Introduction to Amazon Aurora

Level: **Fundamental**

Amazon RDS Amazon Web Services

1h 27m 53s left

15 MIN

End Lab

Open Console

Validation

Lab Credentials

User Name

Whiz_User_80425.59627390

Password

bfcaa49f-bd75-4383-b9f2-c09e9d31d560

Access Key

AKIAXXW3FHO5CKOF6WFR

Secret Key

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

Lab Resources

No Lab Resources Found

1. FAQs and Troubleshooting
2. Labs - Instructions and Guidelines

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- Troubleshooting Lab
- FAQs

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Lab Overview | Lab Steps | Lab Validation | Lab FAQs

Database Engineer

Storage, Database

Lab Steps

Task 1: Sign in to AWS Management Console

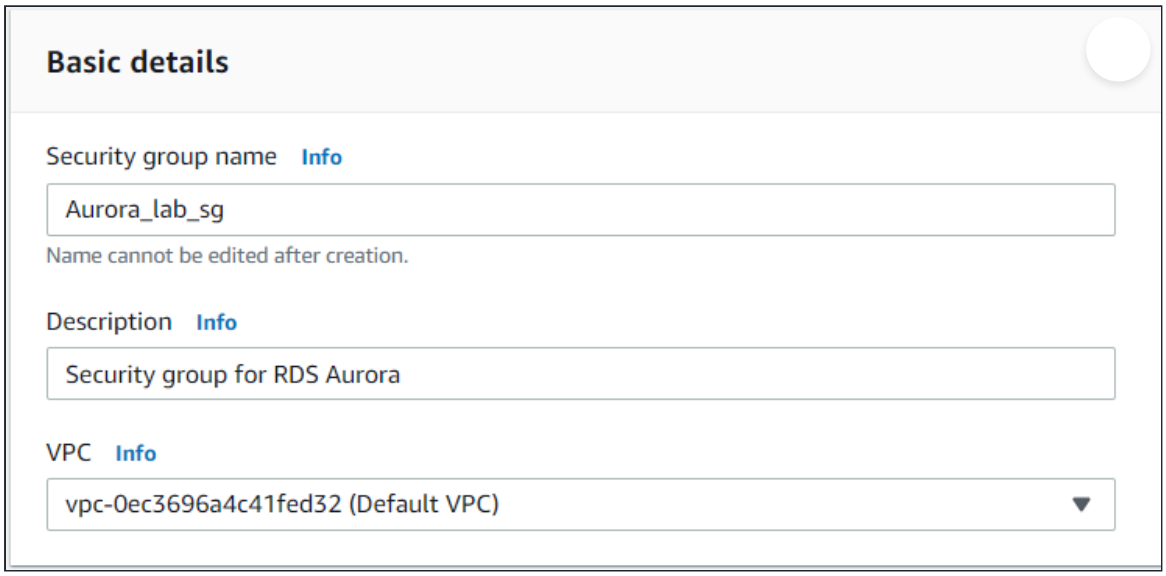
1. Click on the **Open Console** button, and you will get redirected to AWS Console in a new browser tab.
2. On the AWS sign-in page,
    - Leave the Account ID as default. Never edit/remove the 12 digit Account ID present in the AWS Console. otherwise, you cannot proceed with the lab.
    - Now copy your **User Name** and **Password** in the Lab Console to the **IAM Username and Password** in AWS Console and click on the **Sign in** button.
3. Once Signed In to the AWS Management Console, Make the default AWS Region as **US East (N. Virginia) us-east-1.**

Task 2: Create a Security Group for RDS instance

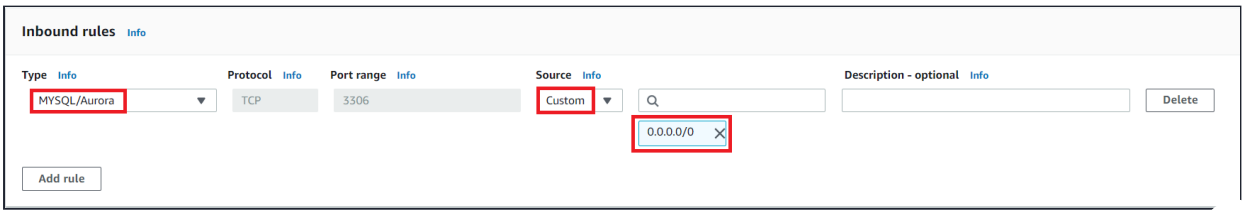
In this task, we'll create a security group for RDS in the N.Virginia region with port 3306 enabled.

1. Make sure you are in the **N.Virginia** Region.

2. Navigate to **EC2** by clicking on the **Services** menu available under the **Compute** section.
3. On the left panel menu, **Select** the security group under the **Network & Security** section.
4. Click on the **Create security group** button.
5. We are going to create a Security group for RDS with a 3306 port number enabled.
    - Security group name : Enter ***Aurora_lab_sg***
    - Description: Enter ***Security group for RDS Aurora***
    - VPC: Select Default VPC



- Click on the **Add rule** button under **Inbound rules.**
    - Type: Select **MYSQL/Aurora**
    - Source: Select **Custom**
    - In the textbox add **0.0.0.0/0**



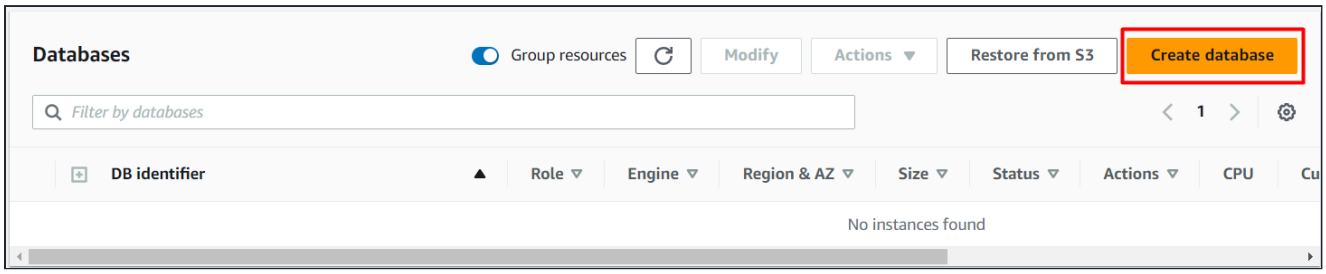
6. Leave everything as default and click on the **Create security group** button.

Task 3: Create an RDS Database Instance

1. Make sure you are in the **N.Virginia** Region.

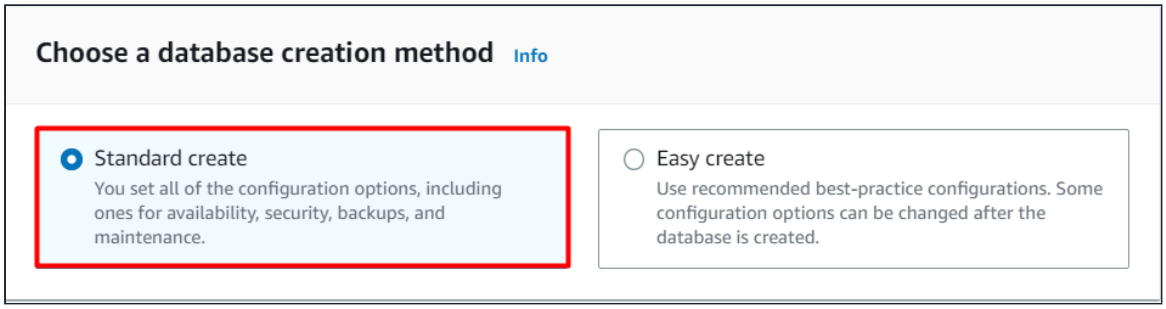
2. Navigate to RDS by clicking on the **Services** menu available under the **Databases** section.

