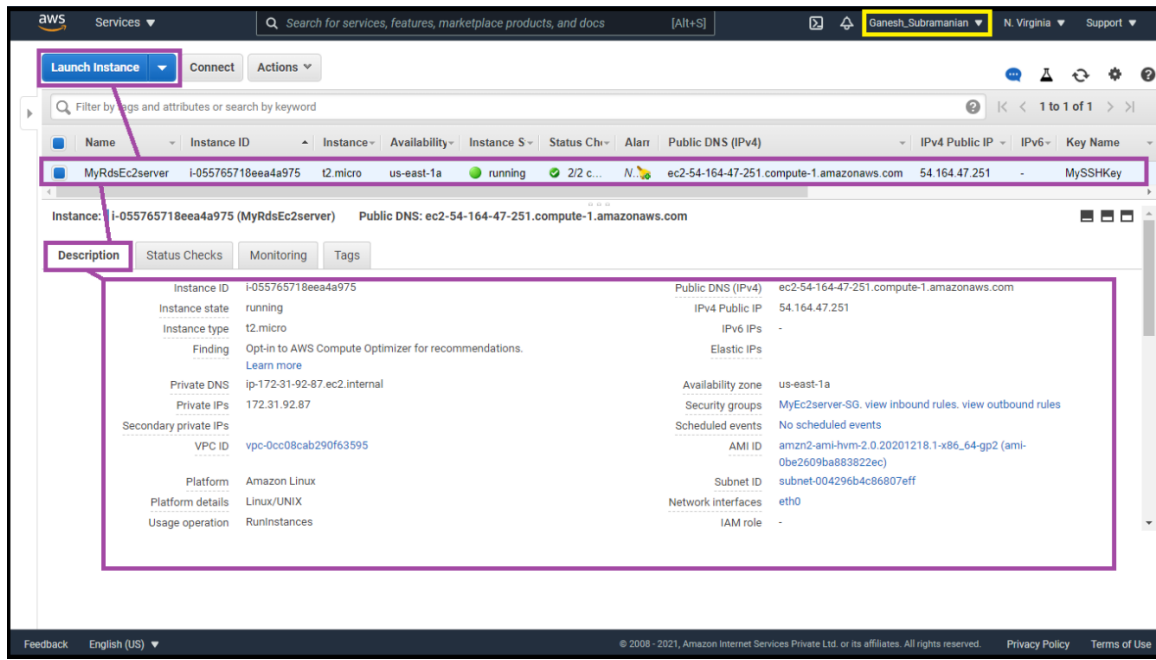


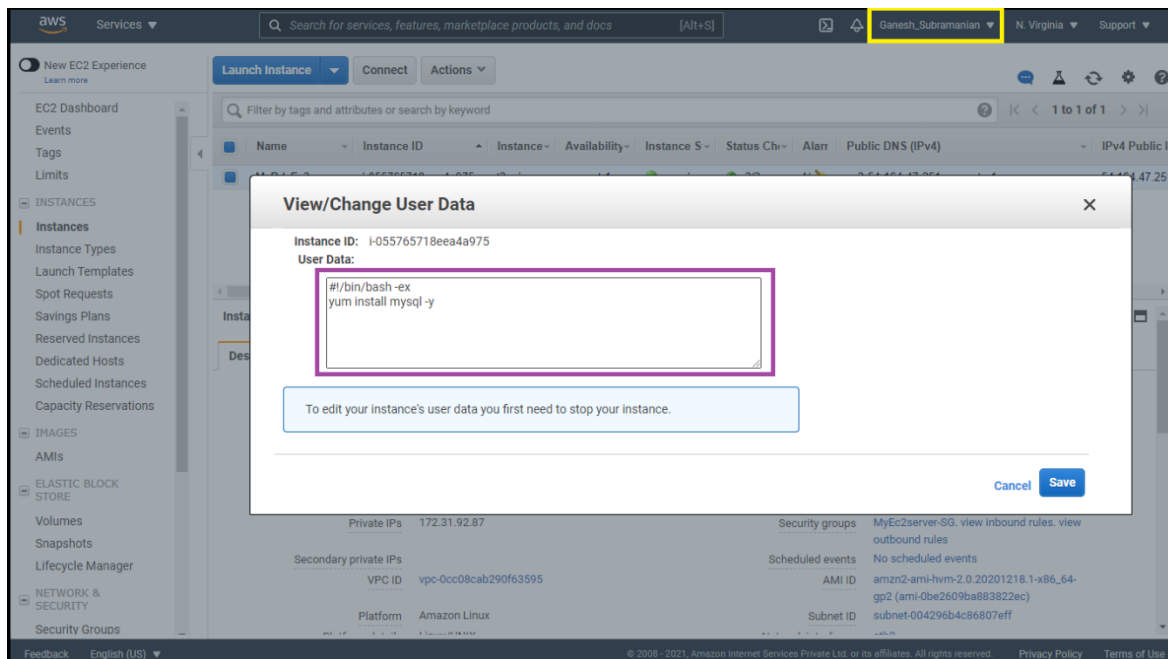
## Project 2

### Deploying Amazon RDS Multi-AZ and Read Replica, Simulate Failover

#### ➔ EC2 Console with instance details



#### ➔ User Data field showing MySQL installation



➔ Create a Security group with the name MyEC2server-SG and display security group

The screenshot shows the AWS IAM console. At the top, there's a navigation bar with the AWS logo, 'Services' dropdown, a search bar, and user information 'Ganesh\_Subramanian' and 'N. Virginia'. Below the navigation bar, there's a 'Create Security Group' button and an 'Actions' dropdown. A search bar for filtering by tags and attributes is present. A table lists security groups:

Name	Group ID	Group Name	VPC ID	Owner	Description
sg-031c1f575c5daa189	sg-031c1f575c5daa189	rds-maz-SG	vpc-0cc08cab290f63595	355069791090	Security group for RDS Aurora
sg-0481db1052a091a9e	sg-0481db1052a091a9e	MyEc2server-SG	vpc-0cc08cab290f63595	355069791090	Security for ec2 server to connect with RDS
