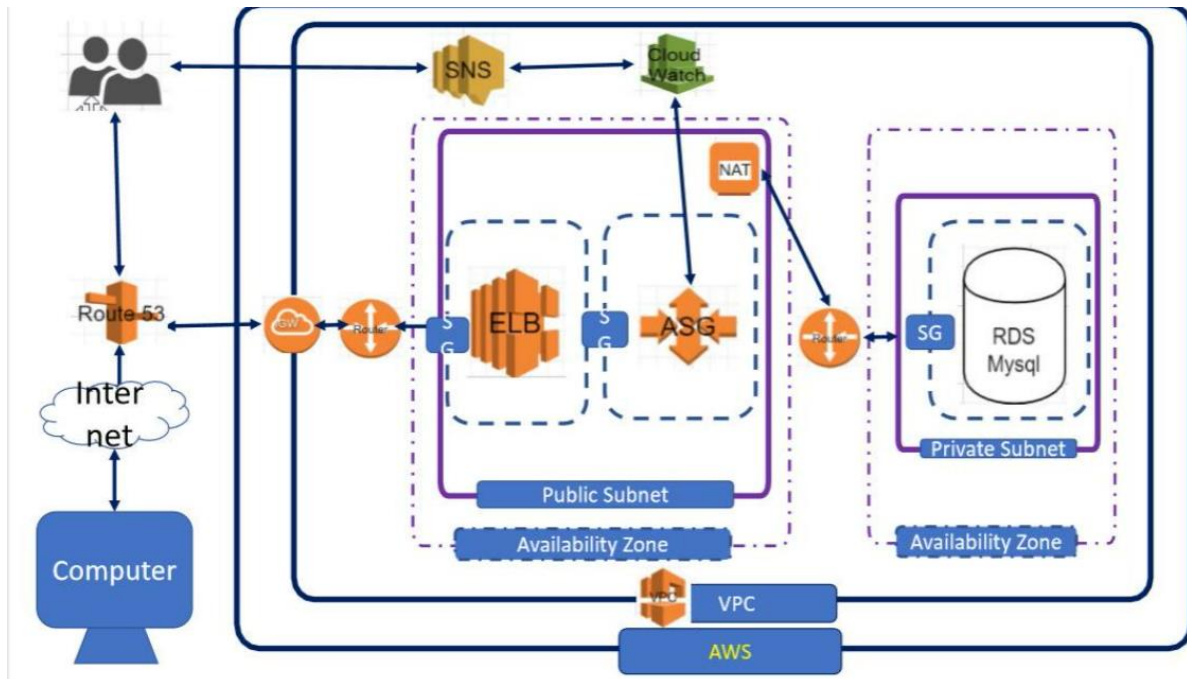


Assignment

This is my Assignment image



According to the above figure we have to create the Environment.
We have use some services from AWS like

VPC:

VPC stands for **Virtual Private Cloud**. Amazon Virtual Private Cloud (Amazon VPC) provides a logically isolated area of the AWS cloud where you can launch AWS resources in a virtual network that you define.

Application Load balancer:

A *load balancer* serves as the single point of contact for clients. Clients send requests to the load balancer, and the load balancer sends them to targets, such as EC2 instances. To configure your load balancer, you create [target groups](#), and then register targets with your target groups. You also create [listeners](#) to check for connection requests from clients, and listener rules to route requests from clients to the targets in one or more target groups.

EC2:

Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) Cloud. Using Amazon EC2 eliminates your need to invest in hardware up front, so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.

Auto Scaling:

Autoscaling, also spelled **auto scaling** or **auto-scaling**, and sometimes also called **automatic scaling**, is a method used in [cloud computing](#) that dynamically adjusts the amount of computational resources in a server farm - typically measured by the number of active servers - automatically based on the load on the farm.

Cloud watch:

Amazon CloudWatch monitors your Amazon Web Services (AWS) resources and the applications you run on AWS in real time. You can use CloudWatch to collect and track metrics, which are variables you can measure for your resources and applications.

SNS:

Amazon Simple Notification Service (SNS) is a fully-managed, highly-scalable service that facilitates message delivery using a publish/subscribe model. You can use Amazon Simple Notification Service (SNS) to send messages to email recipients, webhooks, or mobile devices via SMS or push notifications.

RDS:

Amazon Relational Database Service (Amazon RDS) is a web service that makes it easier to set up, operate, and scale a relational database in the AWS Cloud. It provides cost-efficient, resizable capacity for an industry-standard relational database and manages common database administration tasks.

