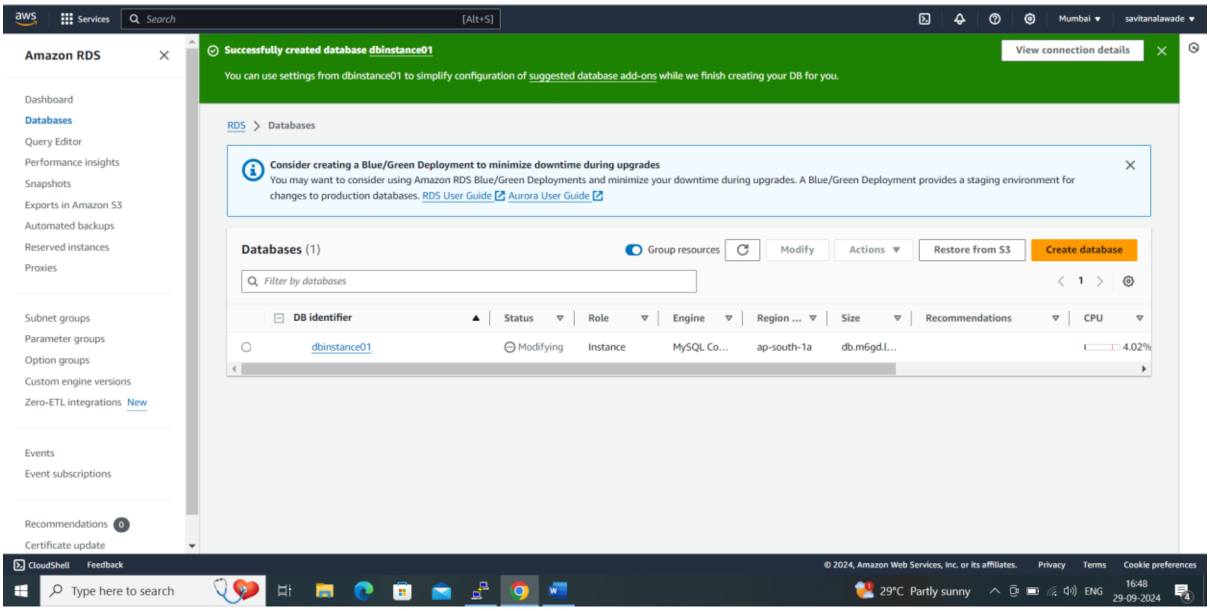
RDS (Relational Database)   26th_Sep_2024   SavitaNalawade

1)Create Database ”DBInstance01”



Successfully created database dbinstance01

You can use settings from dbinstance01 to simplify configuration of suggested database add-ons while we finish creating your DB for you.

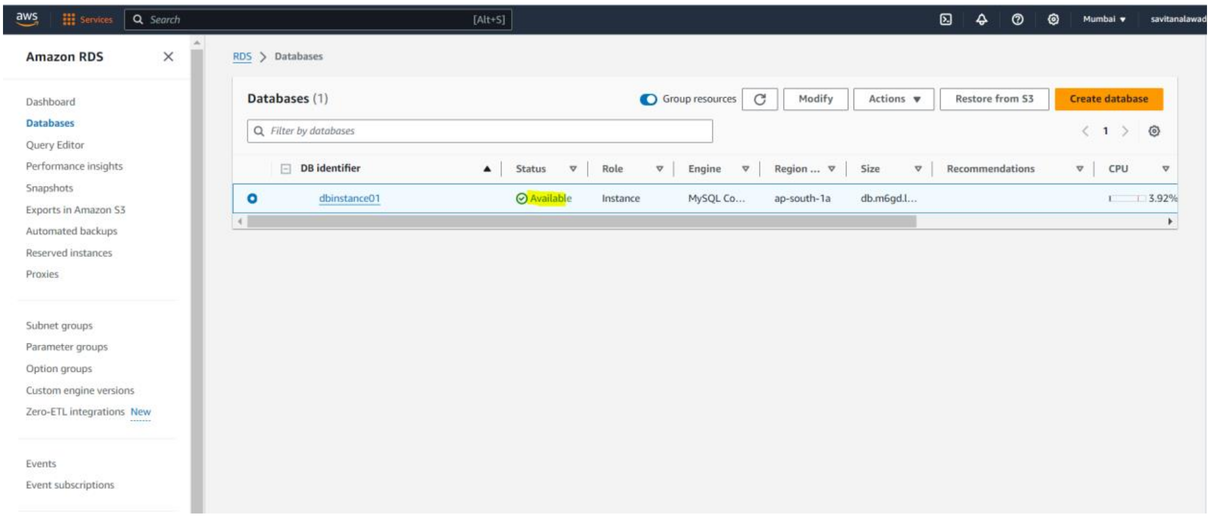
Consider creating a Blue/Green Deployment to minimize downtime during upgrades

You may want to consider using Amazon RDS Blue/Green Deployments and minimize your downtime during upgrades. A Blue/Green Deployment provides a staging environment for changes to production databases. RDS User Guide Aurora User Guide

Databases (1)

DB identifier	Status	Role	Engine	Region ...	Size	Recommendations	CPU
dbinstance01	Modifying	Instance	MySQL Co...	ap-south-1a	db.m6gd.l...		4.02%

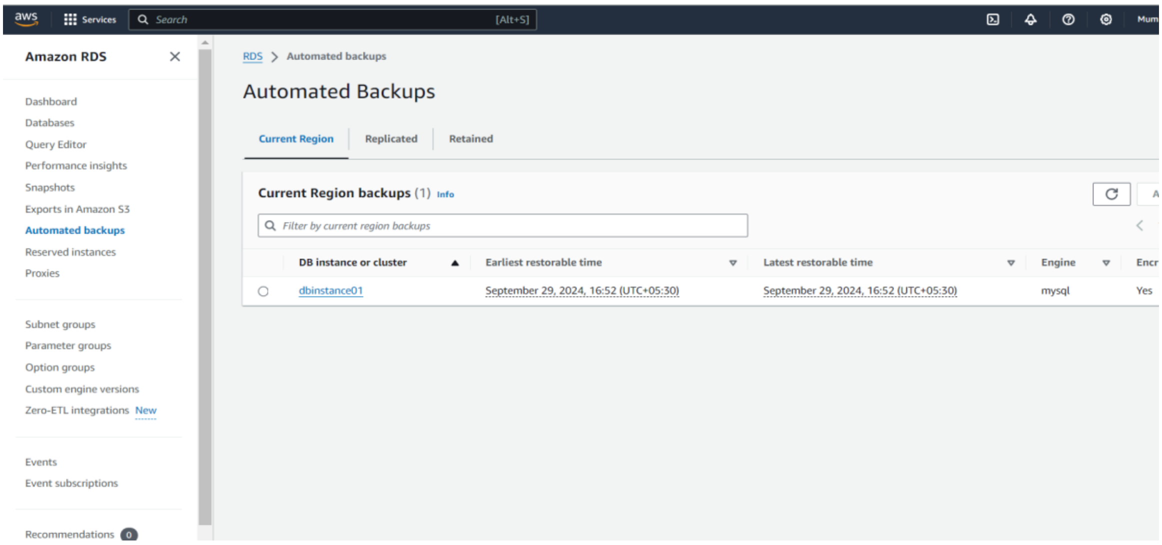
2)Database is in available state it means your DB is created successfully.



Databases (1)

DB identifier	Status	Role	Engine	Region ...	Size	Recommendations	CPU
dbinstance01	Available	Instance	MySQL Co...	ap-south-1a	db.m6gd.l...		3.92%

3)**Automated backup:** While creating Database automatic backup will get create.



