AWS RDS Practical
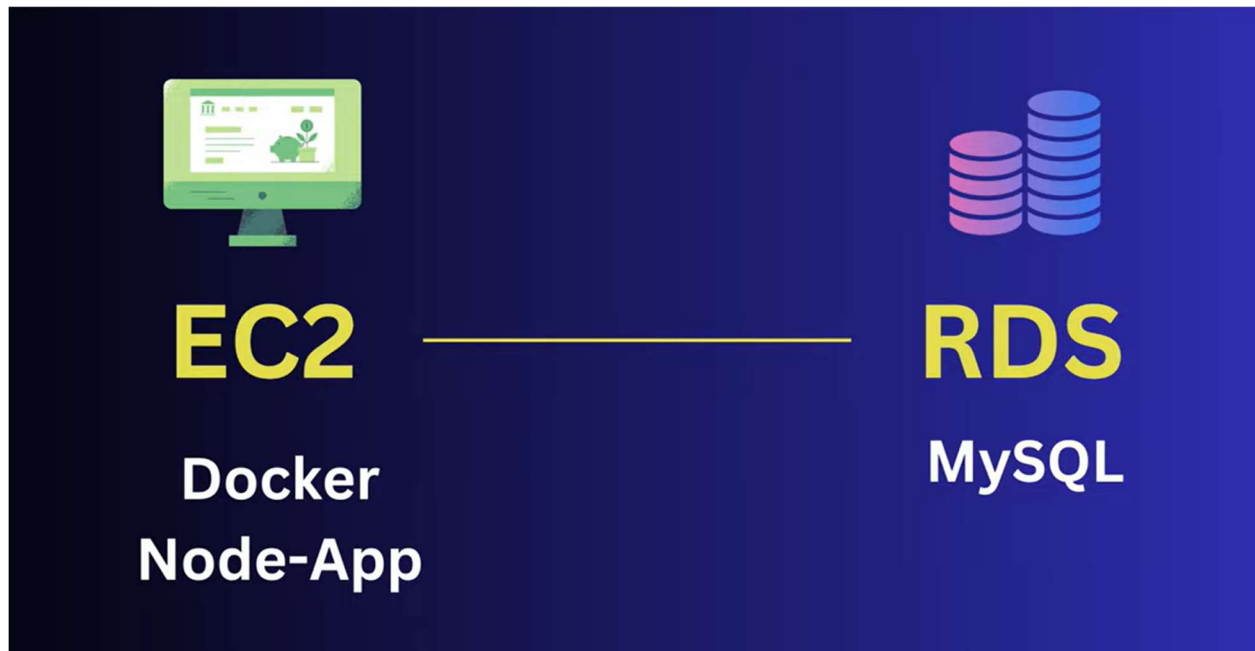
Deploy a Docker based Node.js App on EC2 with MySQL RDS

Step 1: Create RDS MySQL Database

1. Go to AWS Console → RDS

2. Click Create database

3. Choose:

- Engine: **MySQL**

- Template: **Free tier**

- DB Instance Identifier: database-2

- Master username: admin

- Master password: Azad1234

4. Connectivity:

- Select your **VPC**

- Subnet group: private subnets (recommended)

- Public access: **Yes**

- Security Group: create new → noderds

5. In SG (noderds)

Allow inbound:

- **Port 3306**

6. Create DB
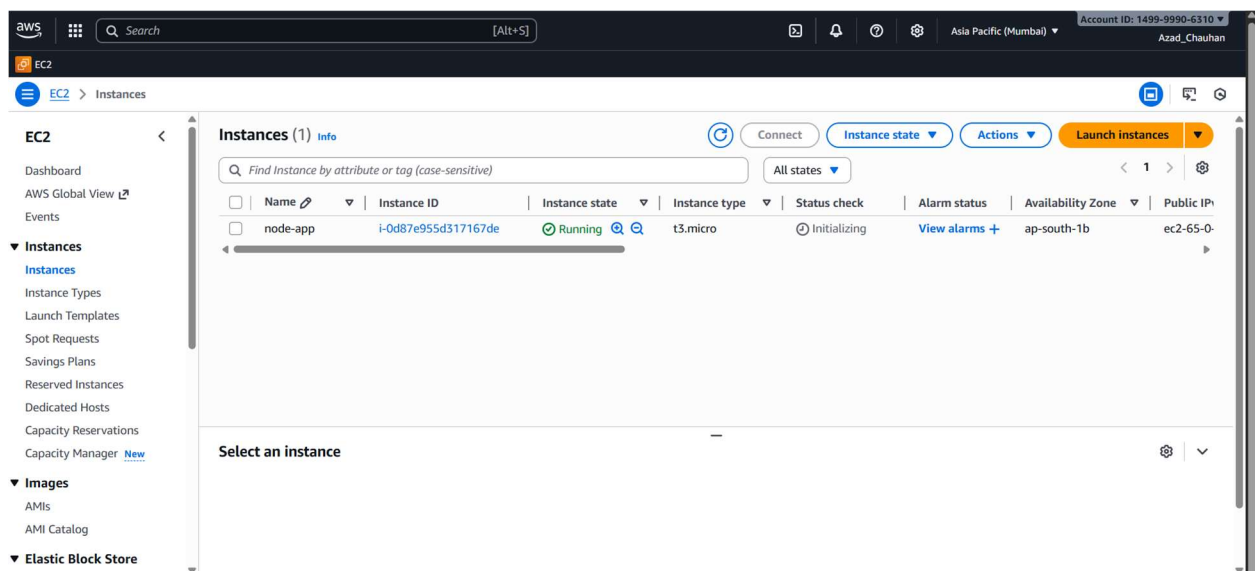
Copy the **RDS endpoint** after creation:

Step 2: Launch EC2 Instance

1. Go to AWS → EC2 → Launch Instance

- OS: **Amazon linux**

- Type: **t2.micro** (free tier)

- Key pair: download .pem

- Security Group: create new → sg-ec2

    o   Allow SSH (22) → only your IP

    o   Allow HTTP (80) → Anywhere

2. Place EC2 inside the same VPC as RDS

3. Launch the instance.

Step 3: Install Docker on EC2

Connect you local computer to EC2 via ssh

==sudo yum install -y docker== (Installs Docker on your Linux system using the yum package manager.)

==sudo systemctl start docker== (Docker must be running before you can use Docker commands.

)

==sudo systemctl status docker== (Shows the current status of the Docker service, To verify if Docker is running, stopped, or showing errors.)

==sudo docker pull philippaul/node-mysql-app:02== (Downloads a **pre-built Docker image** named philippaul/node-mysql-app:02 from Docker Hub.)

==sudo docker images== (Lists all Docker images stored on your system.)

==sudo docker run --rm -p 80:3000 -e DB_HOST="database-2.cxumu0icm8c1.ap-south-1.rds.amazonaws.com" -e DB_USER="admin" -e DB_PASSWORD="Azad1234" -d philippaul/node-mysql-app:02== (To run your Node.js app connected to MySQL RDS in Docker.)
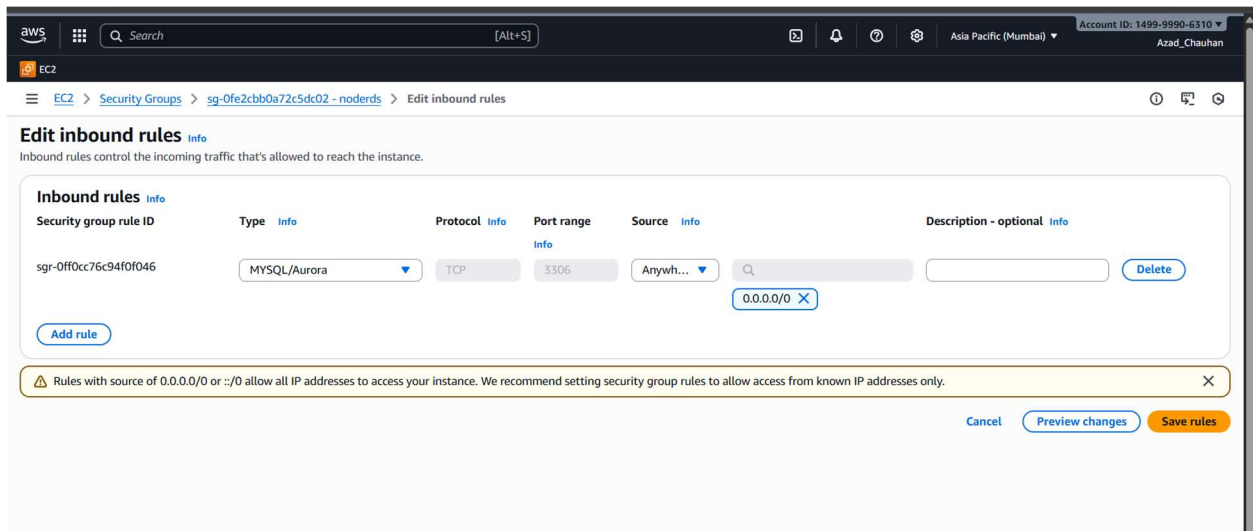
==sudo docker ps== (To see if your app container is running.)