sg-05202ec1dbd65242d	sg-05202ec1dbd65242d	default	vpc-0cc08cab290f63595	355069791090	default VPC security group
sg-064e75dfcca4efcfe	sg-064e75dfcca4efcfe	ganesh_RDS_lab_sg	vpc-0cc08cab290f63595	355069791090	ganesh_Security group for RDS

Below the table, the details for 'Security Group sg-0481db1052a091a9e' are shown. The 'Description' tab is selected, displaying:

Group name	Group description
MyEc2server-SG	Security for ec2 server to connect with RDS
Group ID	VPC ID
sg-0481db1052a091a9e	vpc-0cc08cab290f63595

➔ Display Security group information of rds-maz-SG

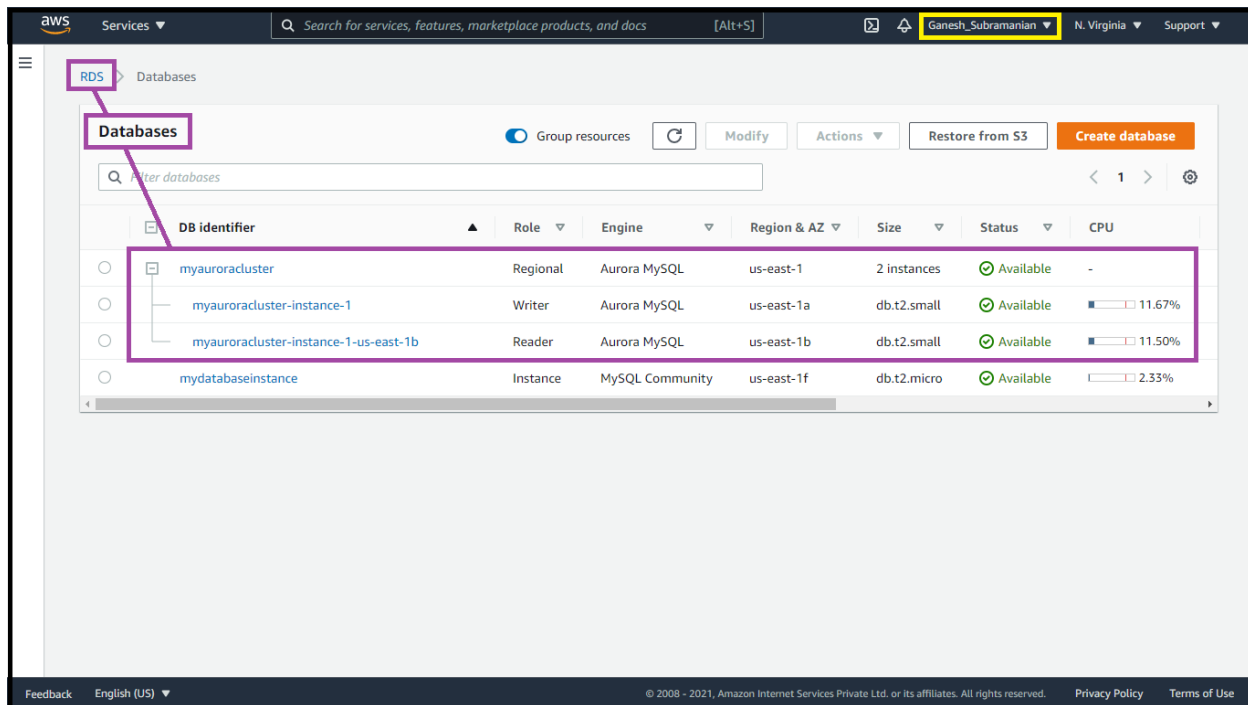
The screenshot shows the AWS IAM console. At the top, there's a navigation bar with the AWS logo, 'Services' dropdown, a search bar, and user information 'Ganesh\_Subramanian' and 'N. Virginia'. Below the navigation bar, there's a 'Create Security Group' button and an 'Actions' dropdown. A search bar for filtering by tags and attributes is present. A table lists security groups:

Name	Group ID	Group Name	VPC ID	Owner	Description
sg-031c1f575c5daa189	sg-031c1f575c5daa189	rds-maz-SG	vpc-0cc08cab290f63595	355069791090	Security group for RDS Aurora
sg-0481db1052a091a9e	sg-0481db1052a091a9e	MyEc2server-SG	vpc-0cc08cab290f63595	355069791090	Security for ec2 server to connect with RDS
sg-05202ec1dbd65242d	sg-05202ec1dbd65242d	default	vpc-0cc08cab290f63595	355069791090	default VPC security group
sg-064e75dfcca4efcfe	sg-064e75dfcca4efcfe	ganesh_RDS_lab_sg	vpc-0cc08cab290f63595	355069791090	ganesh_Security group for RDS

Below the table, the details for 'Security Group sg-031c1f575c5daa189' are shown. The 'Inbound' tab is selected, displaying:

Type	Protocol	Port Range	Source	Description
MYSQL/Aurora	TCP	3306	0.0.0.0/0	

## → Display Enabling Multi AZ



## → Execute database operation and display details

Creating a table named students and inserting few rows of data using list of commands as shown below

```
i-055765718eea4a975 (MyRdsEc2server) | EC2 Instance Connect - Google Chrome
https://console.aws.amazon.com/ec2/v2/connect/ec2-user/i-055765718eea4a975

Taylor');
Query OK, 1 row affected (0.01 sec)

MySQL [auror_db]> INSERT INTO students(subject_name,teacher) VALUES ('Science','Mary Smith');
Query OK, 1 row affected (0.05 sec)

MySQL [auror_db]> INSERT INTO students(subject_name,teacher) VALUES ('Maths','Ted Miller');
Query OK, 1 row affected (0.01 sec)

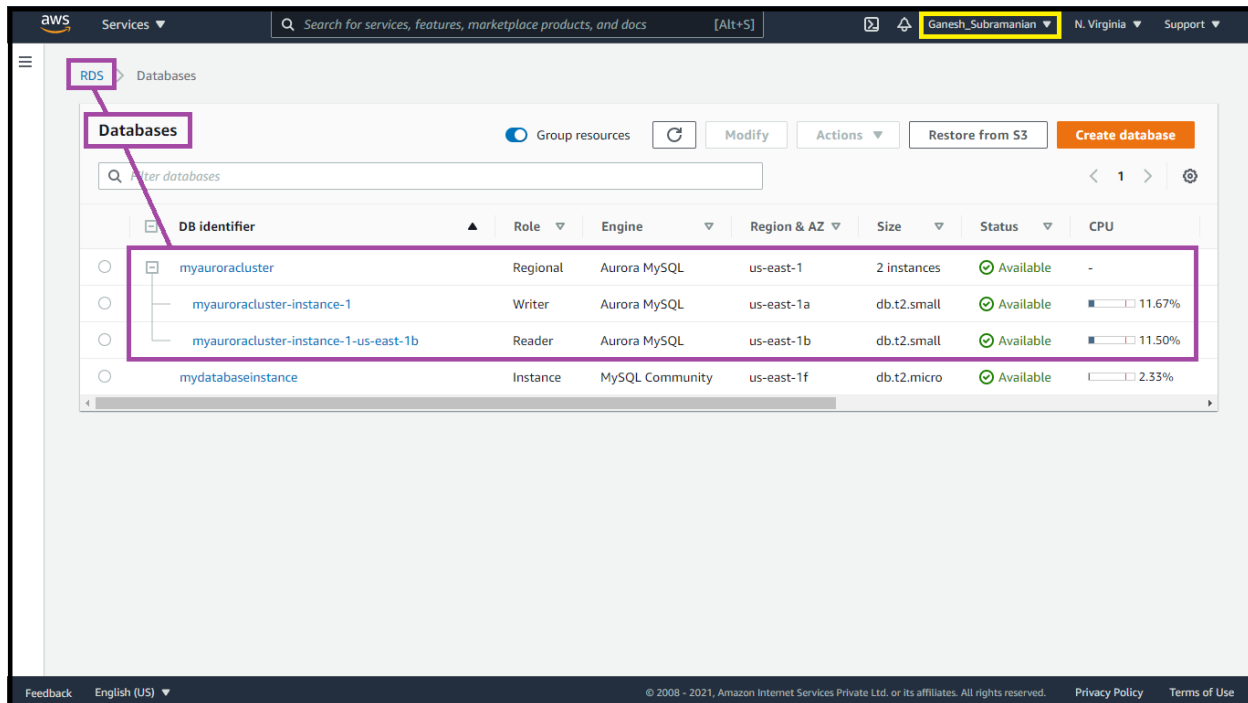
MySQL [auror_db]> INSERT INTO students(subject_name,teacher) VALUES ('Arts','Suzan Carpenter');
Query OK, 1 row affected (0.01 sec)

MySQL [auror_db]> select * from students;
+-----+-----+-----+-----+-----+
| subject_id | subject_name | teacher | start_date | lesson |
+-----+-----+-----+-----+-----+
| 1 | English | John Taylor | NULL | NULL |
| 2 | Science | Mary Smith | NULL | NULL |
| 3 | Maths | Ted Miller | NULL | NULL |
| 4 | Arts | Suzan Carpenter | NULL | NULL |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

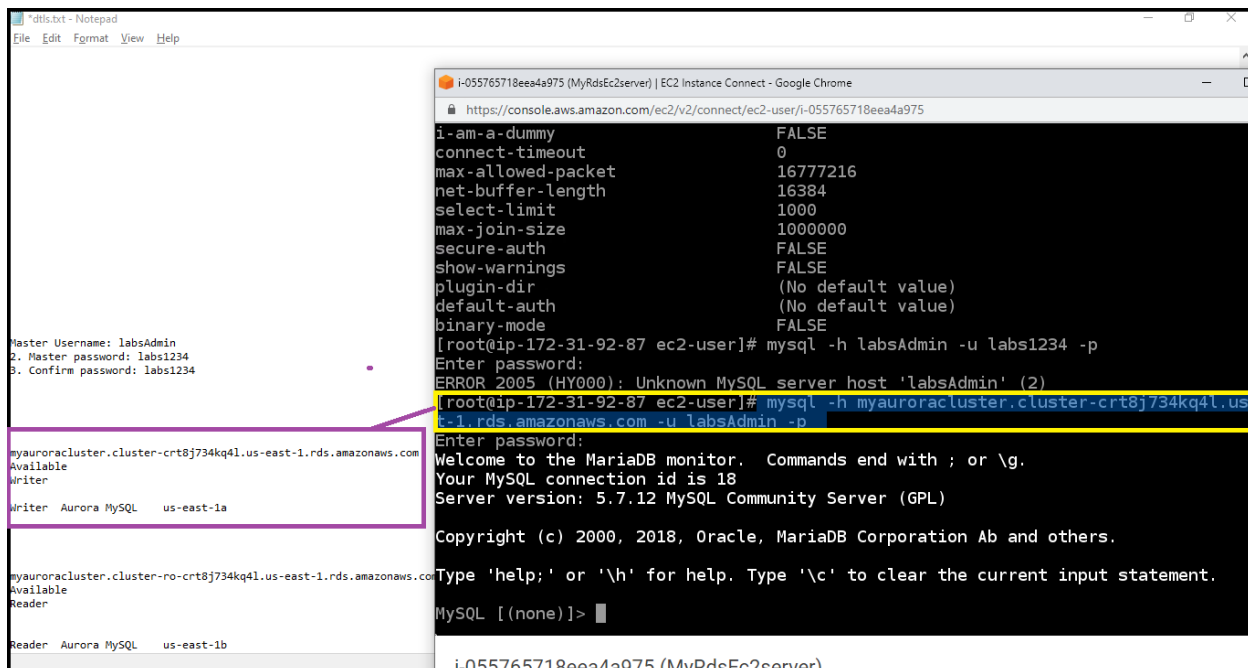
MySQL [auror_db]>
```

