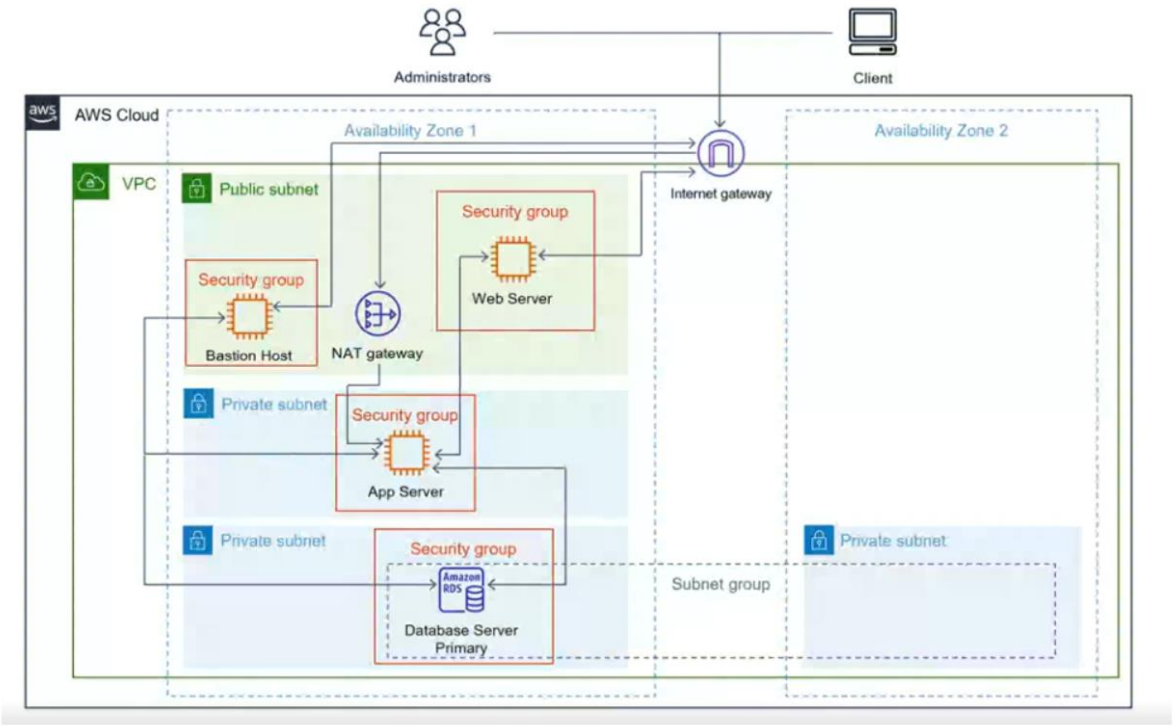
The following lab was created in a sandbox environment provided by AWS.

Design and configure a high available 3-tier Architecture on AWS

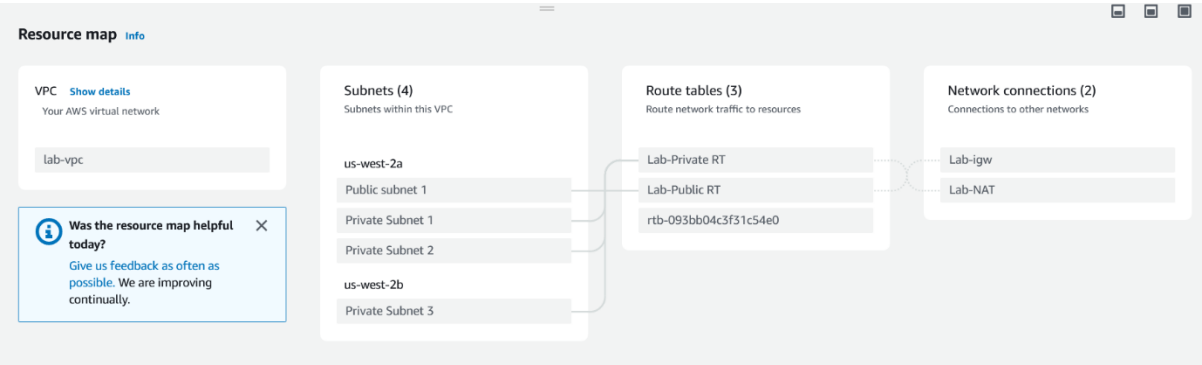
- Tier 1 - User/Presentation Tier
- Tier 2 - Application Tier
- Tier 3 - Data Tier