==sudo docker logs -f eloquent_northcutt== (To check:

- If the app started correctly

- If the app connected to the database
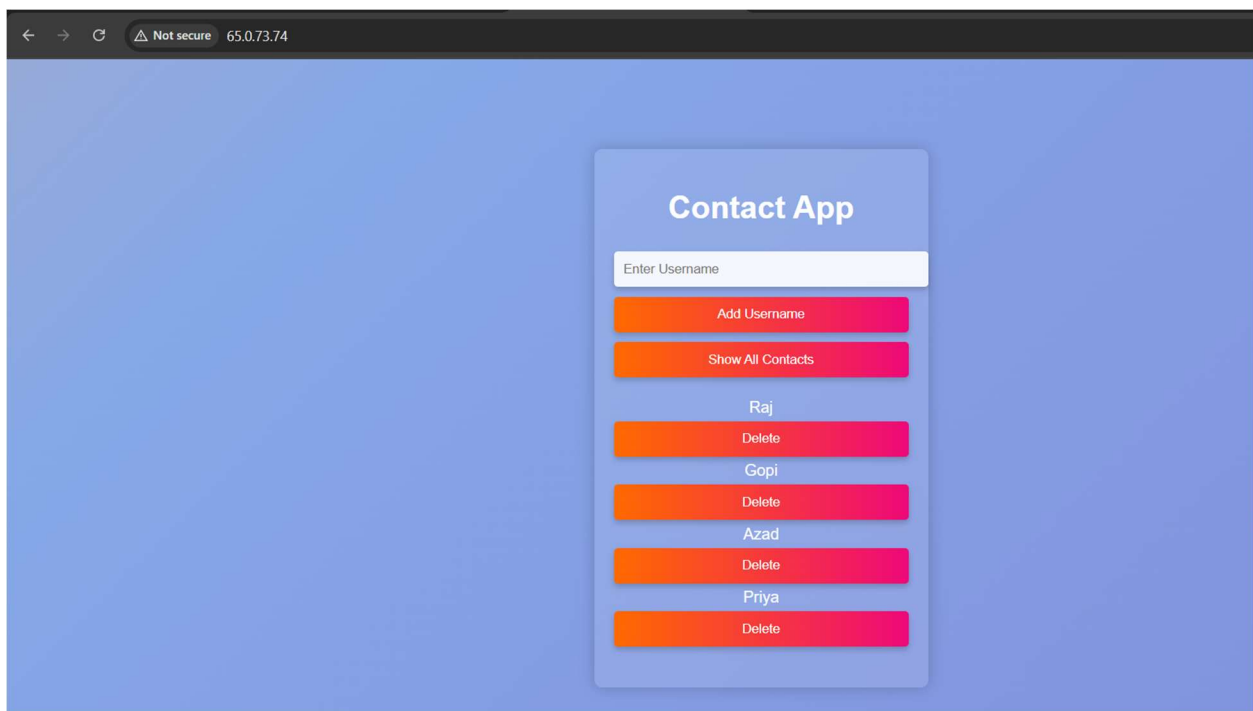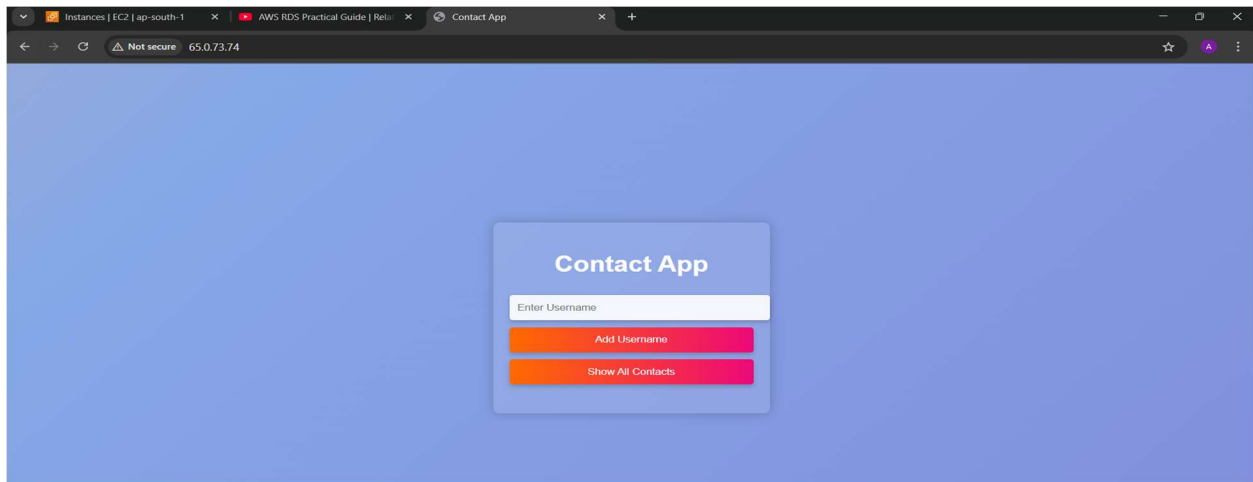
- Any errors happening inside the container)