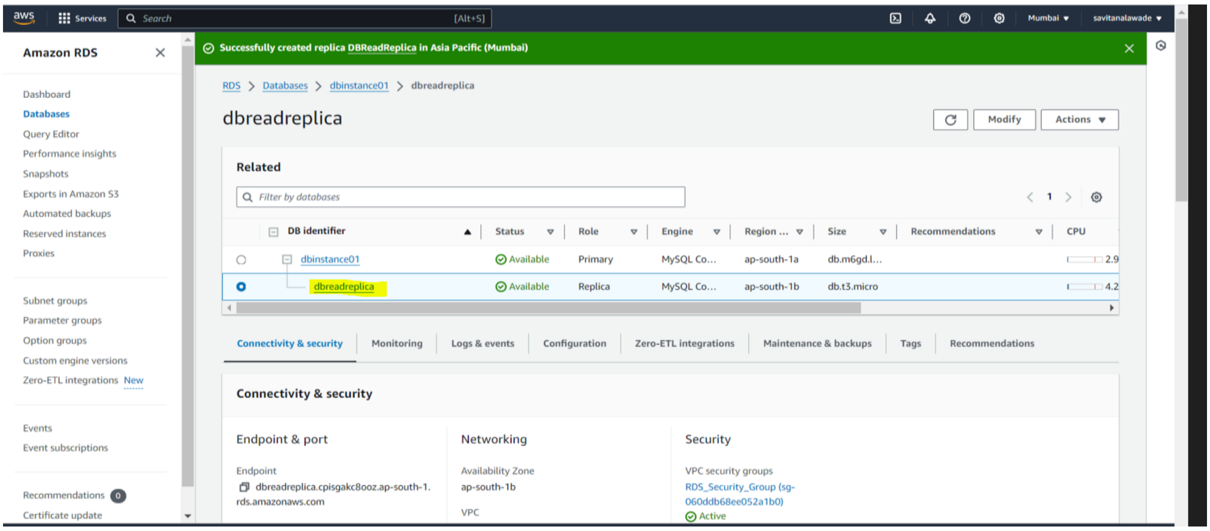
Automated Backups

Current Region backups (1) Info

	DB instance or cluster	Earliest restorable time	Latest restorable time	Engine	Encr
○	dbinstance01	September 29, 2024, 16:52 (UTC+05:30)	September 29, 2024, 16:52 (UTC+05:30)	mysql	Yes

4)ReadReplica – it is a copy of a database instance that can be used to offload read traffic from the primary database instance.

Read replicas can be created in the same AWS region or in a different region.



Successfully created replica DBReadReplica in Asia Pacific (Mumbai)

dbreadreplica

Related

	DB identifier	Status	Role	Engine	Region ...	Size	Recommendations	CPU
○	dbinstance01	Available	Primary	MySQL Co...	ap-south-1a	db.m6gd.l...		2.9
●	dbreadreplica	Available	Replica	MySQL Co...	ap-south-1b	db.t3.micro		4.2

Connectivity & security

Endpoint & port

Endpoint
dbreadreplica.cpisgakc8ooz.ap-south-1.rds.amazonaws.com

Networking

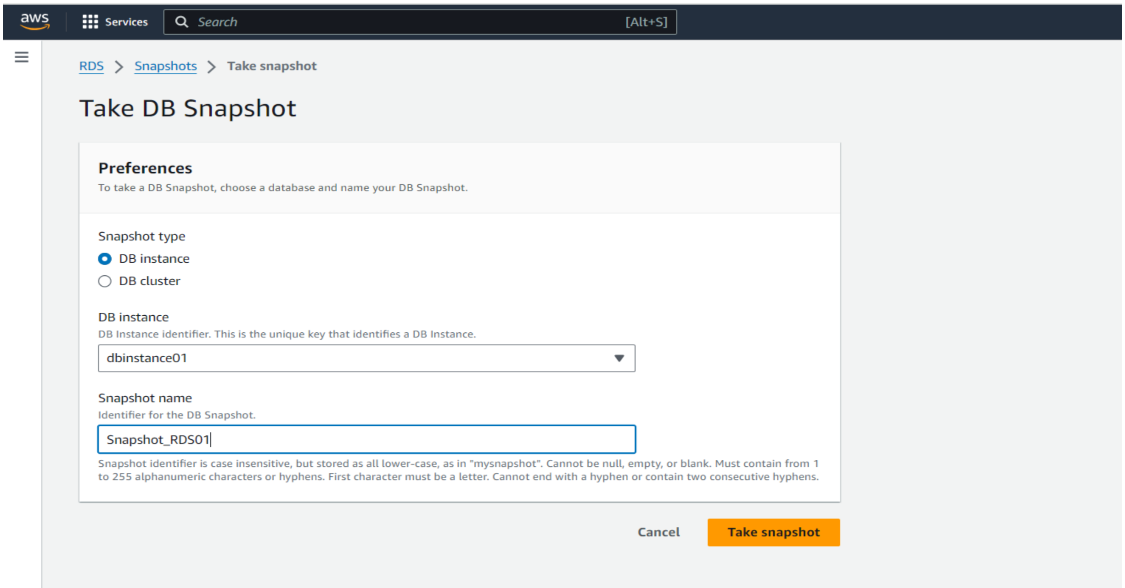
Availability Zone
ap-south-1b

VPC

Security

VPC security groups
RDS_Security_Group (sg-060ddb68ee052a1b0)
Active

5)Snapshot: It is a copy of your DB Instance. We can share it with other AWS account or over the different region.



Take DB Snapshot

Preferences

To take a DB Snapshot, choose a database and name your DB Snapshot.

Snapshot type

● DB instance

○ DB cluster

DB instance

DB Instance identifier. This is the unique key that identifies a DB Instance.

dbinstance01

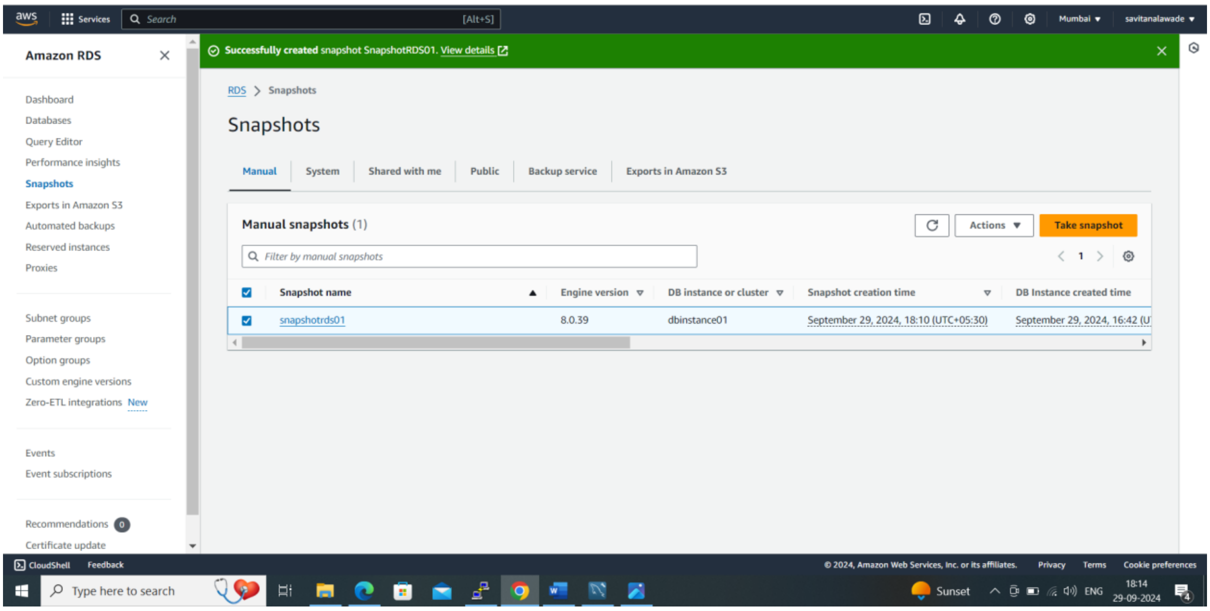
Snapshot name

Identifier for the DB Snapshot.