3. Click on **Databases** (in the left panel) and click on **Create database** button.

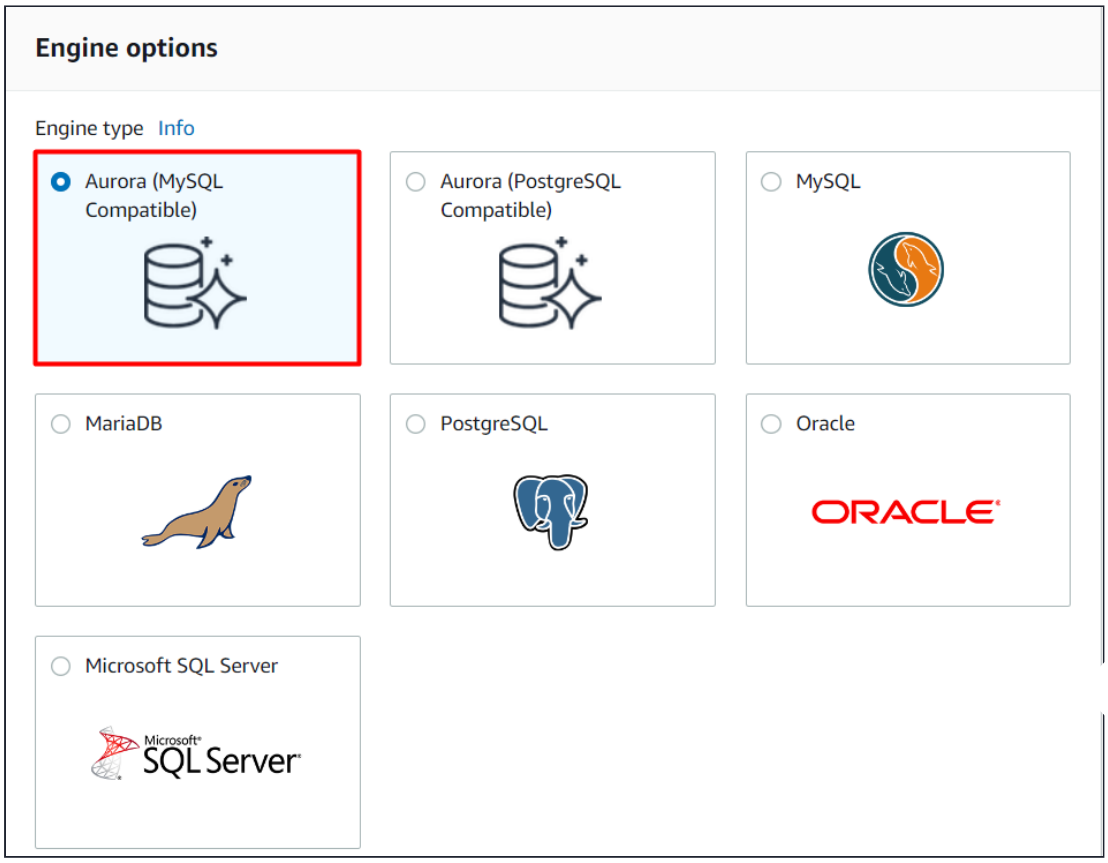


4. Choose a **Database Creation Method:**

- Select **Standard Create**



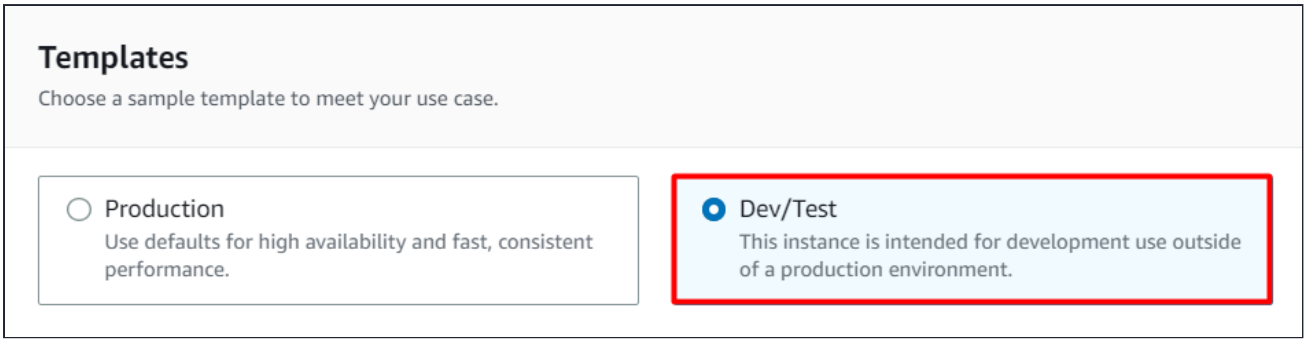
5. In **Engine options:**



- Engine type: Choose **Aurora (MySQL Compatible)**
- Available Versions: Select **Aurora (MYSQL 5.7) 2.11.2) - Choose this version only**

6. **Templates**

- Select **Dev/Test**

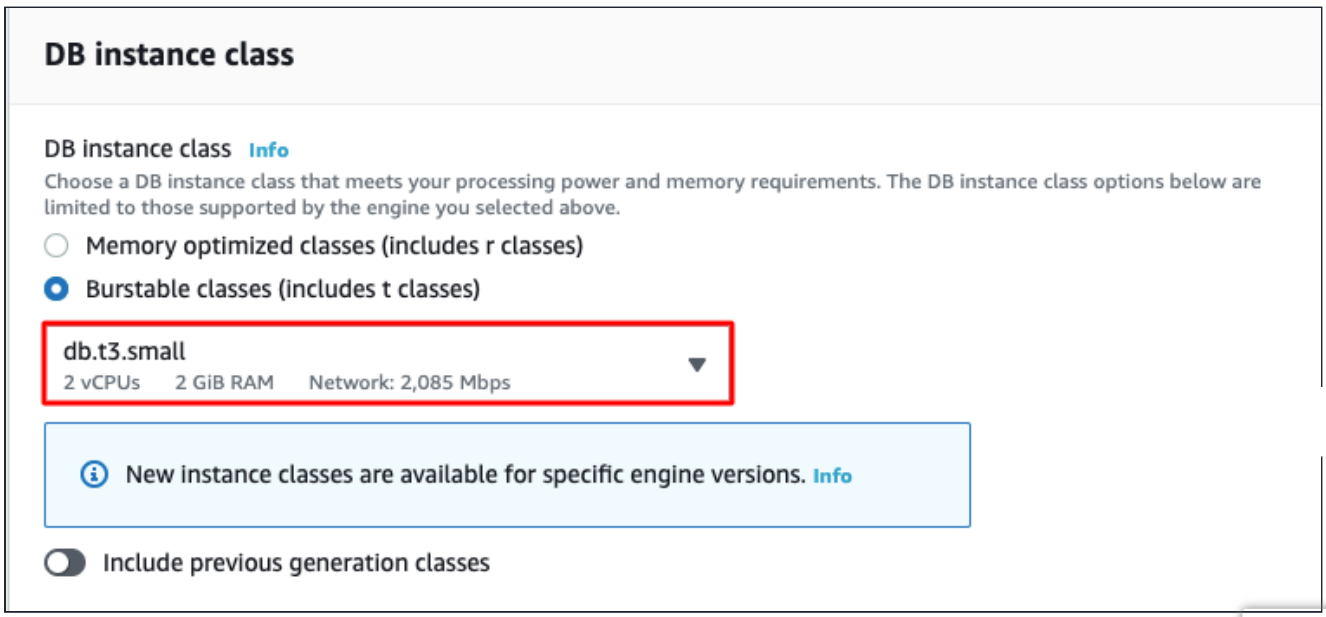


7. **Settings** (Aurora Cluster Settings)

- **DB cluster identifier**: Specify cluster name ***MyAuroraCluster***
- **Credentials Settings** (specify the details)
  - Master Username: Enter ***WhizlabsAdmin***
  - Master password: Enter ***Whizlabs123***
  - Confirm password: Enter ***Whizlabs123***
  - **Note:** This is the username and password used to log onto your database. Please make note of them.

