$ ls
cartextrekog-text-rekon.jar  output1634510893670.txt
[ec2-user@ip-172-31-25-225 cs643]$ less output1634510893670.txt
[ec2-user@ip-172-31-25-225 cs643]$
[ec2-user@ip-172-31-25-225 cs643]$ cat output1634510893670.txt
Texts in file: 1.jpg are: S-BR8167
Texts in file: 4.jpg are: YHI9 OTZ
Texts in file: 7.jpg are: LP 610 LB
```