Snapshot_RDS01

Snapshot identifier is case insensitive, but stored as all lower-case, as in "mysnapshot". Cannot be null, empty, or blank. Must contain from 1 to 255 alphanumeric characters or hyphens. First character must be a letter. Cannot end with a hyphen or contain two consecutive hyphens.

Snapshot created successfully.



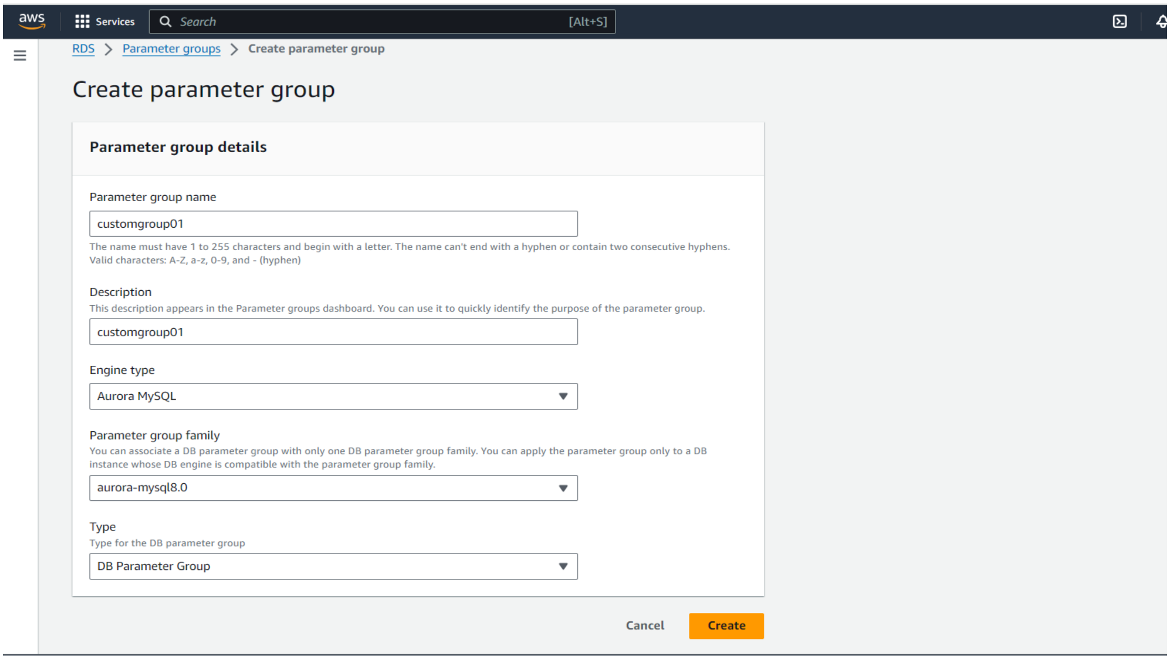
Successfully created snapshot SnapshotRDS01. View details

Snapshots

Manual snapshots (1)

☑	Snapshot name	Engine version	DB instance or cluster	Snapshot creation time	DB Instance created time
☑	snapshotrds01	8.0.39	dbinstance01	September 29, 2024, 18:10 (UTC+05:30)	September 29, 2024, 16:42 (U

6)Parameter Group: By default there is one parameter group is created but if we want to modify/change any value we need custom Parameter group.



Create parameter group

Parameter group details

Parameter group name: customgroup01

The name must have 1 to 255 characters and begin with a letter. The name can't end with a hyphen or contain two consecutive hyphens. Valid characters: A-Z, a-z, 0-9, and - (hyphen)

Description: This description appears in the Parameter groups dashboard. You can use it to quickly identify the purpose of the parameter group.

customgroup01

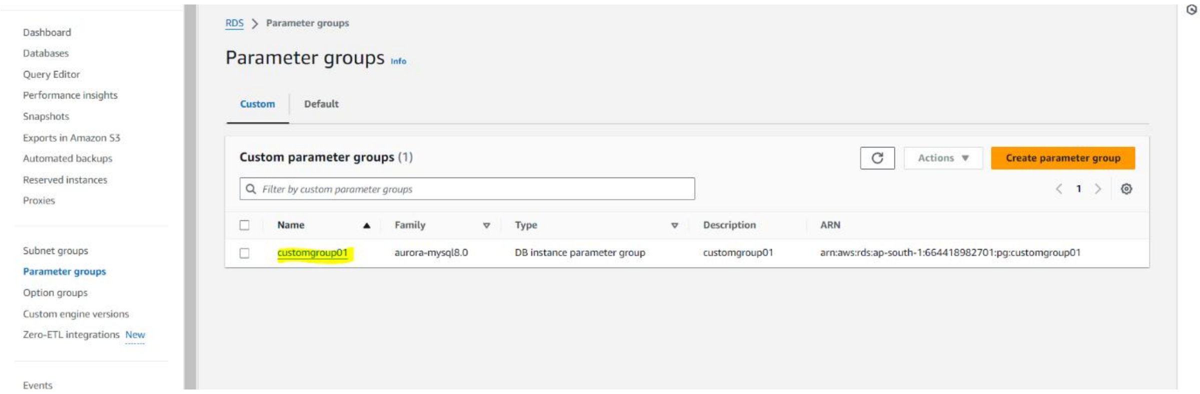
Engine type: Aurora MySQL

Parameter group family: You can associate a DB parameter group with only one DB parameter group family. You can apply the parameter group only to a DB instance whose DB engine is compatible with the parameter group family.

aurora-mysql8.0

Type: Type for the DB parameter group

DB Parameter Group

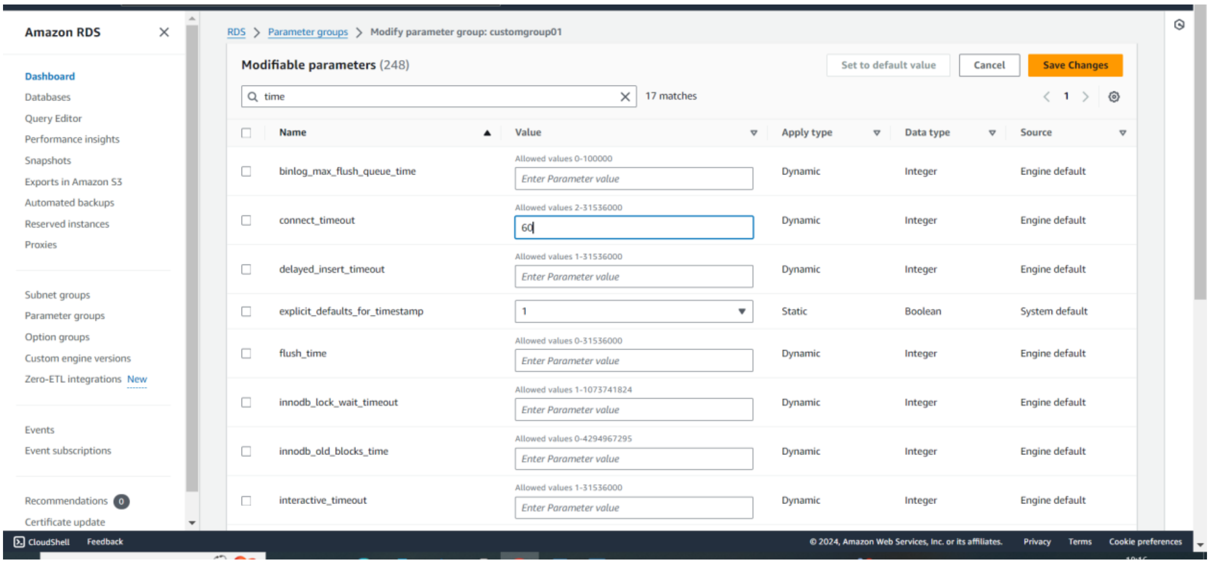


Parameter groups Info

Custom parameter groups (1)