8. **DB instance size**

- DB instance class: Select **Burstable classes (includes "t" classes)**
- Choose db.t3.small from the list.

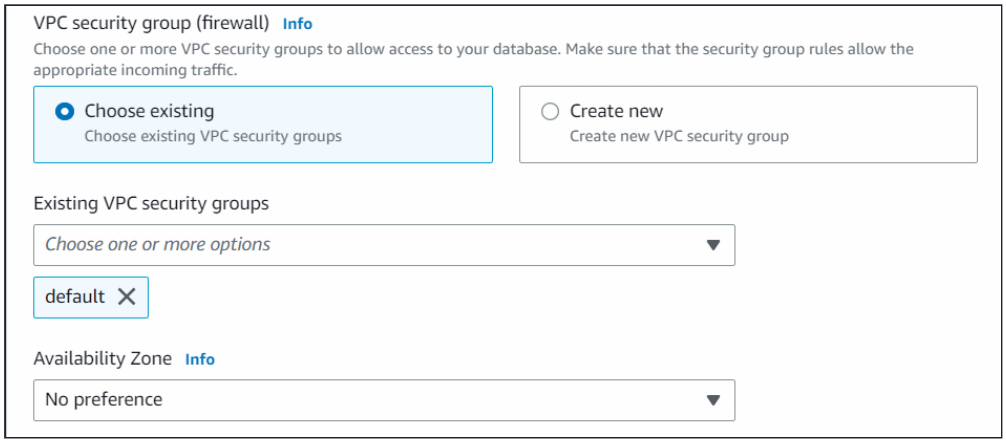


9. **Availability & durability**

- Multi-AZ deployment: Choose **Don't create an Aurora Replica**

10. **Connectivity**

- Virtual Private Cloud (VPC): default
- **Additional connectivity configuration**
  - Subnet group: Leave it as default
  - Publicly access: Select **Yes**
  - Existing VPC security groups :
    - Remove the Default security group, which is selected by default. Select **Aurora_lab_sg** for the dropdown.(This is the security group which you have created in the beginning)



- Availability zone: No Preference
- Database port: **3306**

11. **Monitoring: Uncheck** the Enable enhanced monitoring checkbox

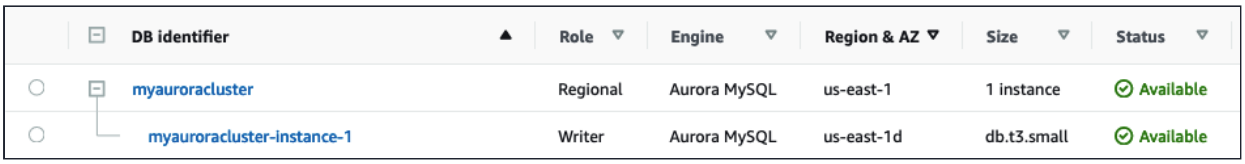
12. **Additional configuration**

- **Database options**
  - Initial database name: Enter ***MyDB***
  - DB cluster parameter group: default (default.aurora-mysql5.7)
  - DB parameter group: default (default.aurora-mysql5.7)
  - Failover priority: default (No preference)
- **Backup**
  - Backup retention period: default (1 day)

- Copy tags to snapshots: default (checked)

- **Encryption: Uncheck** the Enable encryption checkbox
- **Backtrack :** Leave it as default
- **Log exports:** Leave it as default
- **Maintenance**
  - Enable auto minor version upgrade**:** default
  - Maintenance window: default (No Preference)
- **Deletion protection**
  - Enable deletion protection: **Uncheck** the checkbox

13. Once all the configurations are done properly, click on the **Create database** button.
14. On the RDS console, the details for the new DB instance appear. The DB instance will show the status "creating" until the DB instance is ready to use. When the state changes to **Available**, you can connect to the DB instance. It can take up to 5-10 minutes before the new instance status becomes **Available**.

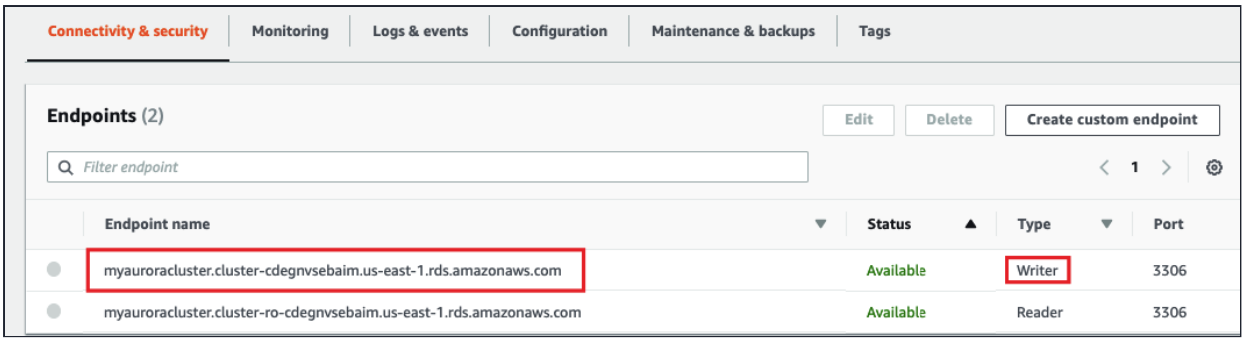


DB identifier	Role	Engine	Region & AZ	Size	Status
myauroracluster	Regional	Aurora MySQL	us-east-1	1 instance	Available
myauroracluster-instance-1	Writer	Aurora MySQL	us-east-1d	db.t3.small	Available

Task 4: Connecting to an Amazon Aurora MySQL RDS Database on a DB Instance.

In this example, we will connect to a database on an Amazon Aurora MySQL DB instance using MySQL commands. To connect to a database on Amazon Aurora, find the endpoint (DNS name).

1. Navigate to **Databases** and click on **myauroracluster.**
2. Under **Connectivity & security** section:
   - The endpoints **Writer** and **Reader** are provided.
   - Copy and note the **endpoint** of the **Writer**.
   - Endpoint: **myauroracluster.cluster-cdegnvsebaim.us-east-1.rds.amazonaws.com**