i-055765718eea4a975 (MyRdsEc2server)  
Public IPs: 54.164.47.251 Private IPs: 172.31.92.87

## ➔ Show Databases console with Reader and Writer

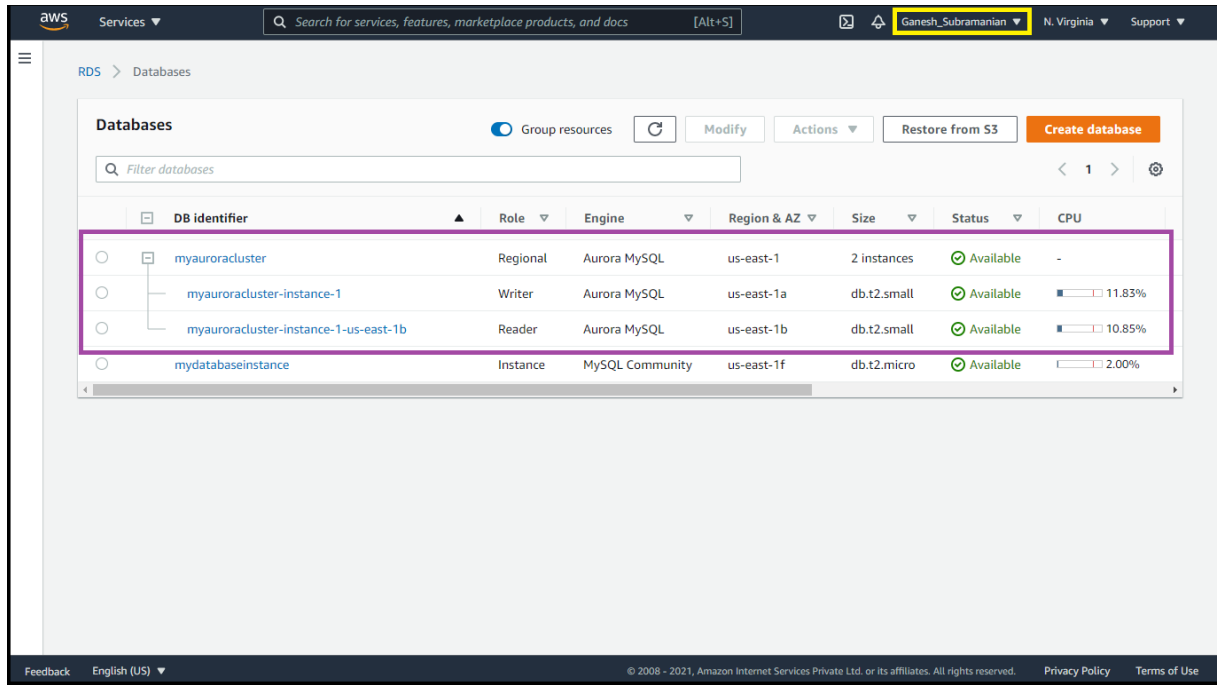


## ➔ Connect to rds and show console