☐	Name	Family	Type	Description	ARN
☐	customgroup01	aurora-mysql8.0	DB instance parameter group	customgroup01	arn:aws:rds:ap-south-1:664418982701:pg:customgroup01

Change connection_timeout as “60”

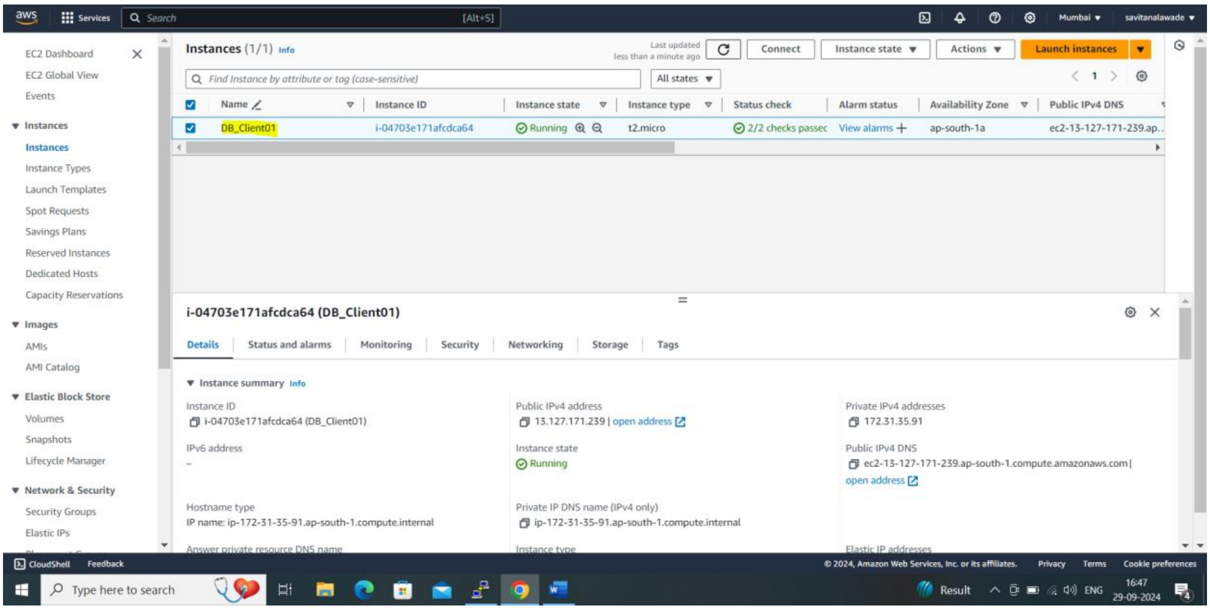


Modifiable parameters (248)

time — 17 matches

☐	Name	Value	Apply type	Data type	Source
☐	binlog_max_flush_queue_time	Allowed values 0-100000 Enter Parameter value	Dynamic	Integer	Engine default
☐	connect_timeout	Allowed values 2-31536000 60	Dynamic	Integer	Engine default
☐	delayed_insert_timeout	Allowed values 1-31536000 Enter Parameter value	Dynamic	Integer	Engine default
☐	explicit_defaults_for_timestamp	1	Static	Boolean	System default
☐	flush_time	Allowed values 0-31536000 Enter Parameter value	Dynamic	Integer	Engine default
☐	innodb_lock_wait_timeout	Allowed values 1-1073741824 Enter Parameter value	Dynamic	Integer	Engine default
☐	innodb_old_blocks_time	Allowed values 0-4294967295 Enter Parameter value	Dynamic	Integer	Engine default
☐	interactive_timeout	Allowed values 1-31536000 Enter Parameter value	Dynamic	Integer	Engine default

7) Create Instance “DB_Client01”



Instances (1/1) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
DB_Client01	i-04703e171afcdca64	Running	t2.micro	2/2 checks passec	View alarms +	ap-south-1a	ec2-13-127-171-239.ap...

i-04703e171afcdca64 (DB_Client01)

Instance summary Info

Instance ID
i-04703e171afcdca64 (DB_Client01)

Public IPv4 address
13.127.171.239 | open address

Private IPv4 addresses
172.31.35.91

IPv6 address
–

Instance state
Running

Public IPv4 DNS
ec2-13-127-171-239.ap-south-1.compute.amazonaws.com | open address

Hostname type
IP name: ip-172-31-35-91.ap-south-1.compute.internal

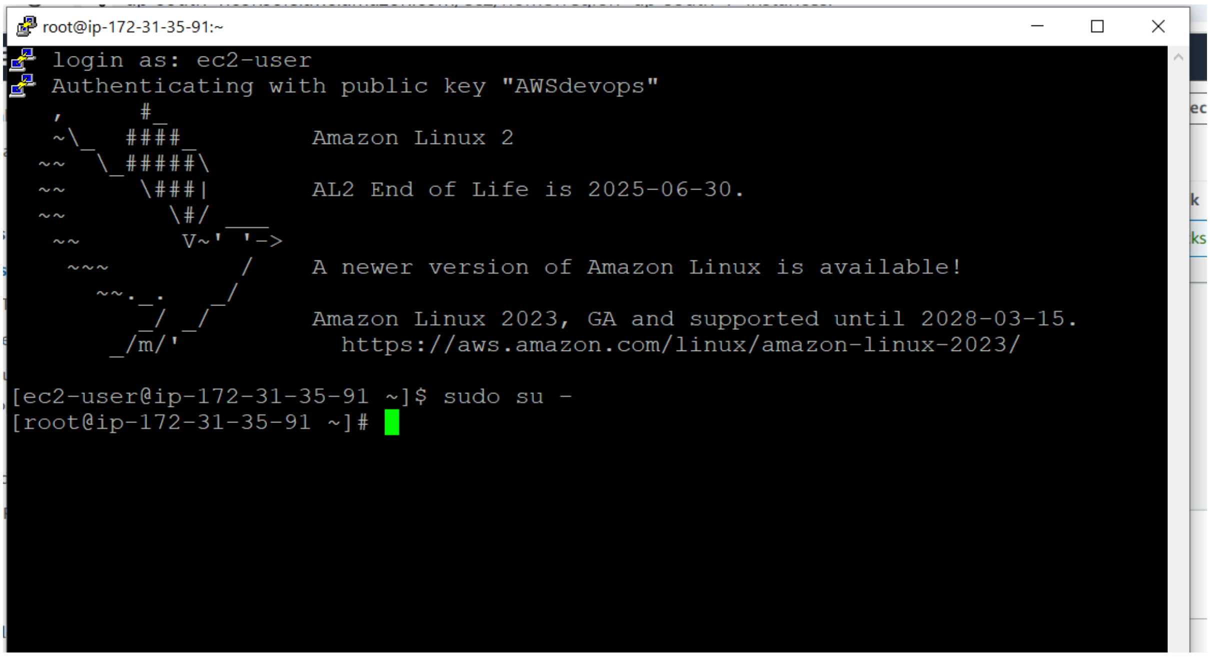
Private IP DNS name (IPv4 only)
ip-172-31-35-91.ap-south-1.compute.internal