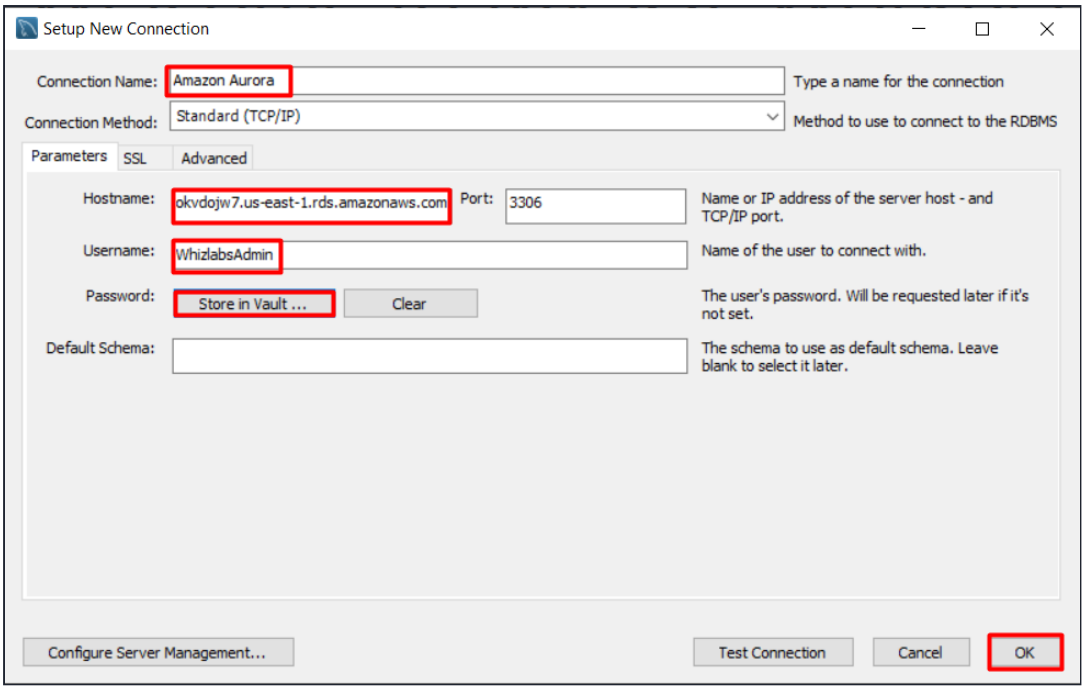


3. Depending on if you have Linux, iOS, or Windows on your machine, follow the steps below.

Note: For Linux/Mac users, please scroll to the Task 7.

Task 5: Connecting from a Windows Machine

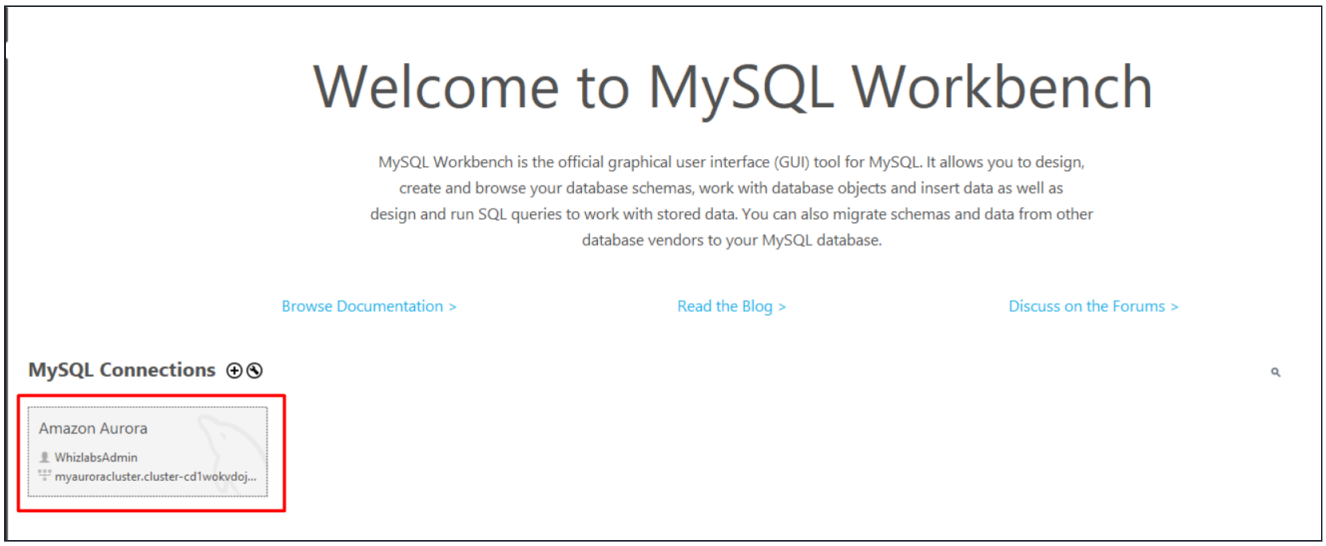
1. Download MySQL Workbench and install.
2. Once installed, open **MySQL Workbench**.
3. Click on **Plus** icon besides **MySQL Connections**.
    - Enter the Following Details:
        - Connection Name : Enter ***Amazon Aurora***
        - Connection Method : Select **Standard (TCP/IP)**
        - Hostname : Enter ***myauroracluster.cluster-cdegnvsebaim.us-east-1.rds.amazonaws.com***
        - Port : **3306**
        - Username : Enter ***WhizlabsAdmin***
        - Password : Click on **Store in Vault** and enter a password.
            - Password: Enter ***Whizlabs123***



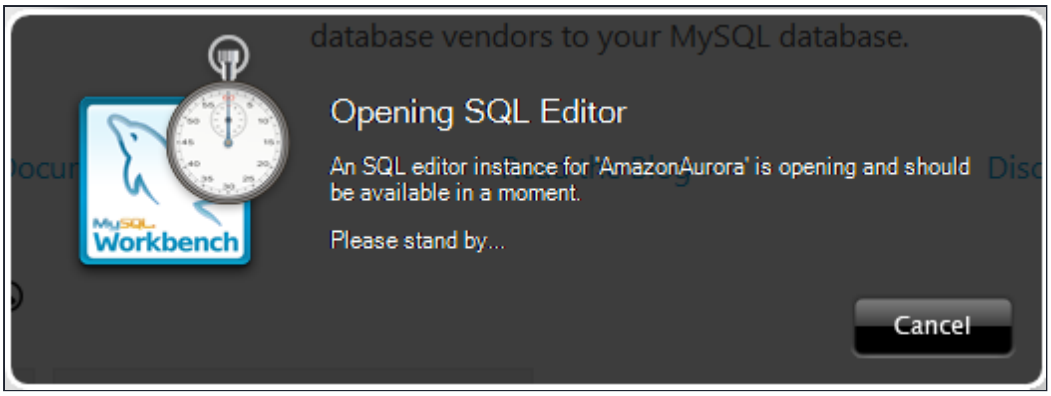
4. Click on **OK** button.

Task 6: Execute Database Operations for Windows users

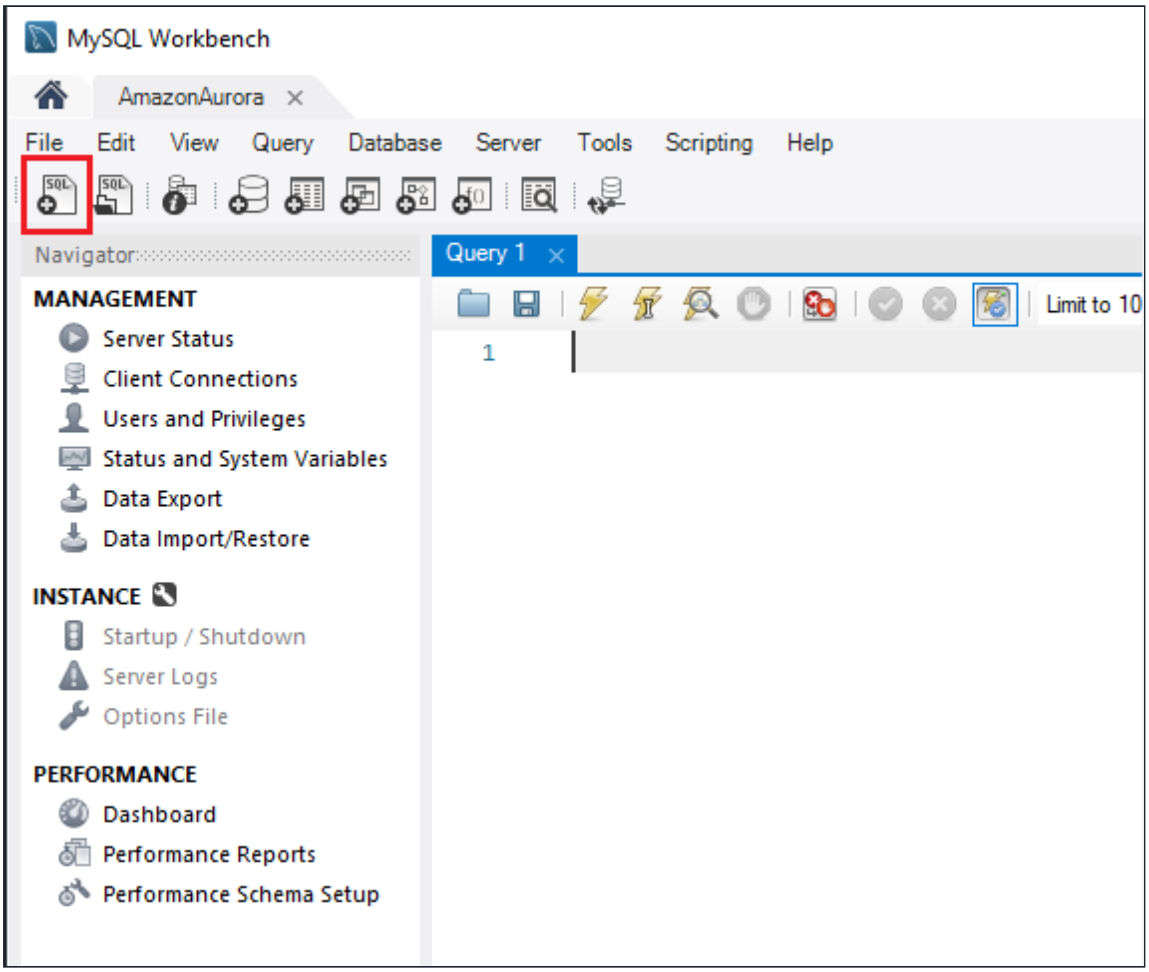
1. Once the connection is tested, it will be shown like this, double click on it.