details

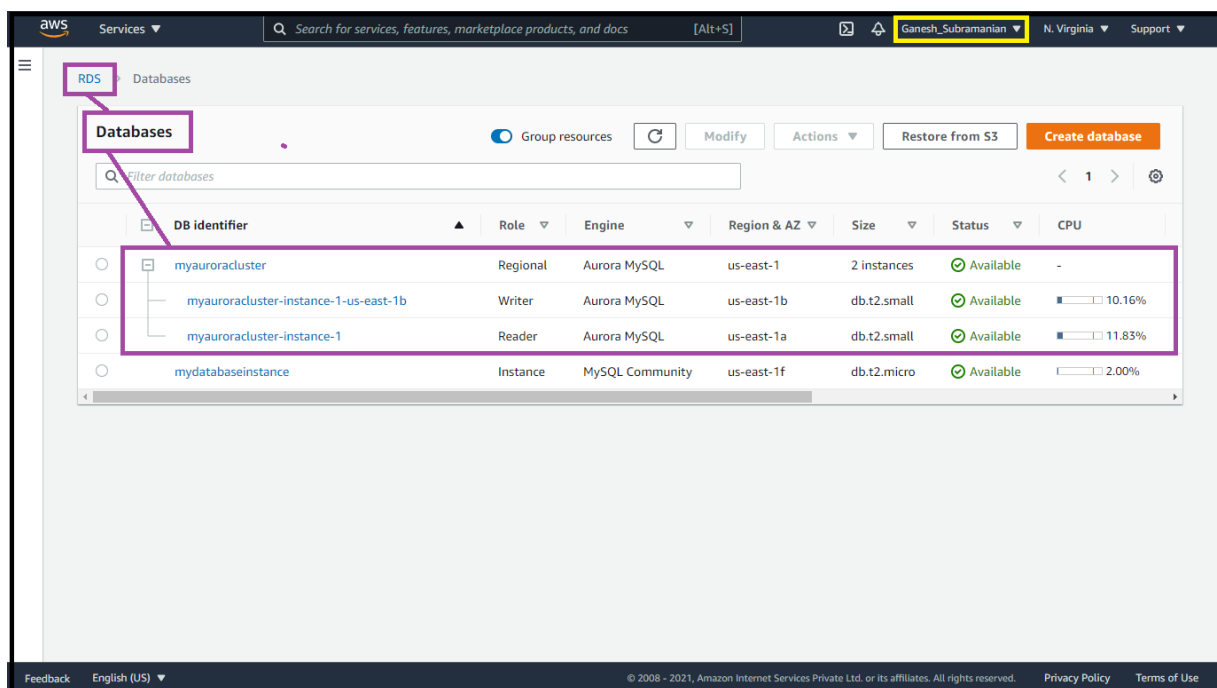


## ➔ Show Failover in Action

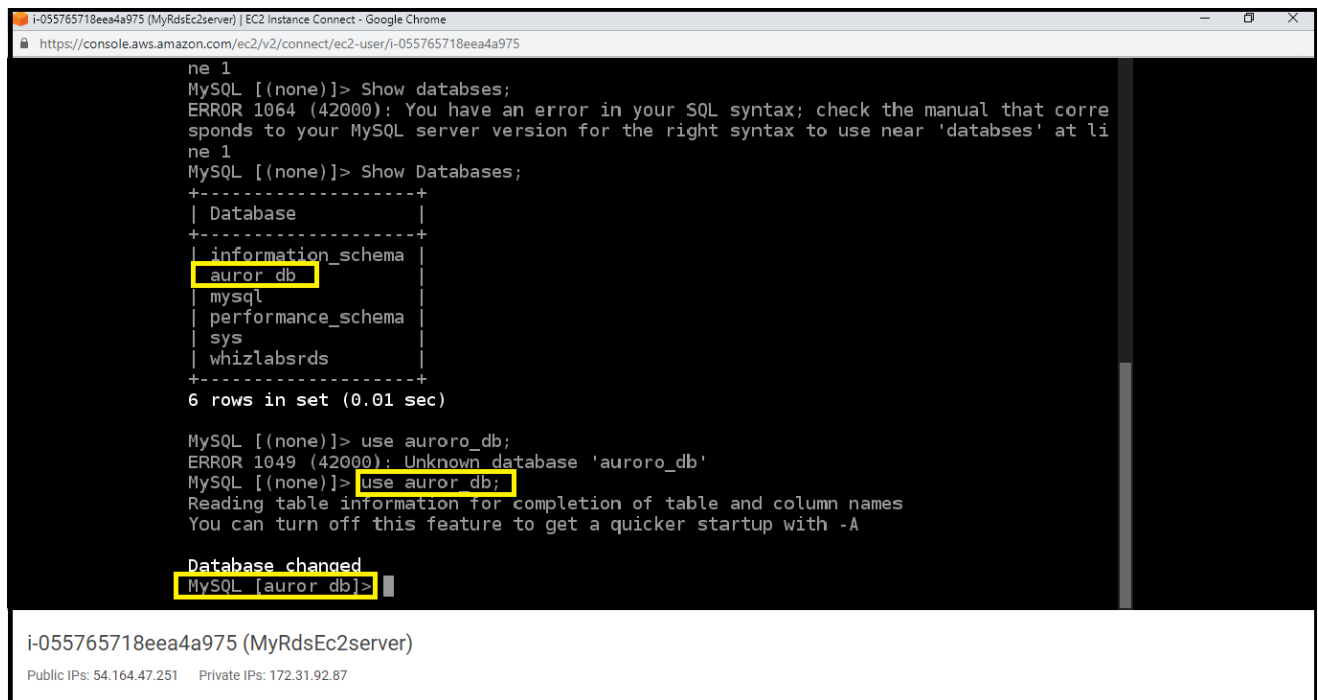
Created a situation where master fails and the read replica has to become the new Master(Writer).