Answer private resource DNS name

Instance type

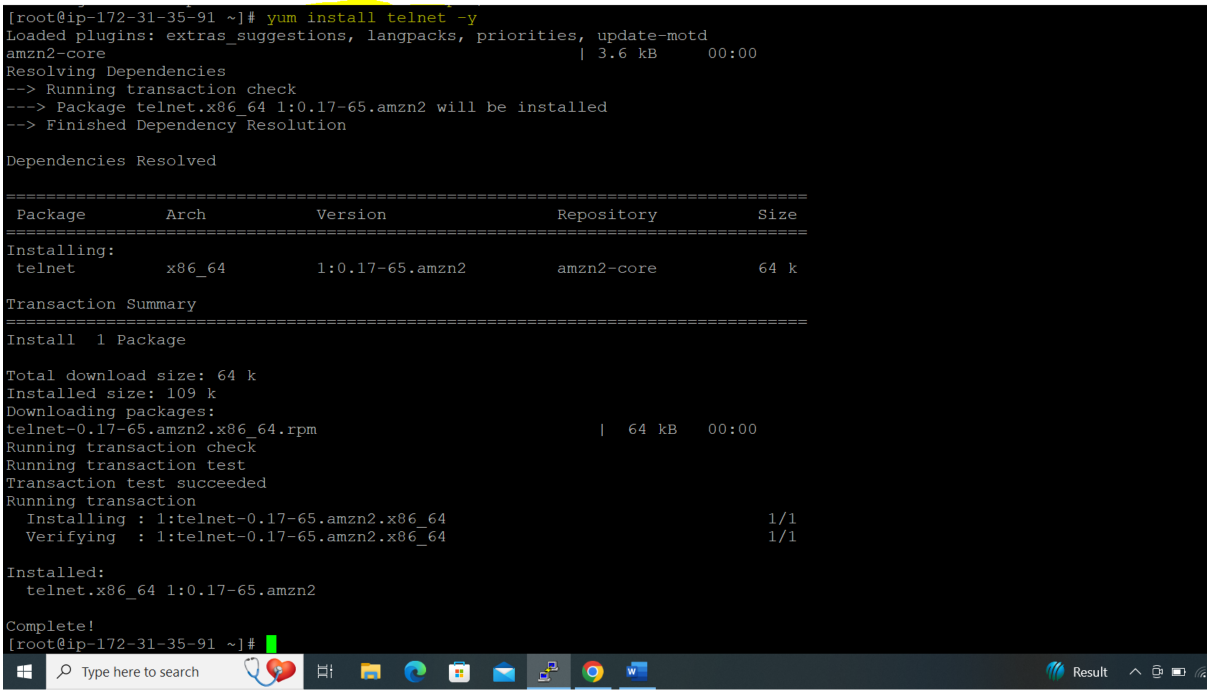
Elastic IP addresses

8)Connect instance via putty

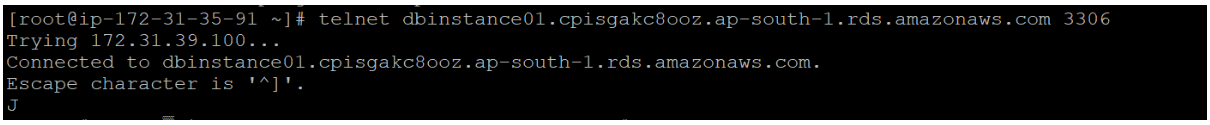


```
login as: ec2-user
Authenticating with public key "AWSdevops"
       ,     #_
    ~\_  ####_        Amazon Linux 2
   ~~  \_#####\
   ~~     \###|       AL2 End of Life is 2025-06-30.
   ~~       \#/ ___
    ~~       V~' '->
     ~~~         /    A newer version of Amazon Linux is available!
       ~~._.   _/
          _/ _/       Amazon Linux 2023, GA and supported until 2028-03-15.
        _/m/'           https://aws.amazon.com/linux/amazon-linux-2023/

[ec2-user@ip-172-31-35-91 ~]$ sudo su -
[root@ip-172-31-35-91 ~]#
```

9)Install telnet software to check connectivity between the EC2Instance and DB.

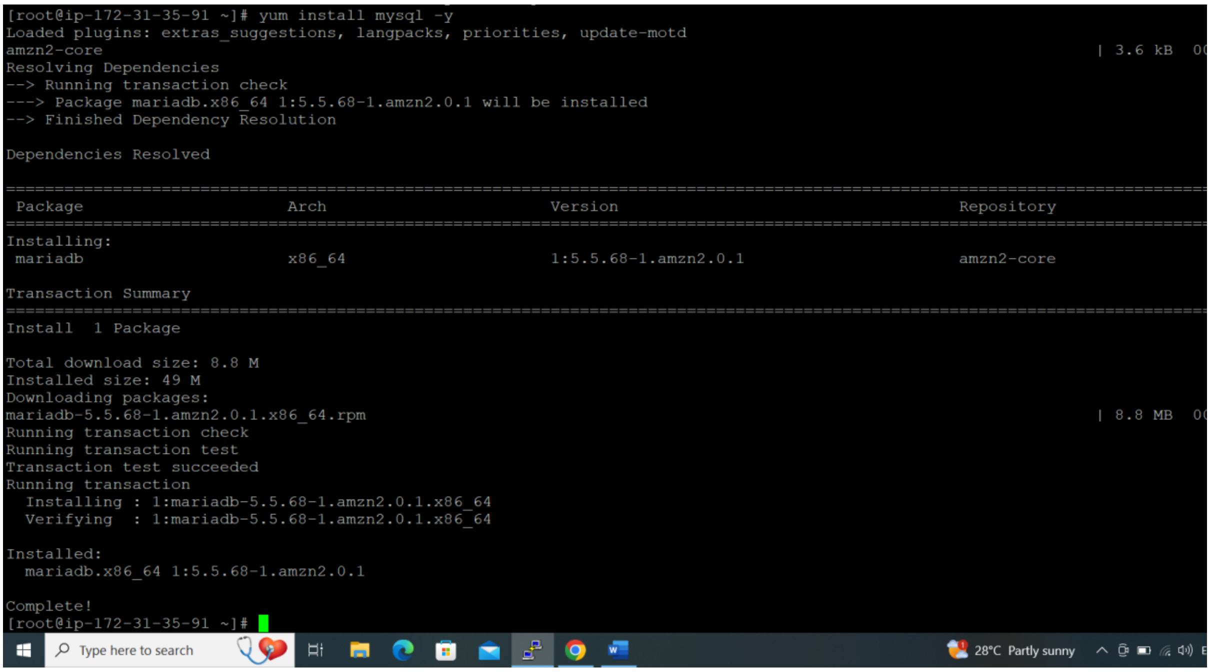


```
[root@ip-172-31-35-91 ~]# yum install telnet -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core                                                | 3.6 kB     00:00
Resolving Dependencies
--> Running transaction check
---> Package telnet.x86_64 1:0.17-65.amzn2 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================
 Package          Arch            Version                 Repository        Size
================================================================================
Installing:
 telnet           x86_64          1:0.17-65.amzn2         amzn2-core        64 k

Transaction Summary
================================================================================
Install  1 Package

Total download size: 64 k
Installed size: 109 k
Downloading packages:
telnet-0.17-65.amzn2.x86_64.rpm                             |  64 kB   00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : 1:telnet-0.17-65.amzn2.x86_64                                1/1
  Verifying  : 1:telnet-0.17-65.amzn2.x86_64                                1/1

Installed:
  telnet.x86_64 1:0.17-65.amzn2

Complete!
[root@ip-172-31-35-91 ~]#
```



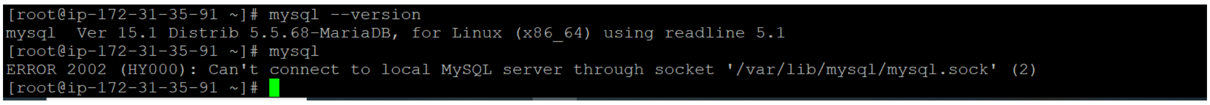
```
[root@ip-172-31-35-91 ~]# telnet dbinstance01.cpisgakc8ooz.ap-south-1.rds.amazonaws.com 3306
Trying 172.31.39.100...
Connected to dbinstance01.cpisgakc8ooz.ap-south-1.rds.amazonaws.com.
Escape character is '^]'.
J
```