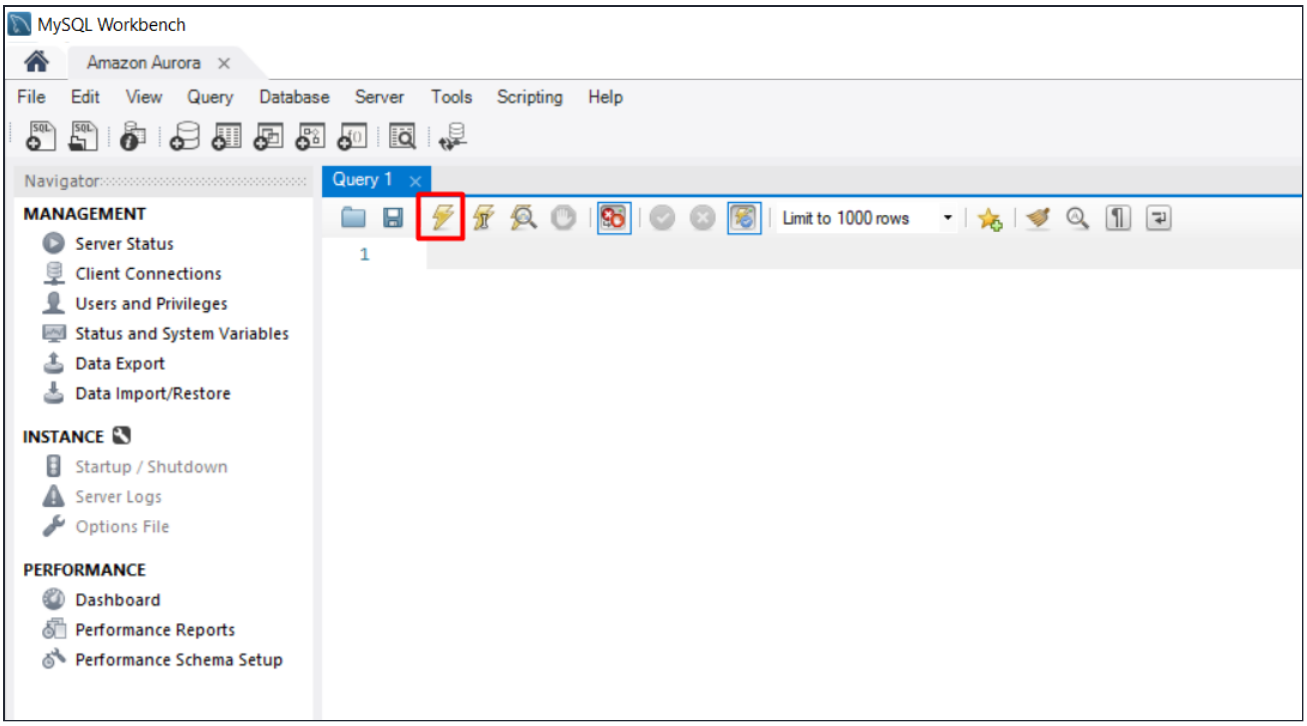
2. It will take around 1 minute to verify your connection and then launch the MySQL workbench editor.



3. MySQL workbench editor looks like this, click on the first SQL tab, highlighted in the SQL editor.

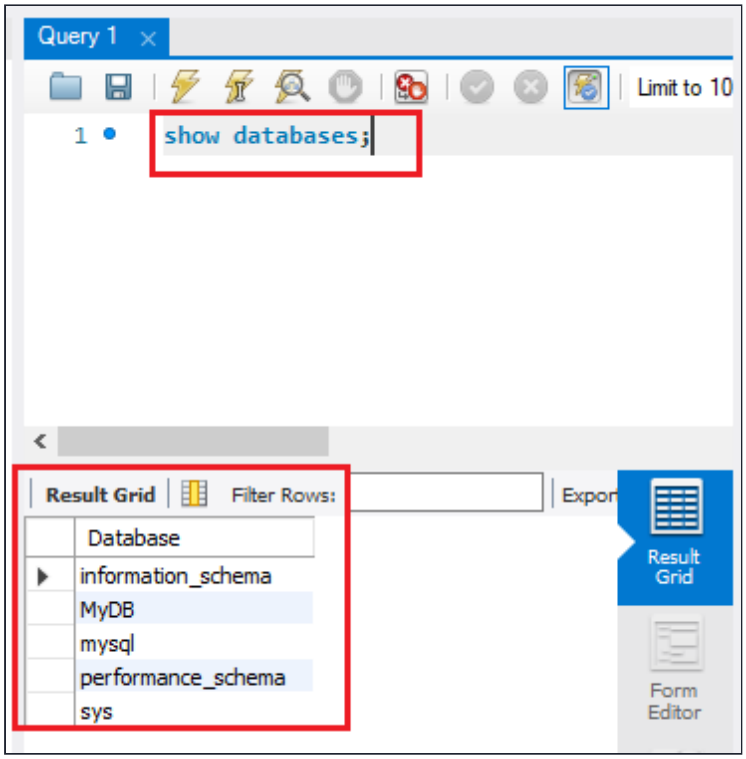


4. To show the list of databases present, paste the below statement in the query editor, and click on **Execution** icon:



5. **Note:** After executing every command, clear the previous command.

```
show databases;
```



6. To delete the MyDB, paste the below statement in the query editor, and click on the **Execution** icon:

```
drop database MyDB;
```