Master(Writer) becomes Reader and Reader becomes Master(Writer) as shown below



Connecting to RDS with new Master endpoint and to check if the original master db (auror\_db) is still present. The original master db (auror\_db) is present, implying that the Failover worked successfully.



The screenshot shows a terminal window titled "i-055765718eea4a975 (MyRdsEc2server) | EC2 Instance Connect - Google Chrome". The terminal displays the following commands and output:

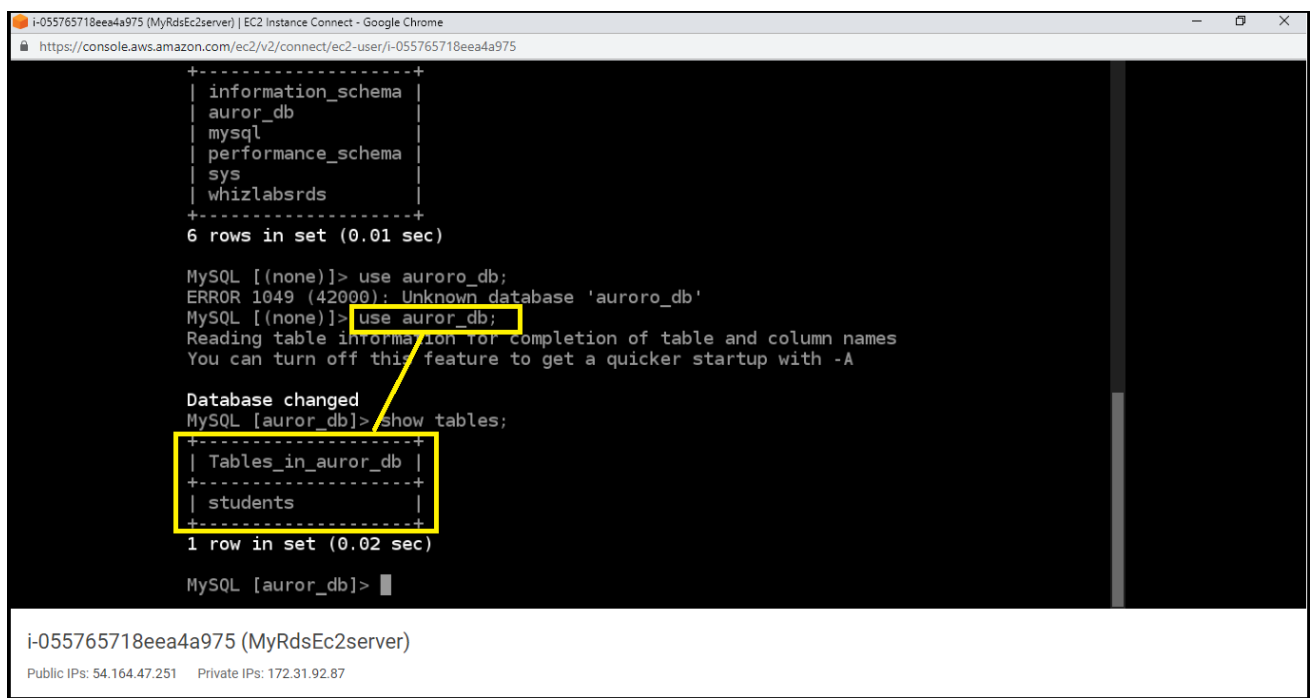
```
MySQL [(none)]> Show databases;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'databases' at line 1
MySQL [(none)]> Show Databases;
+-----+
| Database |
+-----+
| information_schema |
| auror_db |
| mysql |
| performance_schema |
| sys |
| whizlabsrds |
+-----+
6 rows in set (0.01 sec)

MySQL [(none)]> use auroro_db;
ERROR 1049 (42000): Unknown database 'auroro_db'
MySQL [(none)]> use auror_db;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MySQL [auror_db]>
```