Name: Ofir Bar on

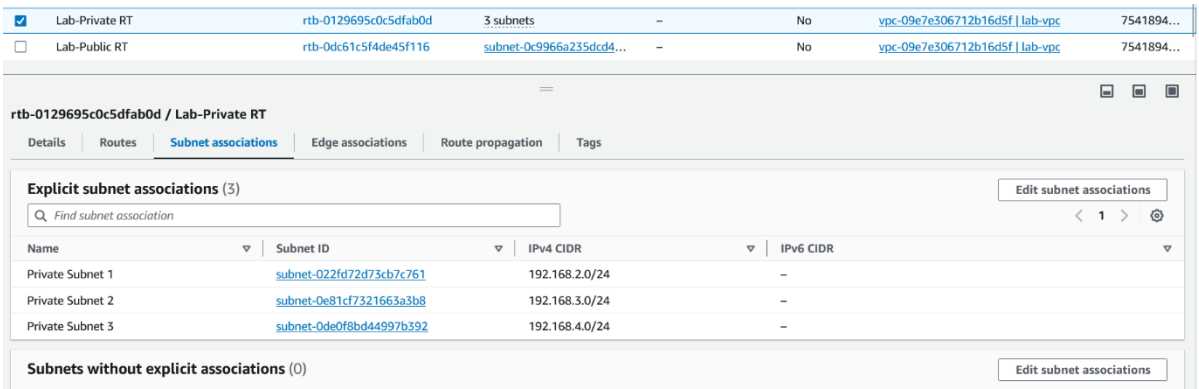
- Requested architecture in the lab:



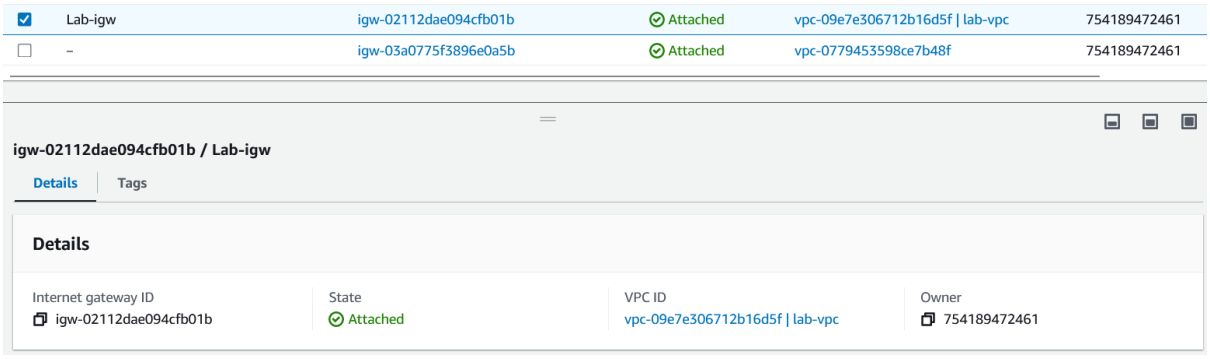
- Created VPC, 1 Public subnet, 3 Private subnets, 2 Route tables, Internet Gateway and NAT. (Private Subnet 3 is on different availability zone)



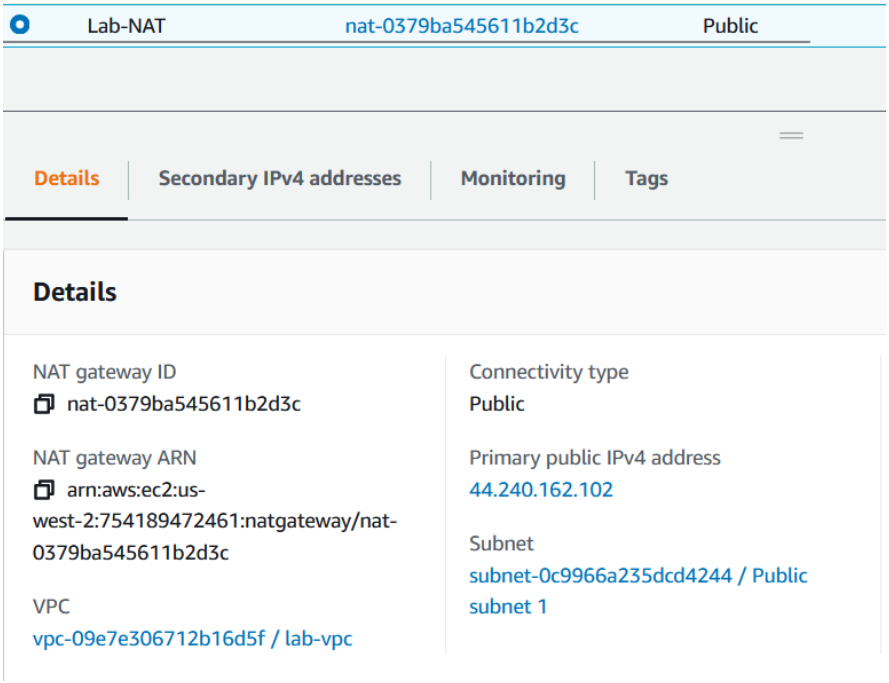
- Associate Subnets with their respective route table.



