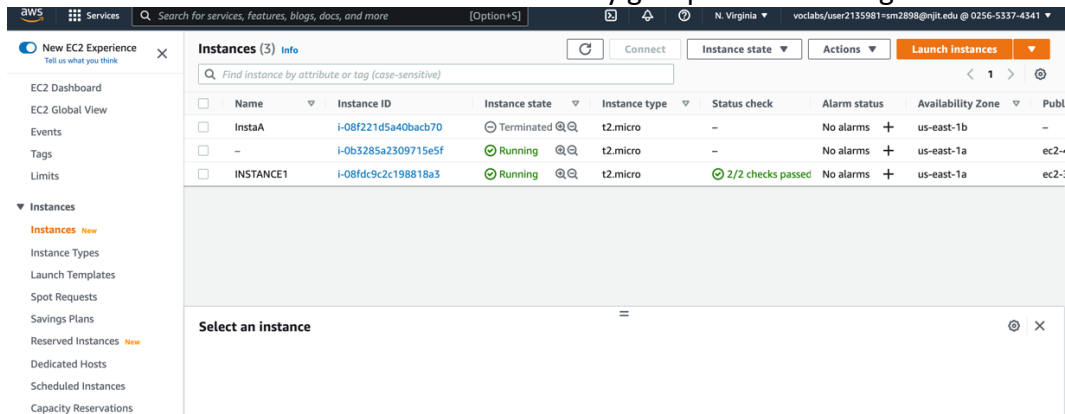


Programming Assignment 1

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Procedure:

1. Get the credential details from the AWS learners lab.
2. Create an AWS file in the local machine and add the AWS details provided in the learners lab.
3. Create an EC2 instance and even add a security group while creating the instance.



4. Download the putty and convert the key pair into a PPK file to use in the putty. The key pair is generated while creating an EC2 instance and is converted by puttygen.
5. Open putty and connect to the two EC2 instances separately by using WINSXP and using the same key pair while creating instances.
6. Install java to run our application on the instance.
7. Execute the jar files to run our file.

INSTANCE 1

1. We are creating Instance A to read images from an S3 bucket and perform object detection in the images.
2. First, we are creating an amazon client using AWS details.
3. Then we create a recognition client to access the objects from the bucket.
4. Then we create a connection with all credentials and region.
5. Then we create an Amazon SQS FIFO queue.
6. When a car is detected using Recognition, with confidence higher than 90%, the index of that image is stored in SQS
7. Then we push these objects that satisfied the condition into the queue
8. Screenshot of the jar file of instance1 using the command `java -jar <jarname>`.

```
ec2-user@ip-172-31-82-212:~
2022-10-13 21:51:10.077 INFO 3907 --- [main] org.cloudproj.app.App : No active profile set, falling back to 1 default profile: "default"
2022-10-13 21:51:11.574 INFO 3907 --- [main] o.s.cloud.context.scope.GenericScope : BeanFactory id=538675e2-9e50-355f-9acc-3230f5284134
2022-10-13 21:51:12.503 INFO 3907 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port(s): 8080 (http)
2022-10-13 21:51:12.520 INFO 3907 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2022-10-13 21:51:12.521 INFO 3907 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.63]
2022-10-13 21:51:12.674 INFO 3907 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2022-10-13 21:51:12.678 INFO 3907 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 2539 ms
2022-10-13 21:51:15.359 INFO 3907 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8080 (http) with context path ''
2022-10-13 21:51:15.385 INFO 3907 --- [main] org.cloudproj.app.App : Started App in 8.698 seconds (JVM running for 9.954)
Detected labels for: 1.jpg => Label: Car ,Confidence: 99.32135
Pushed to sqs.
2022-10-13 21:51:17.005 INFO 3907 --- [main] c.a.s.javamessaging.SQSMessageProducer : Message sent to SQS with SQS-assigned messageId: 26f4c61d-1720-4e0c-ba02-b6c549b4c4a0
JMS Message ID:26f4c61d-1720-4e0c-ba02-b6c549b4c4a0
Detected labels for: 2.jpg => Label: Car ,Confidence: 99.96136
Pushed to sqs.
2022-10-13 21:51:17.885 INFO 3907 --- [main] c.a.s.javamessaging.SQSMessageProducer : Message sent to SQS with SQS-assigned messageId: ceebe0eb-95f0-43b5-b869-6926c3b99f8c
JMS Message ID:ceebe0eb-95f0-43b5-b869-6926c3b99f8c
Detected labels for: 4.jpg => Label: Car ,Confidence: 99.969315
Pushed to sqs.
2022-10-13 21:51:18.715 INFO 3907 --- [main] c.a.s.javamessaging.SQSMessageProducer : Message sent to SQS with SQS-assigned messageId: dda3e3e4-2f79-4092-b958-8fe67b06430e
JMS Message ID:dda3e3e4-2f79-4092-b958-8fe67b06430e
Detected labels for: 5.jpg => Label: Car ,Confidence: 99.9363
Pushed to sqs.
2022-10-13 21:51:19.165 INFO 3907 --- [main] c.a.s.javamessaging.SQSMessageProducer : Message sent to SQS with SQS-assigned messageId: c8d2elf8-26d9-4a69-b621-d9adb1b4354
JMS Message ID:c8d2elf8-26d9-4a69-b621-d9adb1b4354
Detected labels for: 6.jpg => Label: Car ,Confidence: 99.00655
Pushed to sqs.
2022-10-13 21:51:19.702 INFO 3907 --- [main] c.a.s.javamessaging.SQSMessageProducer : Message sent to SQS with SQS-assigned messageId: 4079fe9c-795c-44b0-ad1c-ee8dd29f67a4
JMS Message ID:4079fe9c-795c-44b0-ad1c-ee8dd29f67a4
Detected labels for: 7.jpg => Label: Car ,Confidence: 99.892525
Pushed to sqs.
2022-10-13 21:51:20.233 INFO 3907 --- [main] c.a.s.javamessaging.SQSMessageProducer : Message sent to SQS with SQS-assigned messageId: aa0f3c5f-6e77-47eb-9aaf-7d4e2528671d
JMS Message ID:aa0f3c5f-6e77-47eb-9aaf-7d4e2528671d
```