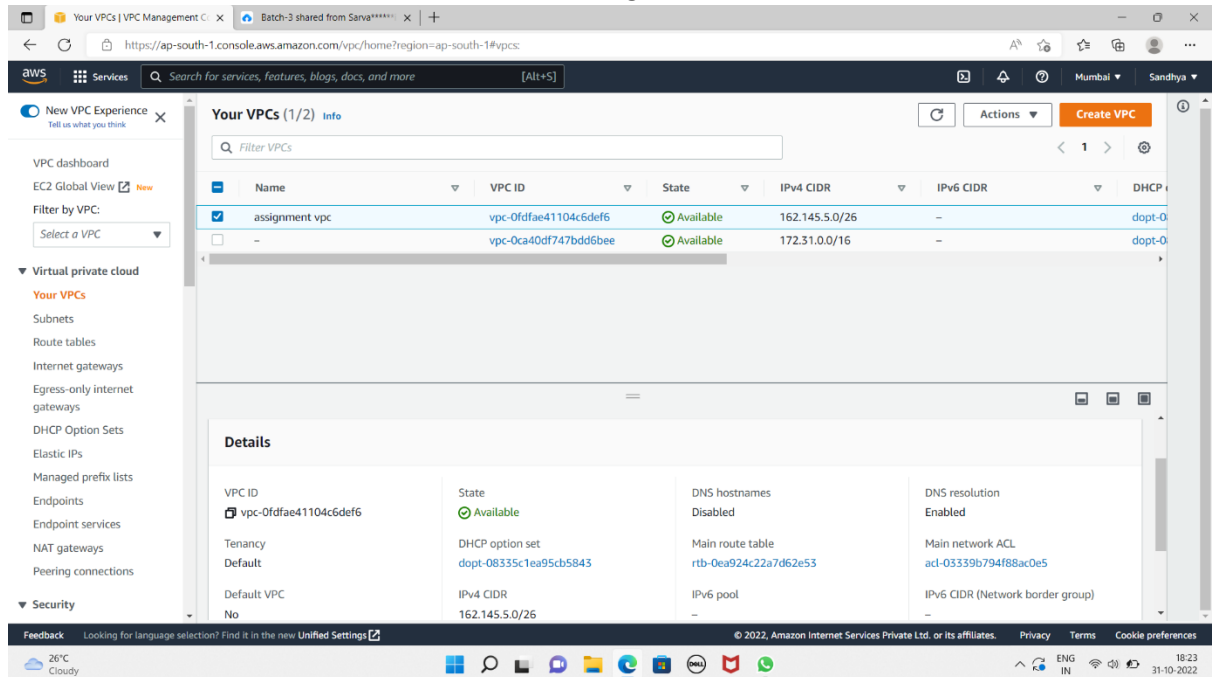
Plan for to development to create the Above environment

- ❖ Create VPC and along with Subnets (public, private) also.
- ❖ Create route table
- ❖ Create Internet Gate Way (IGW)
- ❖ Launch EC2 instance in public subnet
- ❖ Using bastion host process connect one server to another server
- ❖ Create Autoscaling group along with launch configuration
- ❖ Create alarm by using cloud watch through SNS topic
- ❖ Create Application load balancer along with target group
- ❖ After create the load balancer, It is in active state copy the DNS name and paste into the web browser

Development process as per the plan step by step

VPC Settings:

- First we create an VPC As below we can see the image



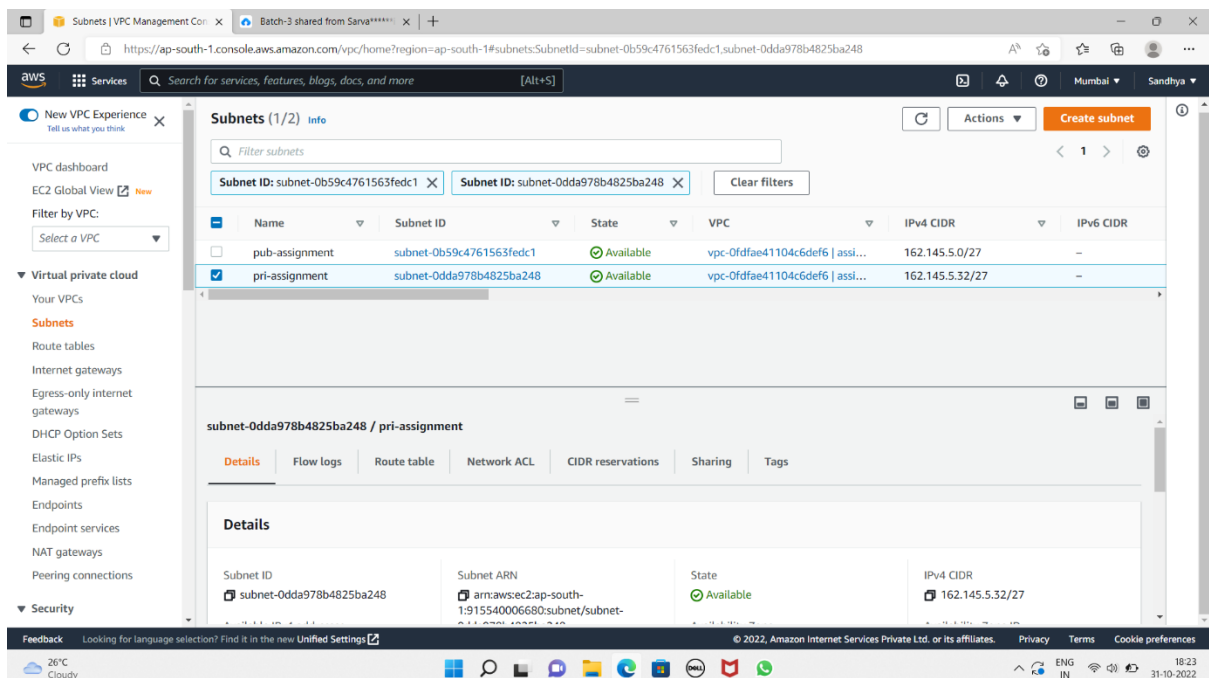
The screenshot shows the AWS Management Console interface for VPCs. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC components like Subnets, Route tables, Internet gateways, etc. The main content area displays 'Your VPCs (1/2)' with a table listing VPCs. The 'assignment vpc' is selected, and its details are shown below the table.