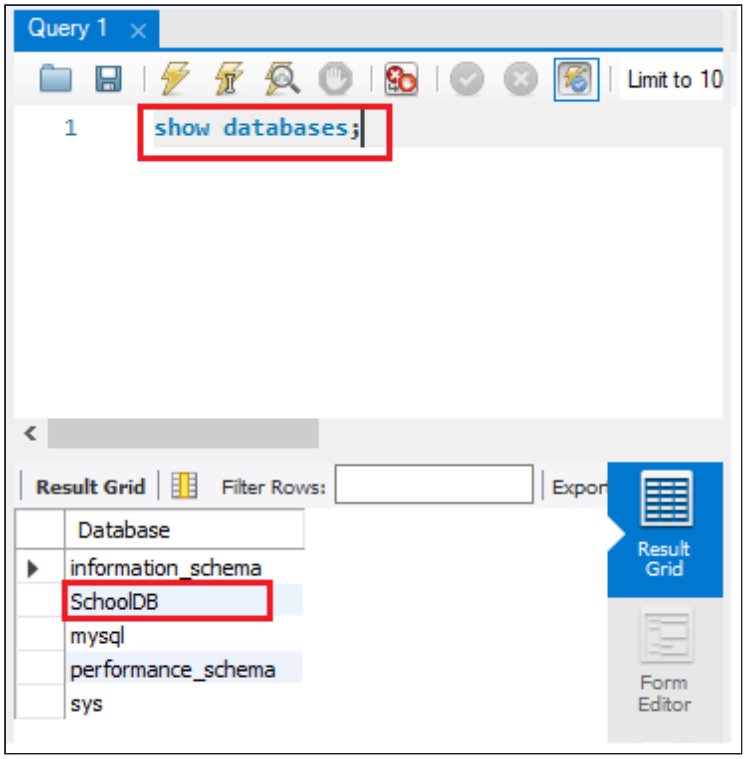
7. To create a database, paste the below statement in the query editor, and click

on **Execution** icon.

```
create database SchoolDB;
```

8. View the database created, paste the below statement in the query editor, and click on **Execution** icon.

```
show databases;
```



9. Switch the database SchoolDB, paste the below statement in the query editor, and click on **Execution** icon.

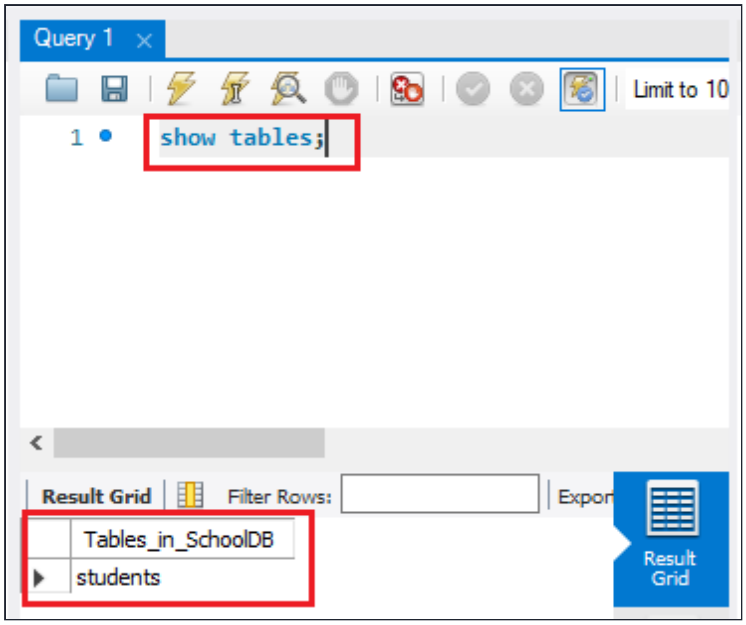
```
use SchoolDB;
```

10. Create a sample table of **students.**

```
CREATE TABLE students (
                    subject_id INT AUTO_INCREMENT,
                    subject_name VARCHAR(255) NOT NULL,
                    teacher VARCHAR(255),
                    start_date DATE,
                    lesson TEXT,
                    PRIMARY KEY (subject_id));
```

11. To view the **students** table, paste the below statement in the query editor, and click on **Execution** icon.

```
show tables;
```



12. Insert data into the table:

```
INSERT INTO students(subject_name, teacher) VALUES ('English', 'John Taylor');
```

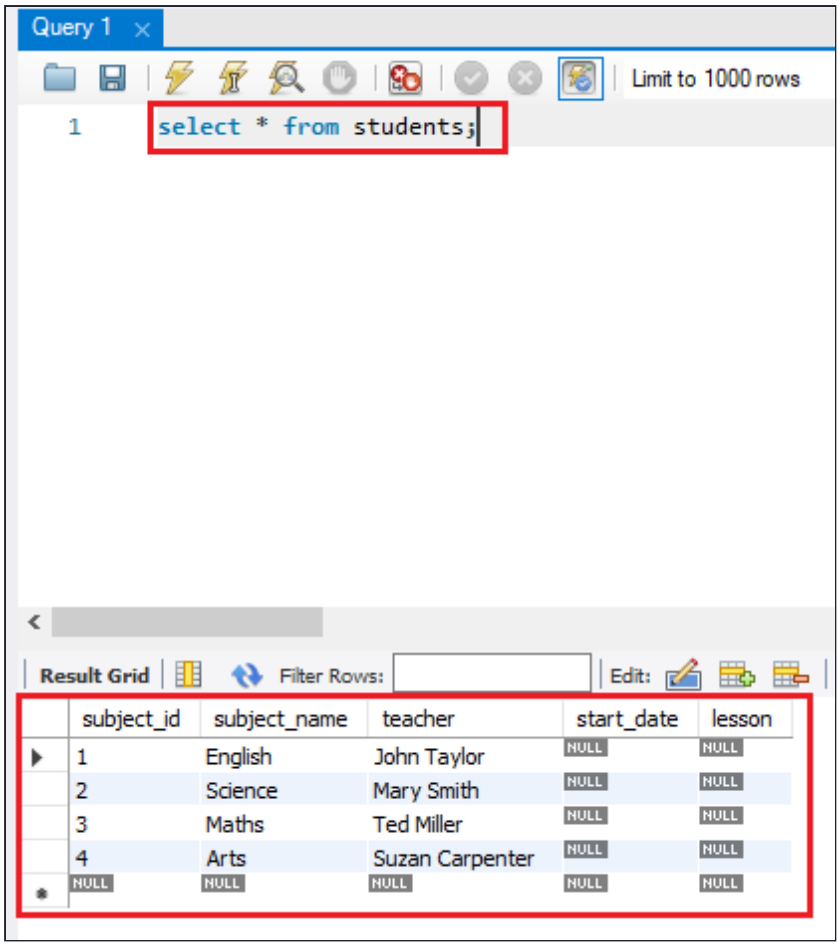
```
INSERT INTO students(subject_name, teacher) VALUES ('Science', 'Mary Smith');
```

```
INSERT INTO students(subject_name, teacher) VALUES ('Maths', 'Ted Miller');
```

```
INSERT INTO students(subject_name, teacher) VALUES ('Arts', 'Suzan Carpenter');
```

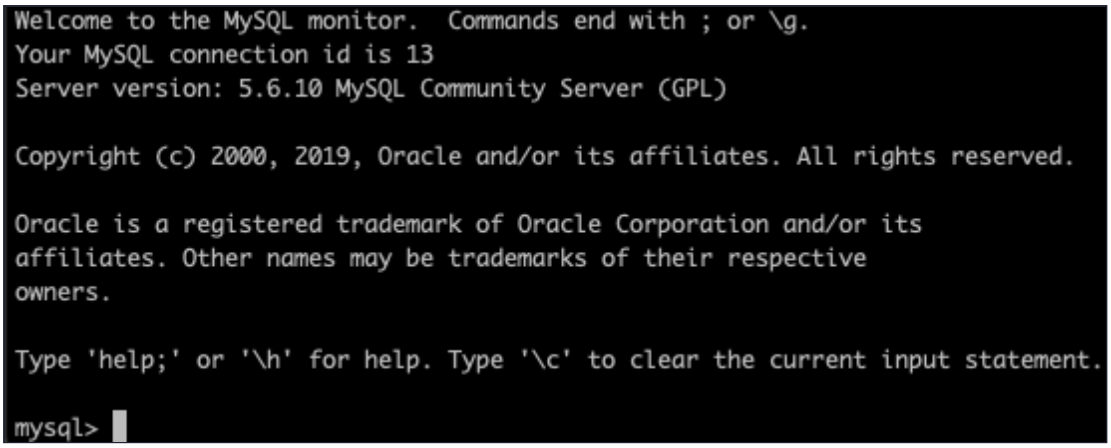
13. Check the items added in the table

```
select * from students;
```