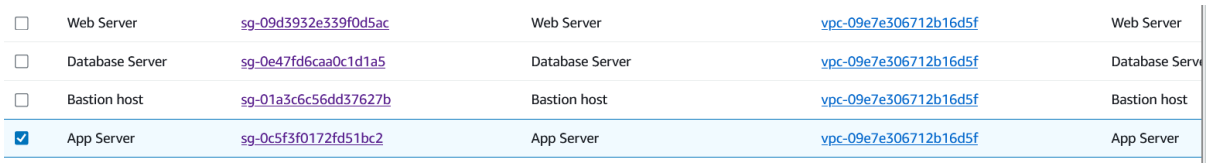
- Attach Internet Gateway to my VPC.



- NAT with associated Elastic ip address.

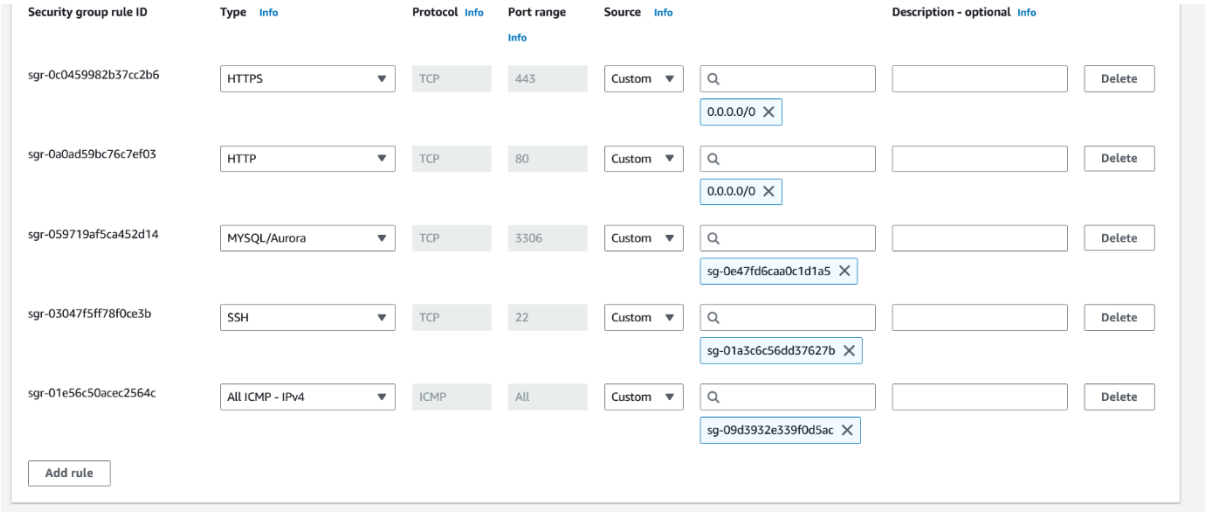


- Create Security groups for each server.

