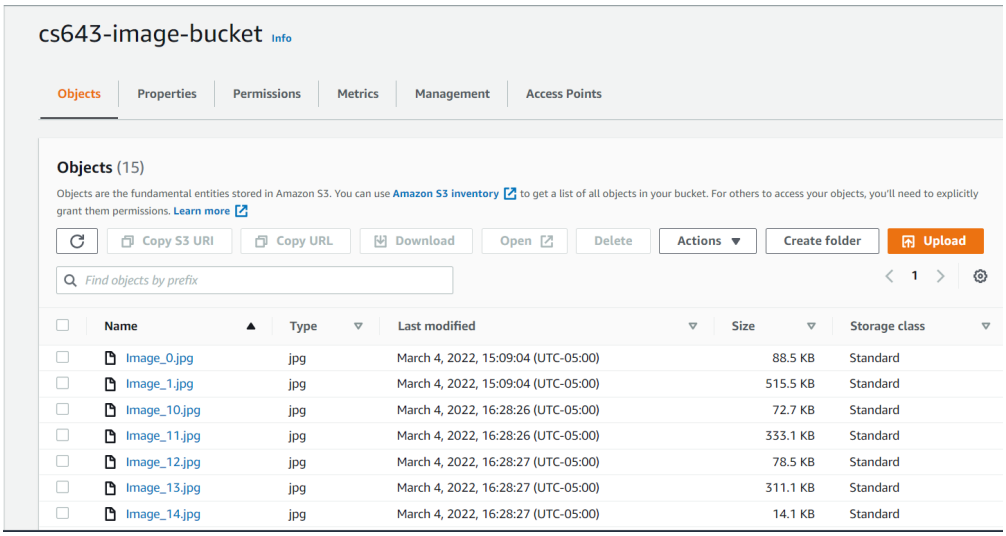
Task:

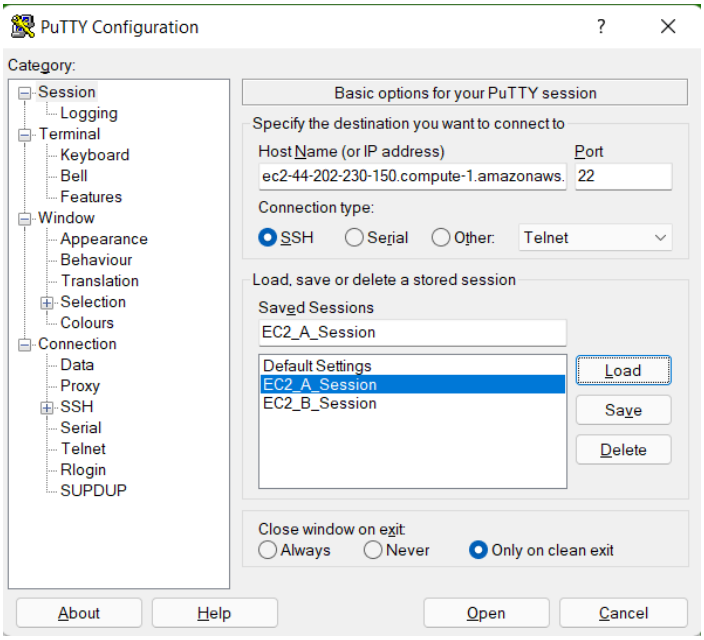
- To build an image recognition pipeline in AWS, using two EC2 instances, S3, SQS, and Rekognition.

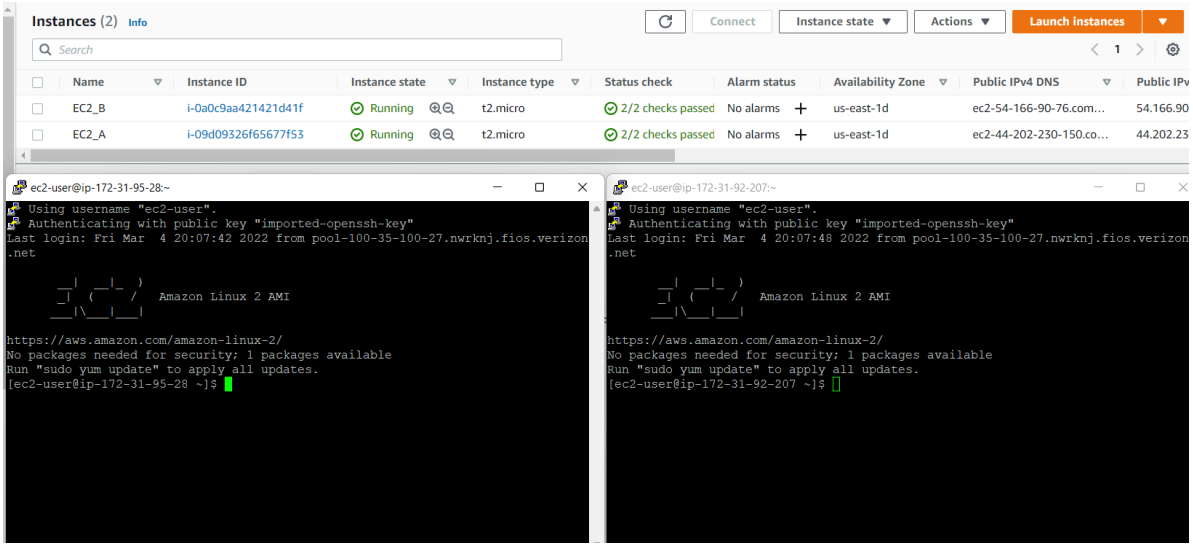
Steps:

1. EC2 Instances:
    - Created two EC2 instances in AWS and named them EC2_A and EC2_B
2. IAM Role:
    - Created IAM user and added permissions to access SQS, S3 and Rekognition
    - Copied Access key and Secret key and saved in a file
3. S3 Bucket:
    - Created a bucket named ‘my_s3_bucket_name’ and added the test images



4. Connect Putty to EC2 instances:
    - Launched two Putty window and connected one to EC2_A and other to EC2_B
    - Created credentials file under /.aws directory in both instances and stored the Access key and Secret key in those files



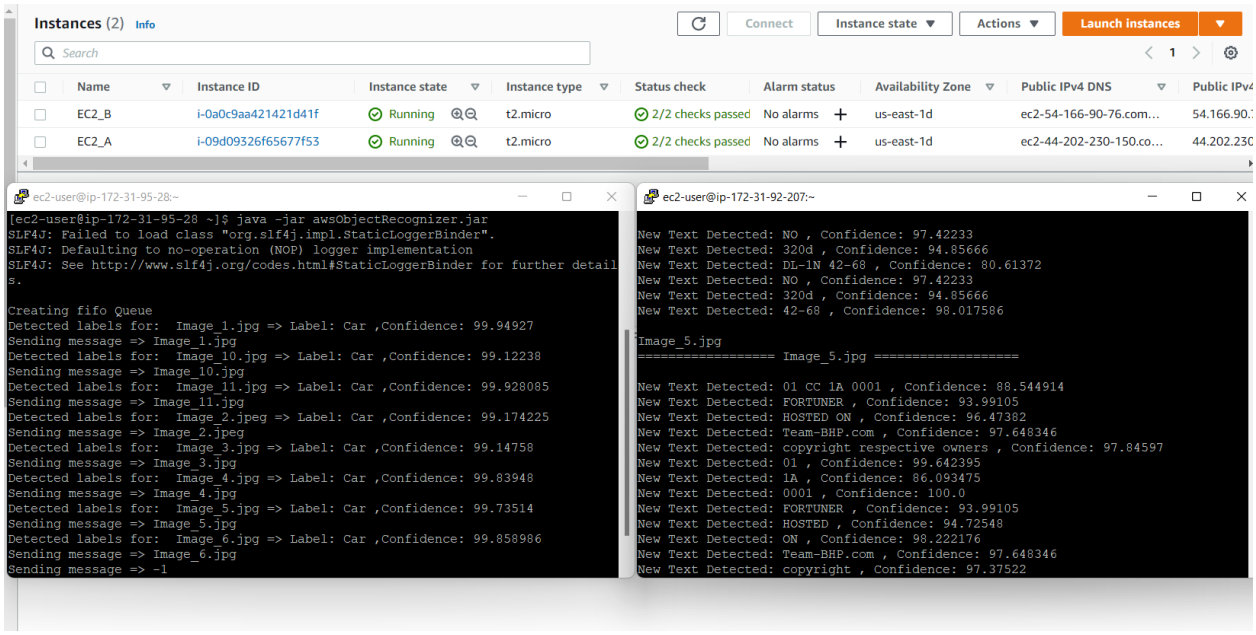


5. Installed Java 17 on EC2 instances
    - wget https://download.java.net/java/GA/jdk17/0d483333a00540d886896bac774ff48b/35/GPL/openjdk-17_linux-x64_bin.tar.gz
    - tar xvf openjdk-17_linux-x64_bin.tar.gz
    - sudo mv jdk-17 /opt/
    - sudo nano ~/.bash_profile
    - # User specific environment and startup programs

      export PATH="/usr/local/bin:/usr/bin:/bin:/usr/sbin:/sbin"
      export JAVA_HOME="/opt/jdk-17"
      export PATH="$JAVA_HOME/bin:$PATH"

- source ~/.bash_profile
- java --version

6. Java implementation:
   - Implemented awsObjectRecognizer that reads images from S3 bucket, analyzes the images using Amazon Rekognition and sends message to SQS if it finds target_label in an image
   - Implemented awsTextRecognizer that makes requests to SQS server to get messages from queue, parses message and reads image from S3 bucket with file name from the message. Then it analyzes the image using Amazon Rekognition and writes text found on image to ‘results.txt’ file
7. Jar files to EC2 instances using WinSCP:
   - Used WinSCP to transfer awsObjectRecognizer.jar to EC2_A and awsTextRecognizer.jar to EC2_B
8. Execution:
   - Run awsTextRecognizer.jar on instance EC2_B, it periodically checks for message
   - Run awsObjectRecognizer.jar on instance EC2_A, it reads the images from S3 bucket and sends message to SQS
   - EC2_B gets the messages and writes the texts found on image to ‘results.txt’ file
   - EC2_B stops making query for message when it gets a message “-1”



9. Output file:
   - Used WinSCP to download ‘results.txt’ from EC2_B and checked the result

10. Clean up AWS resources:
    - Deleted the S3 bucket with images and terminated the EC2 instances