10)Install MySQL on EC2Instance



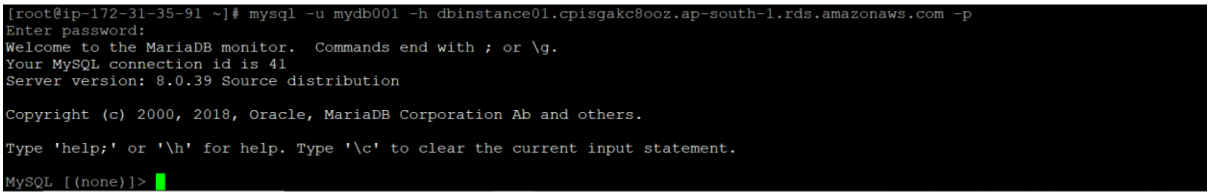
```
[root@ip-172-31-35-91 ~]# yum install mysql -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core                                                                                                     | 3.6 kB  00
Resolving Dependencies
--> Running transaction check
---> Package mariadb.x86_64 1:5.5.68-1.amzn2.0.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================================================================
 Package                        Arch                         Version                                    Repository
================================================================================================================================
Installing:
 mariadb                        x86_64                       1:5.5.68-1.amzn2.0.1                       amzn2-core

Transaction Summary
================================================================================================================================
Install  1 Package

Total download size: 8.8 M
Installed size: 49 M
Downloading packages:
mariadb-5.5.68-1.amzn2.0.1.x86_64.rpm                                                                          | 8.8 MB  00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : 1:mariadb-5.5.68-1.amzn2.0.1.x86_64
  Verifying  : 1:mariadb-5.5.68-1.amzn2.0.1.x86_64

Installed:
  mariadb.x86_64 1:5.5.68-1.amzn2.0.1

Complete!
[root@ip-172-31-35-91 ~]#
```

Check installed version of mysql



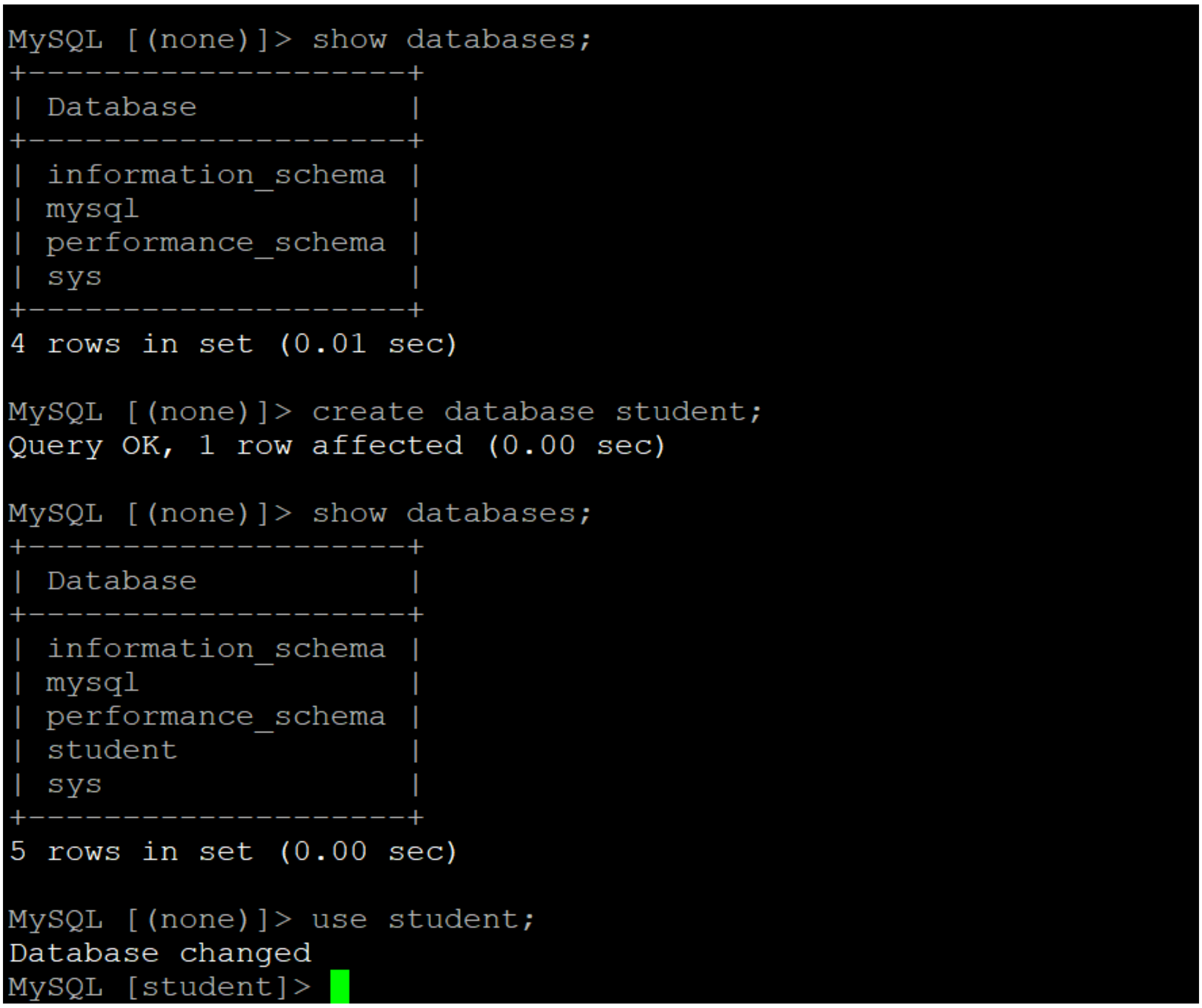
```
[root@ip-172-31-35-91 ~]# mysql --version
mysql  Ver 15.1 Distrib 5.5.68-MariaDB, for Linux (x86_64) using readline 5.1
[root@ip-172-31-35-91 ~]# mysql
ERROR 2002 (HY000): Can't connect to local MySQL server through socket '/var/lib/mysql/mysql.sock' (2)
[root@ip-172-31-35-91 ~]#
```

11) Connect mysql and RDS Instance DB to run sql query.



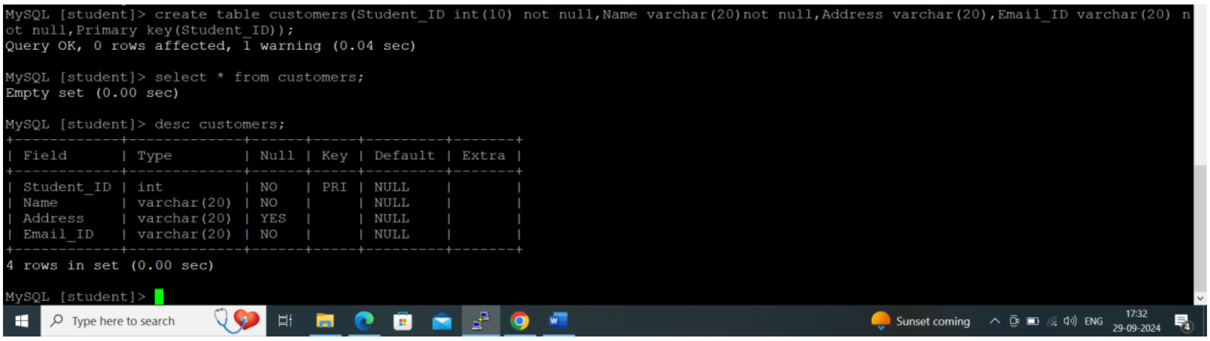
```
[root@ip-172-31-35-91 ~]# mysql -u mydb001 -h dbinstance01.cpisgakc8ooz.ap-south-1.rds.amazonaws.com -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 41
Server version: 8.0.39 Source distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

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

MySQL [(none)]>
```

a. Show existing databases and create one new db and use newly created.