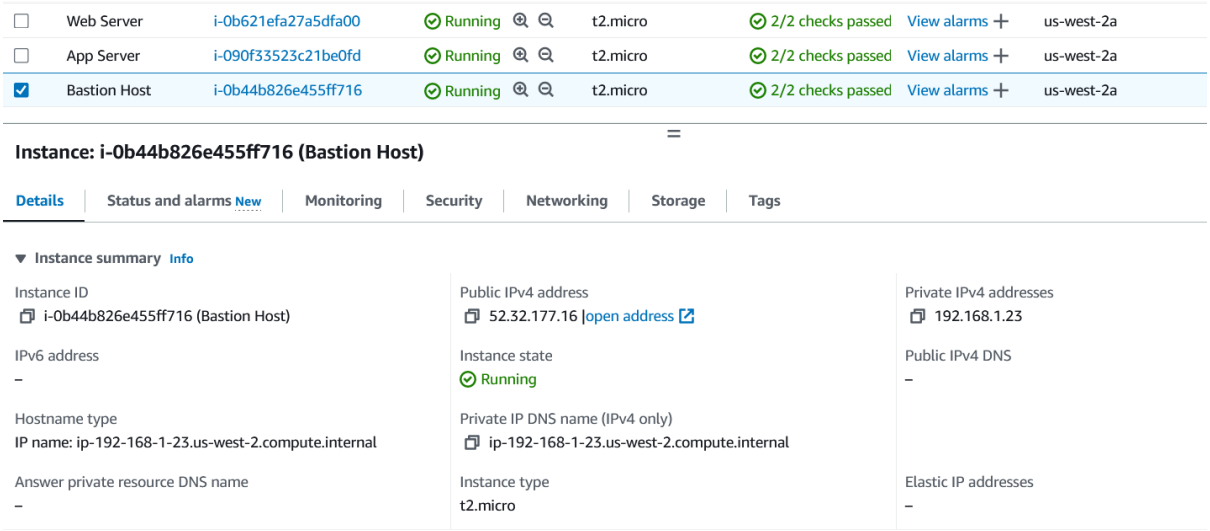


☐	Web Server	sg-09d3932e339f0d5ac	Web Server	vpc-09e7e306712b16d5f	Web Server
☐	Database Server	sg-0e47fd6caa0c1d1a5	Database Server	vpc-09e7e306712b16d5f	Database Serv
☐	Bastion host	sg-01a3c6c56dd37627b	Bastion host	vpc-09e7e306712b16d5f	Bastion host
☑	App Server	sg-0c5f3f0172fd51bc2	App Server	vpc-09e7e306712b16d5f	App Server

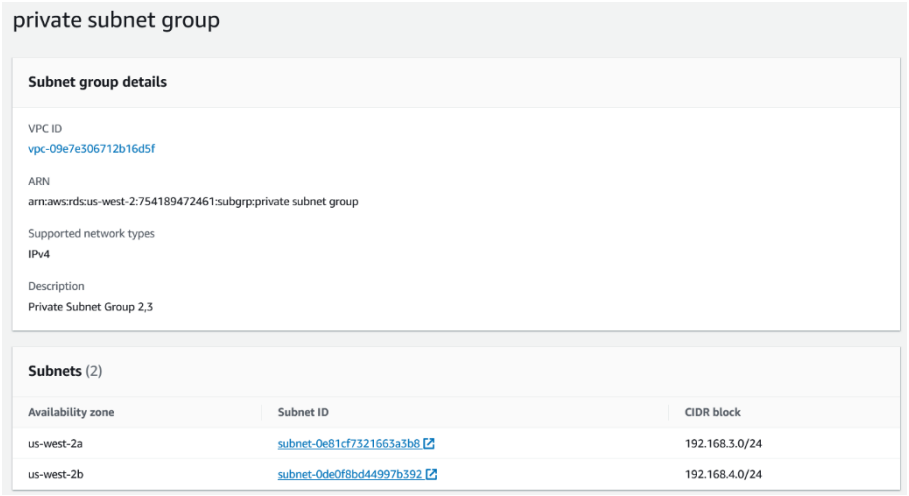
- Assing to each SG the inbound rules they need.