Below the terminal output, the instance details are shown: "i-055765718eea4a975 (MyRdsEc2server)" with "Public IPs: 54.164.47.251" and "Private IPs: 172.31.92.87".

Existence of table named students and data can be seen



The screenshot shows a terminal window titled "i-055765718eea4a975 (MyRdsEc2server) | EC2 Instance Connect - Google Chrome". The terminal displays the following commands and output:

```
MySQL [(none)]> Show Databases;
+-----+
| Database |
+-----+
| information_schema |
| auror_db |
| mysql |
| performance_schema |
| sys |
| whizlabsrds |
+-----+
6 rows in set (0.01 sec)

MySQL [(none)]> use auroro_db;
ERROR 1049 (42000): Unknown database 'auroro_db'
MySQL [(none)]> use auror_db;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MySQL [auror_db]> show tables;
+-----+
| Tables_in_auror_db |
+-----+
| students |
+-----+
1 row in set (0.02 sec)

MySQL [auror_db]>
```

A yellow arrow points from the text "Existence of table named students and data can be seen" to the 'students' table in the output. Below the terminal output, the instance details are shown: "i-055765718eea4a975 (MyRdsEc2server)" with "Public IPs: 54.164.47.251" and "Private IPs: 172.31.92.87".

Inserting of new data into the existing students table.

```
Database changed
MySQL [auror_db]> show tables;
+-----+
| Tables_in_auror_db |
+-----+
| students            |
+-----+
1 row in set (0.02 sec)

MySQL [auror_db]> INSERT INTO students(subject_name,teacher) VALUES ('Spanish','Isabella');
Query OK, 1 row affected (0.01 sec)

MySQL [auror_db]> select * from students;
+-----+-----+-----+-----+-----+
| subject_id | subject_name | teacher      | start_date | lesson |
+-----+-----+-----+-----+-----+
| 1          | English      | John Taylor  | NULL       | NULL   |
| 2          | Science      | Mary Smith   | NULL       | NULL   |
| 3          | Maths        | Ted Miller   | NULL       | NULL   |
| 4          | Arts         | Suzan Carpenter | NULL      | NULL   |
| 5          | Spanish      | Isabella     | NULL       | NULL   |
+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

MySQL [auror_db]>
```

i-055765718eea4a975 (MyRdsEc2server)  
Public IPs: 54.164.47.251 Private IPs: 172.31.92.87

The newly created data is reflected in the Table

```
Database changed
MySQL [auror_db]> show tables;
+-----+
| Tables_in_auror_db |
+-----+
| students            |
+-----+
1 row in set (0.02 sec)

MySQL [auror_db]> INSERT INTO students(subject_name,teacher) VALUES ('Spanish','Isabella');
Query OK, 1 row affected (0.01 sec)

MySQL [auror_db]> select * from students;
+-----+-----+-----+-----+-----+
| subject_id | subject_name | teacher      | start_date | lesson |
+-----+-----+-----+-----+-----+
| 1          | English      | John Taylor  | NULL       | NULL   |
| 2          | Science      | Mary Smith   | NULL       | NULL   |
| 3          | Maths        | Ted Miller   | NULL       | NULL   |
| 4          | Arts         | Suzan Carpenter | NULL      | NULL   |
| 5          | Spanish      | Isabella     | NULL       | NULL   |
+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

MySQL [auror_db]>
```

i-055765718eea4a975 (MyRdsEc2server)  
Public IPs: 54.164.47.251 Private IPs: 172.31.92.87