Task 7: Connecting from a local Linux/iOS Machine

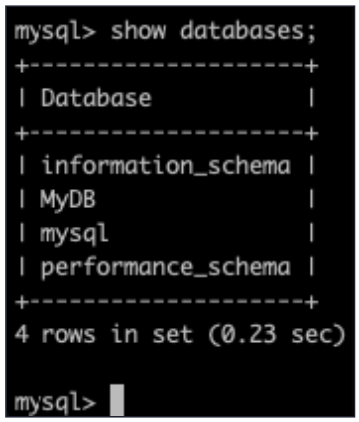
1. Open Terminal and enter the following command:
2. Syntax : **mysql -u <master username> -p -h <Aurora-DNS-Name-Writer>**
3. **mysql -u WhizlabsAdmin -p -h myauroracluster.cluster-cdegnvsebaim.us-east-1.rds.amazonaws.com**
4. Click Enter.
5. Enter the Master password while configuring Aurora.
    - ***Whizlabs123***. Click Enter.
6. You will be successfully logged into Amazon Aurora and see the **mysql** prompt.



Task 8: Execute Database Operations for Mac/Linux users

1. Windows users can follow the details provided in the Tutorial: Execute SQL statements using MySQL workbench and new the output
2. Linux/Mac Users can use the terminal to execute SQL commands.
3. Enter the command to see the existing databases.

```
show databases;
```

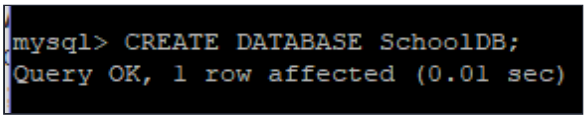


2. To delete the MyDB database

```
DROP DATABASE MyDB;
```

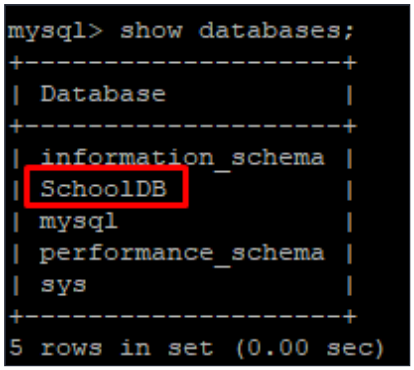
3. Create a Database

```
CREATE DATABASE SchoolDB;
```



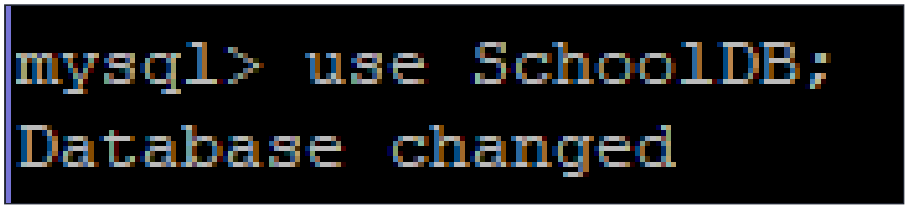
4. View the database created

```
show databases;
```



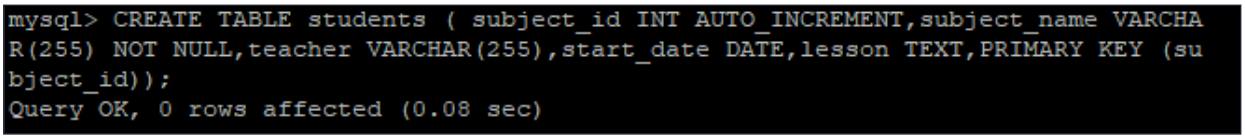
5. Switch the database **SchoolDB.**

```
use SchoolDB;
```



6. Create a sample table of **students.**

```
CREATE TABLE students (
                        subject_id INT AUTO_INCREMENT,
                        subject_name VARCHAR(255) NOT NULL,
                        teacher VARCHAR(255),
                        start_date DATE,
                        lesson TEXT,
                        PRIMARY KEY (subject_id));
```



7. See the students table.

```
show tables;
```

```
mysql> show tables;
+--------------------+
| Tables_in_SchoolDB |
+--------------------+
| students           |
+--------------------+
1 row in set (0.00 sec)
```

9. Insert data into the table

```
INSERT INTO students(subject_name, teacher) VALUES ('Arts',
'Suzan Carpenter');

INSERT INTO students(subject_name, teacher) VALUES
('English', 'John Taylor');

INSERT INTO students(subject_name, teacher) VALUES
('Science', 'Mary Smith');

INSERT INTO students(subject_name, teacher) VALUES ('Maths',
'Ted Miller');
```

10. Check the items added in the table

```
select * from students;
```

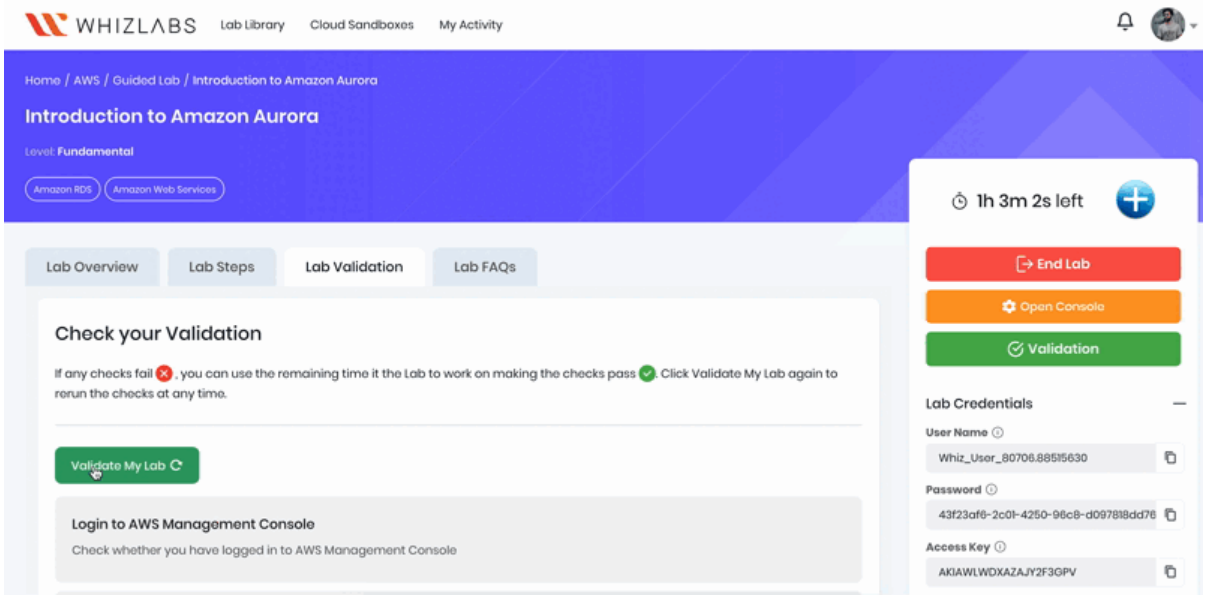
```
mysql> select * from students;
+------------+--------------+-----------------+------------+--------+
| subject_id | subject_name | teacher         | start_date | lesson |
+------------+--------------+-----------------+------------+--------+
|          1 | English      | John Taylor     | NULL       | 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)
```

Do you know ?

Amazon Aurora supports read replicas, which are copies of the primary database that can handle read traffic. These replicas can be automatically created and scaled based on demand, allowing for high read scalability and improved performance for read-heavy workloads.