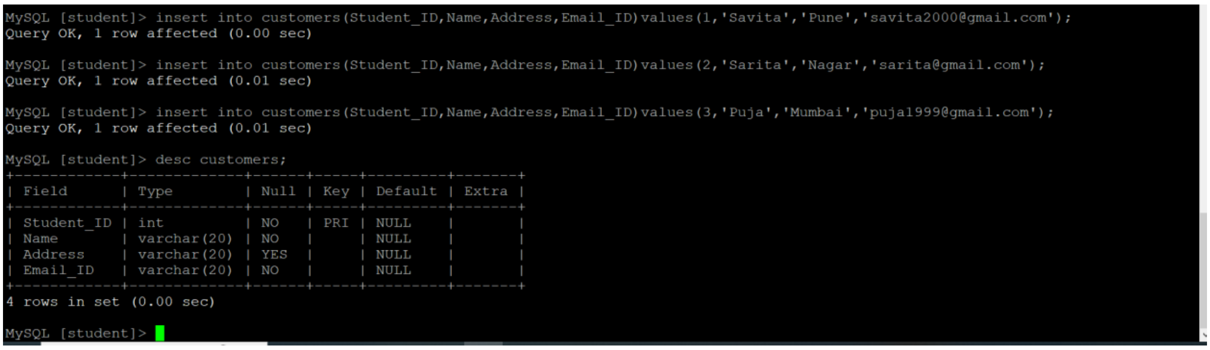
```
MySQL [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
4 rows in set (0.01 sec)

MySQL [(none)]> create database student;
Query OK, 1 row affected (0.00 sec)

MySQL [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| student            |
| sys                |
+--------------------+
5 rows in set (0.00 sec)

MySQL [(none)]> use student;
Database changed
MySQL [student]>
```

b. Create table with different parameters



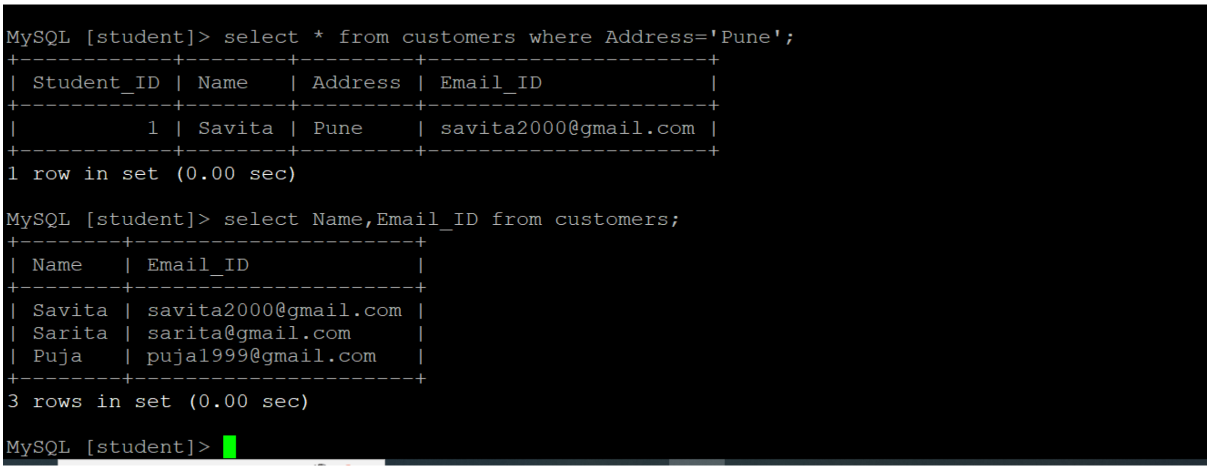
```
MySQL [student]> create table customers(Student_ID int(10) not null,Name varchar(20)not null,Address varchar(20),Email_ID varchar(20) n
ot null,Primary key(Student_ID));
Query OK, 0 rows affected, 1 warning (0.04 sec)

MySQL [student]> select * from customers;
Empty set (0.00 sec)

MySQL [student]> desc customers;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| Student_ID | int         | NO   | PRI | NULL    |       |
| Name       | varchar(20) | NO   |     | NULL    |       |
| Address    | varchar(20) | YES  |     | NULL    |       |
| Email_ID   | varchar(20) | NO   |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

MySQL [student]>
```

c. Insert entry into “customers” table



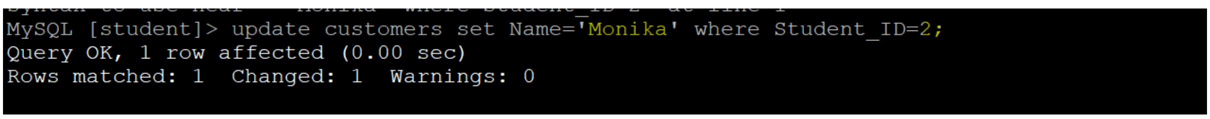
```
MySQL [student]> insert into customers(Student_ID,Name,Address,Email_ID)values(1,'Savita','Pune','savita2000@gmail.com');
Query OK, 1 row affected (0.00 sec)

MySQL [student]> insert into customers(Student_ID,Name,Address,Email_ID)values(2,'Sarita','Nagar','sarita@gmail.com');
Query OK, 1 row affected (0.01 sec)

MySQL [student]> insert into customers(Student_ID,Name,Address,Email_ID)values(3,'Puja','Mumbai','puja1999@gmail.com');
Query OK, 1 row affected (0.01 sec)

MySQL [student]> desc customers;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| Student_ID | int         | NO   | PRI | NULL    |       |
| Name       | varchar(20) | NO   |     | NULL    |       |
| Address    | varchar(20) | YES  |     | NULL    |       |
| Email_ID   | varchar(20) | NO   |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

MySQL [student]>
```

d. Select as per requirement data withing the table using different conditions



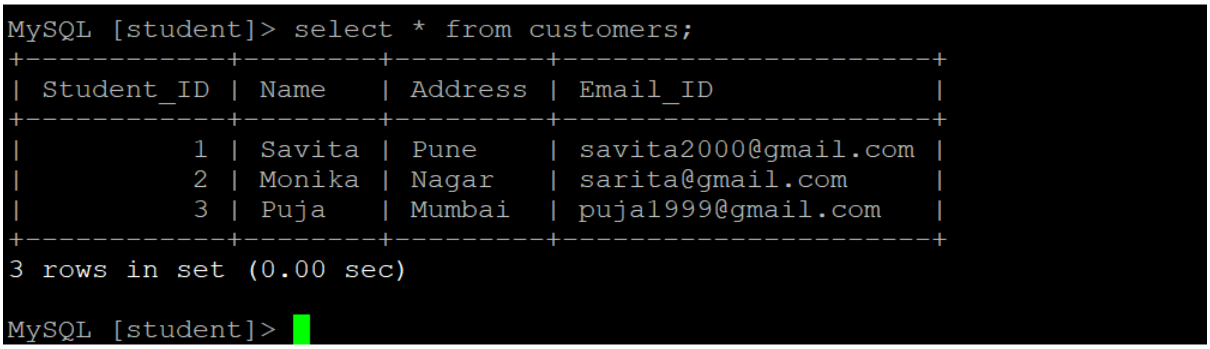
```
MySQL [student]> select * from customers where Address='Pune';
+------------+--------+---------+----------------------+
| Student_ID | Name   | Address | Email_ID             |
+------------+--------+---------+----------------------+
|          1 | Savita | Pune    | savita2000@gmail.com |
+------------+--------+---------+----------------------+
1 row in set (0.00 sec)

MySQL [student]> select Name,Email_ID from customers;
+--------+----------------------+
| Name   | Email_ID             |
+--------+----------------------+
| Savita | savita2000@gmail.com |
| Sarita | sarita@gmail.com     |
| Puja   | puja1999@gmail.com   |
+--------+----------------------+
3 rows in set (0.00 sec)

MySQL [student]>
```