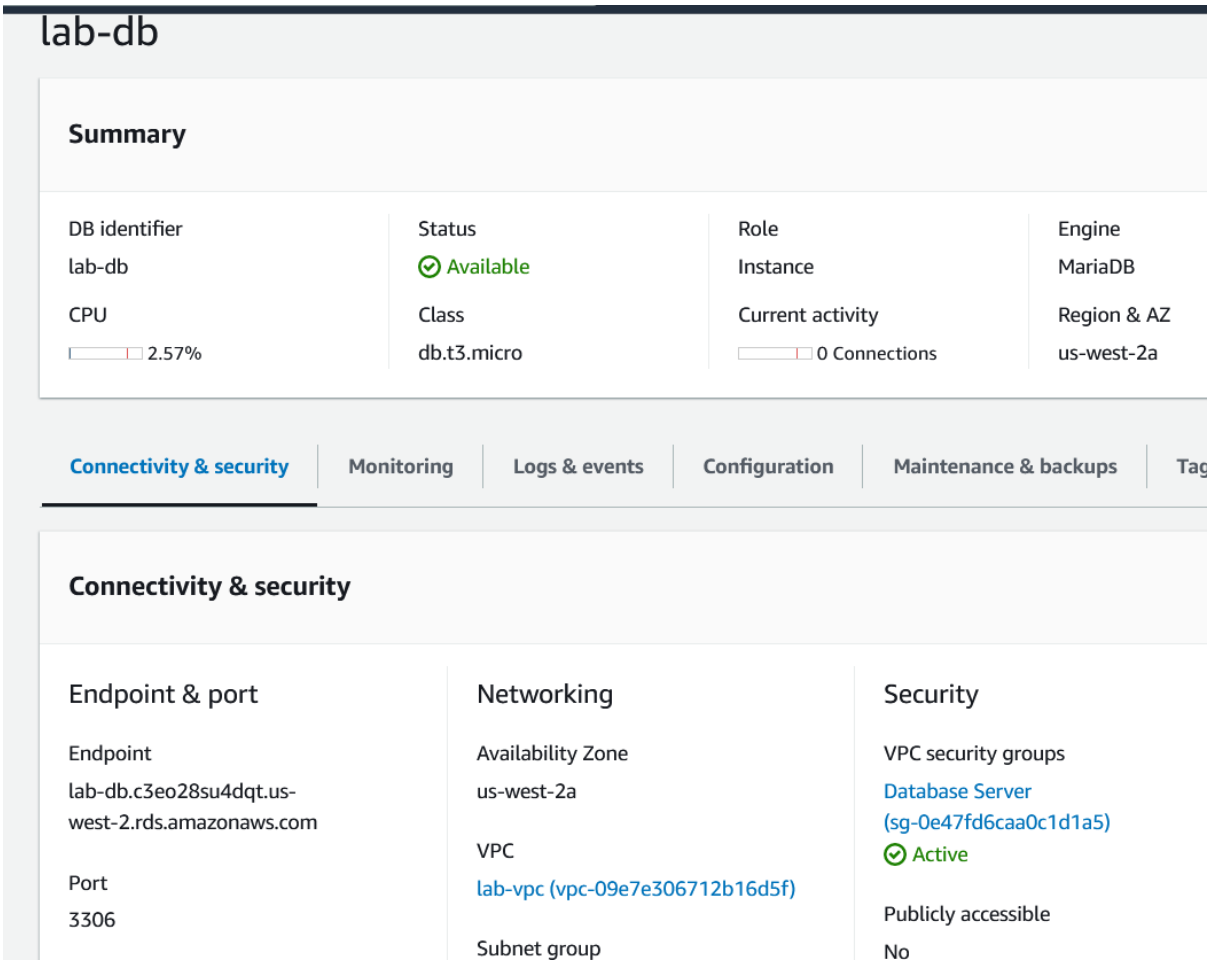
- Create 3 instances: Web Server and Bastion host in Public Subnet 1 and App Server in Private Subnet 1.



- Create a Subnet group which include Private Subnet 2 and Private Subnet 3.



- Create DB in RDS (using “Database Server” SG which I created earlier, assign my VPC and Subnet group)