Task 9: Validation Test

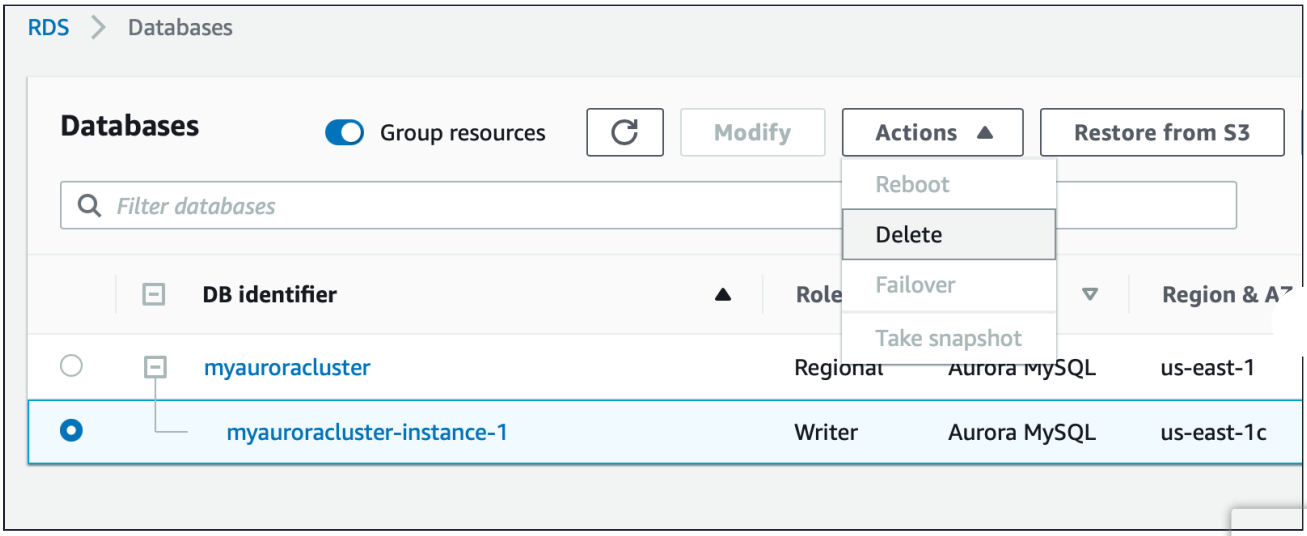
1. Once the lab steps are completed, please click on the **Validation** button on the left side panel.
2. This will validate the resources in the AWS account and shows you whether you have completed this lab successfully or not.
3. Sample output :



Task 10: Delete AWS Resources

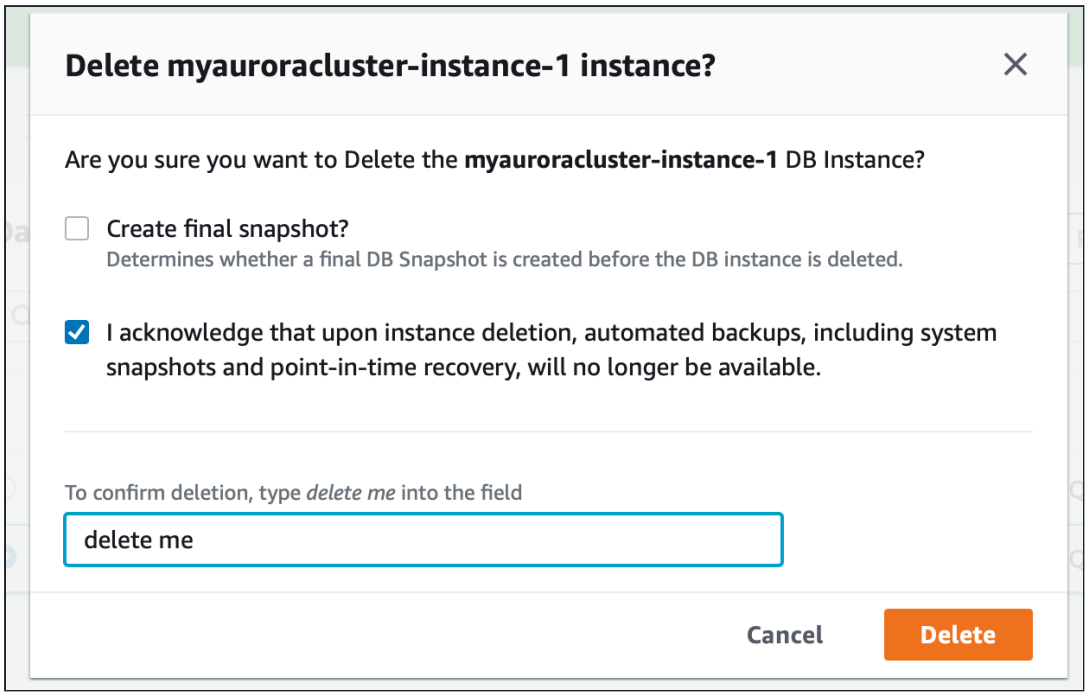
10.1 Delete the Aurora Cluster

1. Navigate to **RDS** by clicking on the **Services** menu available under the **Databases** section.
2. Click on DB Instances.
3. Now select the **myauroraclsuter-instance-1** and Click on **Actions**, Select **Delete.**



4. To finally delete we have to perform several tasks:

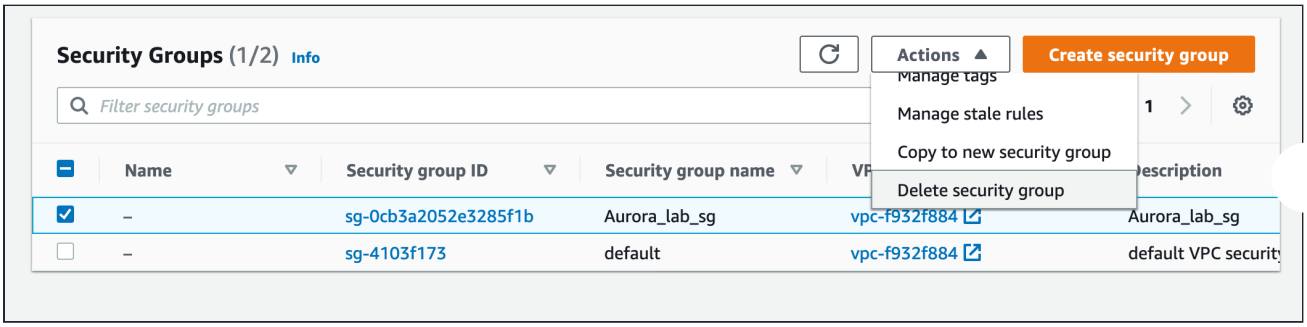
- Uncheck the option of **Create final snapshot**,
- Acknowledge by **selecting** the second option,
- Type ***delete me*** to confirm
- And finally, click on **Delete** button below.



5. Deletion of DB Cluster may take up to 5 minutes, you can end the lab once status becomes **Deleting.**

10.2 Delete the Security Group

1. Navigate to EC2 by clicking on the **Services** menu available under the **Database** section.
2. On the left panel menu, select the security group under the **Network & Security** section.
3. Select the **Aurora_lab_sg,** Click on Actions, and select **Delete security group**



- Note: If you don't find the Delete security group, please scroll downwards.

4. Click on the Delete button.

5. The security group is deleted successfully.

Completion and Conclusion

1. You have successfully used the AWS management console to create an Amazon Aurora MySQL database.
2. You have configured an Amazon Aurora database instance.
3. You have successfully connected to the Amazon Aurora database and executed SQL queries against it.

End Lab

1. Sign out of AWS Account.
2. You have successfully completed the lab.
3. Once you have completed the steps, click on **End Lab** from your whizlabs dashboard.