Its checking and confermation processes Inbound rules

Step 4: Test Application

Open browser:http://EC2_PUBLIC_IP/(65.0.73.74)

Step 5: Test RDS Connectivity

sudo docker run -it --rm mysql:8.0 mysql -h <YOUR-RDS-ENDPOINT> -u admin -p

```
Last login: Mon Nov 17 18:43:36 2025 from 152.59.59.102
[ec2-user@ip-172-31-7-149 ~]$ sudo docker run -it --rm mysql:8.0 \
    mysql -h database-2.cxumu0icm8c1.ap-south-1.rds.amazonaws.com \
    -u admin -p
Unable to find image 'mysql:8.0' locally
8.0: Pulling from library/mysql
023a182c62a0: Pull complete
4f78e34adfad: Pull complete
a2ed1082d9e2: Pull complete
c9ecfb07ed08: Pull complete
4f94eaa123bf: Pull complete
2a2d53254403: Pull complete
48ec49971d94: Pull complete
fdca9f583d44: Pull complete
abcf302dead6: Pull complete
37bd516ff765: Pull complete
d68710a4a4e9: Pull complete
Digest: sha256:f37951fc3753a6a22d6c7bf6978c5e5fefcf6f31814d98c582524f98eae52b21
Status: Downloaded newer image for mysql:8.0
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 64
Server version: 8.0.43 Source distribution

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owners.

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

mysql> show databases
```

```
mysql> show databases
    -> 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 's
how databases' at line 2
mysql>  show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| my_app_db          |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.01 sec)

mysql> use my_app_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> show tables;
+--------------------+
| Tables_in_my_app_db |
+--------------------+
| contacts           |
+--------------------+
1 row in set (0.00 sec)

mysql> select * from contacts;
+----+----------+
| id | username |
+----+----------+
|  2 | Raj      |
|  3 | Gopi     |
|  4 | Azad     |
|  6 | Priya    |
+----+----------+
4 rows in set (0.01 sec)

mysql>
```