Problem Statement: You work for XYZ Corporation. Their application requires a SQL service that can store data which can be retrieved if required. Implement a suitable RDS engine for the same. While migrating, you are asked to perform the following tasks:

1. Create a MariaDB Engine-based RDS Database.

2. Connect to the DB using the following ways:

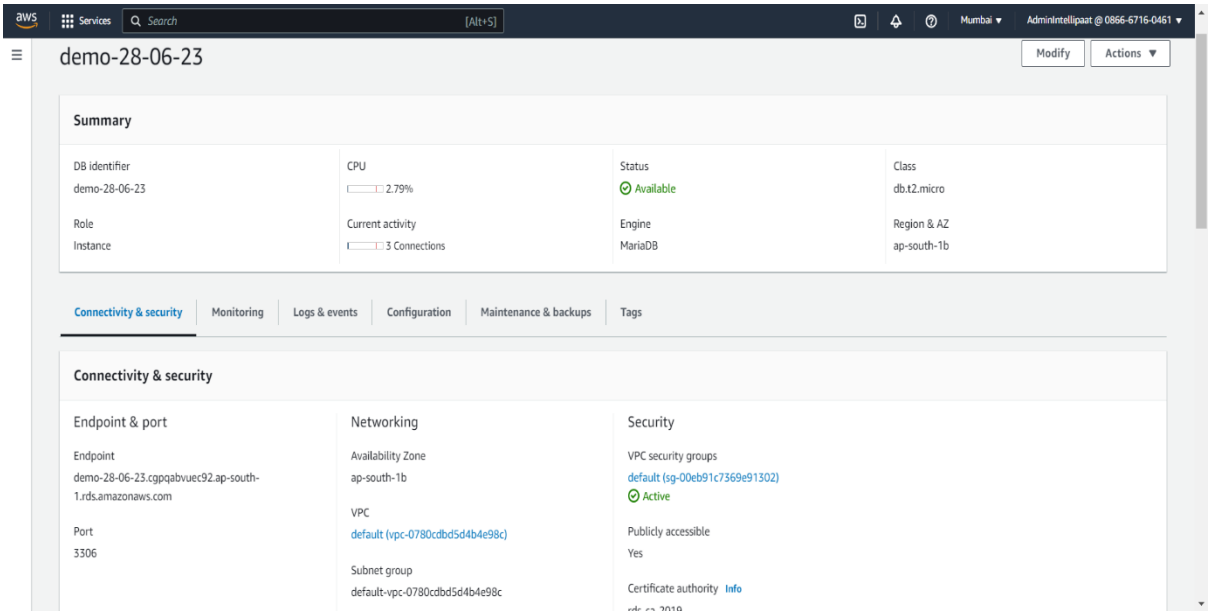
a. SQL Client for Windows

b. Linux-based EC2 Instance.

Solution- Amazon RDS (Relational Database System) is used to set up, manage and scale a relational DB instance in the cloud, in short RDS is offered to us by AWS in order to create a DB, so it will fully manage by AWS itself and we can query anything and storing data on it and even scale it.

Steps for creation of MariaDB Engine-based RDS Database

Go to the management console, search RDS→ Create Database (You will get this option in both Dashboard & Database)→ Here you will get two options 1. Standard Create & 2. Easy Create, in standard create you have the privilege to set according to your requirements, Easy Create you will get some pre-defined/limited option→ click on Standard create→ Engine Option (MariaDB)→Select the version of MariaDB→Templates (Production, Dev/Test & Free-tier), here we select free-tier→ Availability & Durability (Since we select the free-tier option, so we have not got the option to customize this)→Settings(give DB instance identifier name)→ Credential settings→ Master Username(we will use this username to login our DB engine)→ Master Password + Confirm Password(follow the instructions for password)→DB instance class(We have 3 options here but since we are using free-tier so only Burstable class option is available)→ db.t2.micro→Storage type→allocate storage(20 GiB)→ Storage autoscaling (whenever we need additional storage, it will do for us automatically if we select the option Enable storage autoscaling), set the maximum storage threshold(minimum 22GiB and Maximum 6144 GiB)→Connectivity(we will get 2 options here 1.Don't connect to an EC2 compute resource & 2. Connect to an EC2 compute resource, if you choose the second option then it will create an instance for Database in the connection with the Database)→ VPC(default)→DB subnet group(default)→Public access, yes(if I choose 'No' then instance running on the same VPC can only access the DB, since I select 'Yes' so I will be able to access the DB from anywhere)→Security Group(Default)→ Availability Zone(No-preference)→ Database authentication(select the Password Authentication option), Password & IAM Database authentication means it will require the password as well as credentials of the IAM user→ Monitoring (it will check each and every metrics of the database)→Backups(if you enable it, then it will take automatic backups otherwise you have to take it manually)→Encryption(as per your requirements)→Maintenance(Enable auto minor version upgrade)→ Maintenance window(no preferences)→ Deletion protection(as per need)→ CREATE DATABASE.



After the creation of the Database, we need to connect it using SQL Client for Windows & Linux-based EC2 instances.

First, we launch a Linux-based instance, then using the following command we communicate with the database. For that, we need to install a MariaDB to the Linux instance.

[root@ip-172-31-41-190 ec2-user]# yum install -y mariadb

mysql -h <database-endpoint> -P 3306 -u <user-name> -p

mysql -h demo-28-06-23.cgpqabvuec92.ap-south-1.rds.amazonaws.com -P 3306 -u admin -p

```
root@ip-172-31-41-190:/home

       __|  __|_  )
       _|  (     /   Amazon Linux 2 AMI
      ___|\___|___|

https://aws.amazon.com/amazon-linux-2/
4 package(s) needed for security, out of 7 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-41-190 ~]$
[ec2-user@ip-172-31-41-190 ~]$ sudo su
[root@ip-172-31-41-190 ec2-user]#
[root@ip-172-31-41-190 ec2-user]#
[root@ip-172-31-41-190 ec2-user]# mysql -h demo-28-06-23.cgpqabvuec92.ap-south-1.rds.amazonaws.com -P 3306 -u admin -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 153
Server version: 10.6.10-MariaDB managed by https://aws.amazon.com/rds/

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]>
MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| demobiki           |
| information_schema |
| innodb             |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
6 rows in set (0.00 sec)

MariaDB [(none)]>
```

For connecting our Database from our Windows PC, we are using MySQL Workbench software,

Steps:- Click on MySQL Connection(+) → Put Connection name→Connection Method(standard TCP/IP)→ Hostname (endpoint of Database)➔Username(same while creating Database)→Password(Click on the store in Vault) put password then OK→ Test connection→ Ok→ Click on the connection name, then enter.