e. Update name of 2nd ID



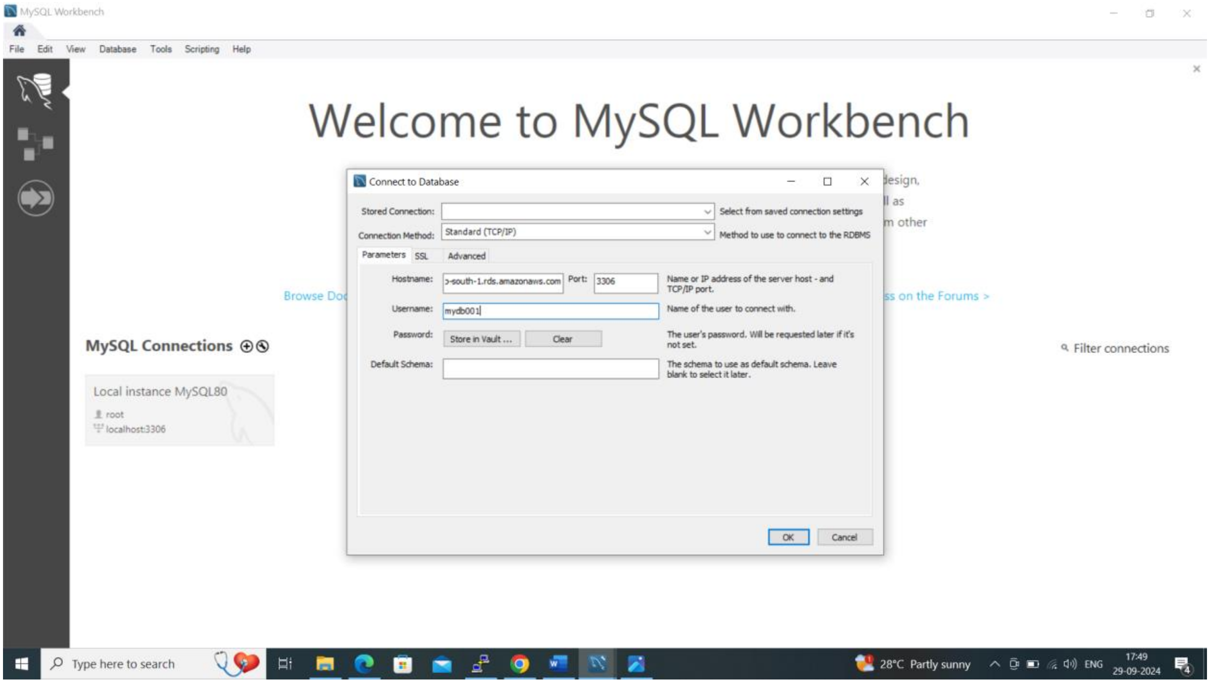
```
syntax to use near 'Monika' where Student_ID=2' at line 1
MySQL [student]> update customers set Name='Monika' where Student_ID=2;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

f. Show updated table



```
MySQL [student]> select * from customers;
+------------+--------+---------+----------------------+
| Student_ID | Name   | Address | Email_ID             |
+------------+--------+---------+----------------------+
|          1 | Savita | Pune    | savita2000@gmail.com |
|          2 | Monika | Nagar   | sarita@gmail.com     |
|          3 | Puja   | Mumbai  | puja1999@gmail.com   |
+------------+--------+---------+----------------------+
3 rows in set (0.00 sec)

MySQL [student]>
```

12) Open MySQL Workbench and login with user and password



Connect to Database

Stored Connection: Select from saved connection settings

Connection Method: Standard (TCP/IP) Method to use to connect to the RDBMS

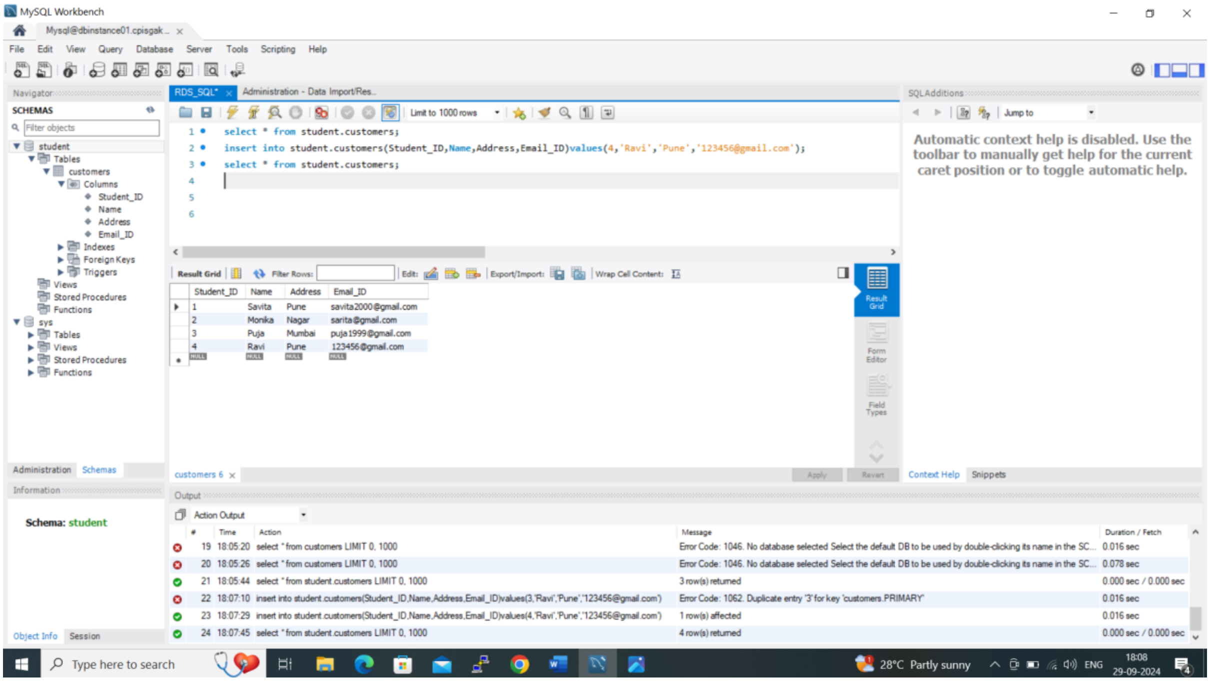
Hostname: >-south-1.rds.amazonaws.com Port: 3306 Name or IP address of the server host - and TCP/IP port.

Username: mydb001 Name of the user to connect with.

Password: The user's password. Will be requested later if it's not set.

Default Schema: The schema to use as default schema. Leave blank to select it later.

13) We can see created database, table from here also we can add/delete entry into the table.



```
select * from student.customers;
insert into student.customers(Student_ID,Name,Address,Email_ID)values(4,'Ravi','Pune','123456@gmail.com');
select * from student.customers;
```

Student_ID	Name	Address	Email_ID
1	Savita	Pune	savita2000@gmail.com
2	Monika	Nagar	sarita@gmail.com
3	Puja	Mumbai	puja1999@gmail.com
4	Ravi	Pune	123456@gmail.com
NULL	NULL	NULL	NULL

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Schema: student

```
#   Time      Action                                                                                          Message                                                                                               Duration / Fetch
19  18:05:20  select * from customers LIMIT 0, 1000                                                           Error Code: 1046. No database selected Select the default DB to be used by double-clicking its name in the SC...  0.016 sec
20  18:05:26  select * from customers LIMIT 0, 1000                                                           Error Code: 1046. No database selected Select the default DB to be used by double-clicking its name in the SC...  0.078 sec
21  18:05:44  select * from student.customers LIMIT 0, 1000                                                   3 row(s) returned                                                                                     0.000 sec / 0.000 sec
22  18:07:10  insert into student.customers(Student_ID,Name,Address,Email_ID)values(3,'Ravi','Pune','123456@gmail.com')  Error Code: 1062. Duplicate entry '3' for key 'customers.PRIMARY'                              0.016 sec
23  18:07:29  insert into student.customers(Student_ID,Name,Address,Email_ID)values(4,'Ravi','Pune','123456@gmail.com')  1 row(s) affected                                                                        0.016 sec
24  18:07:45  select * from student.customers LIMIT 0, 1000                                                   4 row(s) returned                                                                                     0.000 sec / 0.000 sec
```