INSTANCE 2

1. Instance B reads indexes of images from SQS as soon as these indexes become available in the queue and performs text recognition on the images.
2. The keys that are returned from the queue will be obtained from the S3 bucket and then passed to identify text using Rekognition. First, we must connect to the queue where messages from the queue are received.
3. Screenshot of the jar file of instance2 using the command `java -jar <jarname>`

```
PuTTY (inactive)
2022-10-13 01:15:03.753 WARN 3919 --- [main] c.c.c.ConfigServicePropertySourceLocator : Could not locate PropertySource: I/O error on GET request for "http://localhost:8888/application/default": Connection refused (Connection refused); nested exception is java.net.ConnectException: Connection refused (Connection refused)
2022-10-13 01:15:03.762 INFO 3919 --- [main] org.cloudproj.app.App : No active profile set, falling back to 1 default profile: "default"
2022-10-13 01:15:05.438 INFO 3919 --- [main] o.s.cloud.context.scope.GenericScope : BeanFactory id=538675e2-9e50-355f-9acc-3230f5284134
2022-10-13 01:15:06.403 INFO 3919 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port(s): 8080 (http)
2022-10-13 01:15:06.433 INFO 3919 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2022-10-13 01:15:06.436 INFO 3919 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.63]
2022-10-13 01:15:06.637 INFO 3919 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2022-10-13 01:15:06.638 INFO 3919 --- [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 2824 ms
2022-10-13 01:15:09.418 INFO 3919 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8080 (http) with context path ''
2022-10-13 01:15:09.446 INFO 3919 --- [main] org.cloudproj.app.App : Started App in 9.401 seconds (JVM running for 10.62)
Text Detected lines and words for: 1.jpg ==> Text Detected: $ BR8167 , Confidence: 93.95657
Text Detected: $ , Confidence: 93.66762
Text Detected: BR8167 , Confidence: 94.24553
Text Detected lines and words for: 4.jpg ==> Text Detected: YH19 OTZ , Confidence: 99.255684
Text Detected: YH19 , Confidence: 99.037766
Text Detected: OTZ , Confidence: 99.4736
Text Detected lines and words for: 7.jpg ==> Text Detected: Lamborghini , Confidence: 97.139915
Text Detected: LP 610 LB , Confidence: 93.50435
Text Detected: BO , Confidence: 78.93724
Text Detected: BMW , Confidence: 11.18303
Text Detected: Lamborghini , Confidence: 97.139915
Text Detected: LP , Confidence: 99.59495
Text Detected: 610 LB , Confidence: 87.41375
Text Detected: BO , Confidence: 78.93724
Text Detected: BMW , Confidence: 11.18303
```