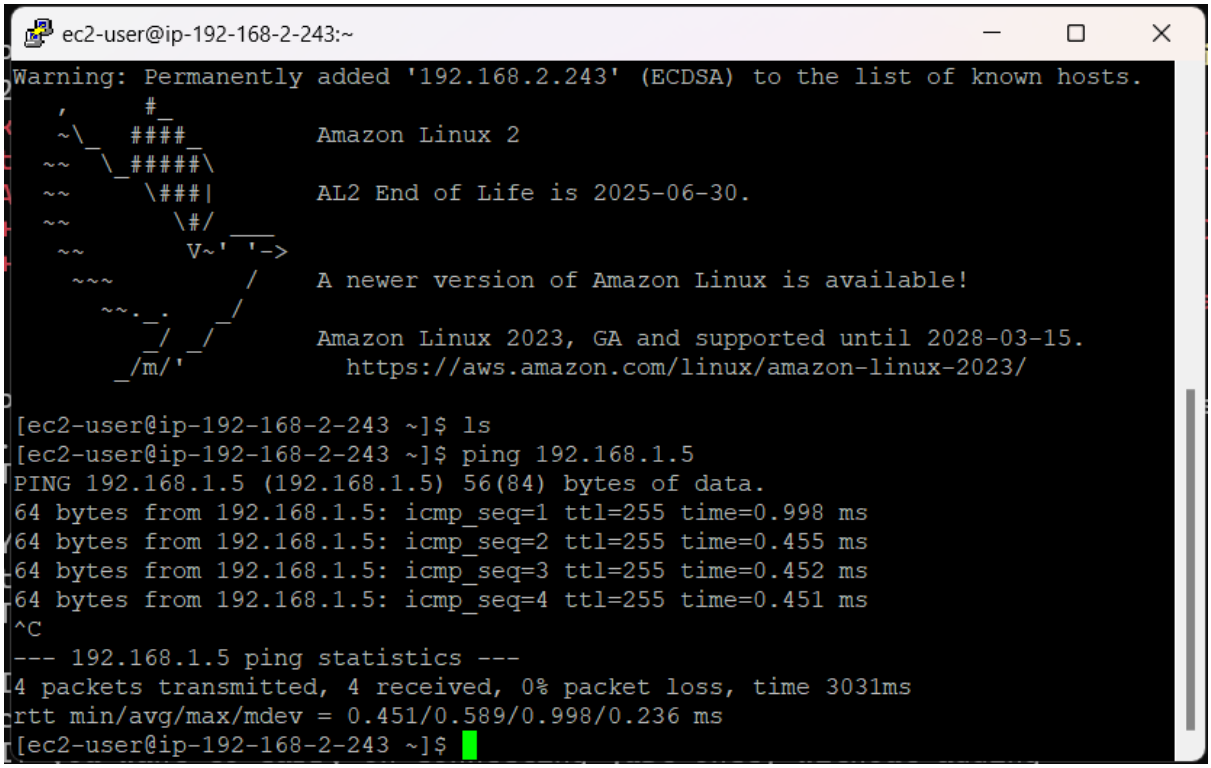
- Upload .pem key to Bastion Host

```
PS C:\Users\kingo> Pscp -scp -P 22 -i '.\Downloads\labsuser.ppk' -l user ec2-user '.\Downloads\labsuser.pem' ec2-user@52
.32.177.16:/home/ec2-user
The host key is not cached for this server:
  52.32.177.16 (port 22)
You have no guarantee that the server is the computer you
think it is.
The server's ssh-ed25519 key fingerprint is:
  ssh-ed25519 255 SHA256:N7p1UmXnw0ULoJXoTQa25LB70QI3w9pmy4gnth5uMVg
If you trust this host, enter "y" to add the key to PSCP's
cache and carry on connecting.
If you want to carry on connecting just once, without adding
the key to the cache, enter "n".
If you do not trust this host, press Return to abandon the
connection.
Store key in cache? (y/n, Return cancels connection, i for more info) y
pscp: ec2-user: No such file or directory

labsuser.pem             | 1 kB |   1.6 kB/s | ETA: 00:00:00 | 100%
PS C:\Users\kingo>
```

- SSH to Bastion Host, Check that the upload was successful and SSH to App Server.

```
ec2-user@ip-192-168-2-243:~
login as: ec2-user
Authenticating with public key "imported-openssh-key"
   ,     #_
   ~\_  ####_        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-192-168-1-23 ~]$ ls
labsuser.pem
[ec2-user@ip-192-168-1-23 ~]$ chmod 400 labsuser.pem
[ec2-user@ip-192-168-1-23 ~]$ ssh -i labsuser.pem ec2-user@192.168.2.243
The authenticity of host '192.168.2.243 (192.168.2.243)' can't be established.
ECDSA key fingerprint is SHA256:sAp3Uyt1RMPQ1c5qsxjo7N6UFeA4jpiaHhCF7AVgANk.
ECDSA key fingerprint is MD5:63:1f:71:92:34:8f:31:bf:f6:e2:d2:51:bf:38:c1:b2.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.2.243' (ECDSA) to the list of known hosts.
```

- Ping Web Server to check connection.



- Connect to Database and show databases.