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP
assignment vpc	vpc-0fdfae41104c6def6	Available	162.145.5.0/26	-	dopt-0...
-	vpc-0ca40df747b4dd6bee	Available	172.31.0.0/16	-	dopt-0...

Details for vpc-0fdfae41104c6def6:

- VPC ID: vpc-0fdfae41104c6def6
- State: Available
- DNS hostnames: Disabled
- DNS resolution: Enabled
- Tenancy: Default
- DHCP option set: dopt-08335c1ea95cb5843
- Main route table: rtb-0ea924c22a7d62e53
- Main network ACL: acl-03339b794f88ac0e5
- IPv4 CIDR: 162.145.5.0/26
- IPv6 pool: IPv6 CIDR (Network border group)

- And then, Create two subnets first one is public subnet and second one private subnet



The screenshot shows the AWS Management Console interface for Subnets. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC components like Subnets, Route tables, Internet gateways, etc. The main content area displays 'Subnets (1/2)' with a table listing subnets. The 'pri-assignment' subnet is selected, and its details are shown below the table.

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR
pub-assignment	subnet-0b59c4761563fedc1	Available	vpc-0fdfae41104c6def6 assi...	162.145.5.0/27	-
pri-assignment	subnet-0dda978b4825ba248	Available	vpc-0fdfae41104c6def6 assi...	162.145.5.32/27	-

Details for subnet-0dda978b4825ba248 / pri-assignment:

- Subnet ID: subnet-0dda978b4825ba248
- Subnet ARN: arn:aws:ec2:ap-south-1:91554006680:subnet/subnet-
- State: Available
- IPv4 CIDR: 162.145.5.32/27

- create a route table and connect to the public subnet

The screenshot shows the AWS Management Console interface for the 'Route tables' section. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC services. The main content area displays a list of route tables. The 'assignment pub-rt' route table is selected, showing its details. The 'Details' tab is active, displaying the route table's configuration. The route table is associated with the 'assignment pub-rt' subnet. The 'Details' tab shows the route table's configuration, including the route table ID, name, and associated VPC.

Name	Route table ID	Explicit subnet associat...	Edge associations	Main	VPC	Owner
assignment pub-rt	rtb-0ea924c22a7d62e53	subnet-0b59c4761563f...	-	Yes	vpc-0fdae41104c6def6 assi...	9155...

rtb-0ea924c22a7d62e53 / assignment pub-rt

Details Routes Subnet associations Edge associations Route propagation Tags

You can now check network connectivity with Reachability Analyzer [Run Reachability Analyzer](#)

Details

- Create internet gateway and connect to the VPC

The screenshot shows the AWS Management Console interface for the 'Internet gateway' section. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC services. The main content area displays the details of the 'igw-0a96b5c23f1f6ecdc' internet gateway. The 'Details' tab is active, displaying the gateway's configuration. The gateway is successfully attached to the VPC 'vpc-0fdae41104c6def6'. The 'Details' tab shows the gateway's configuration, including the internet gateway ID, state, VPC ID, and owner.

Internet gateway igw-0a96b5c23f1f6ecdc successfully attached to vpc-0fdae41104c6def6

VPC > Internet gateways > igw-0a96b5c23f1f6ecdc

igw-0a96b5c23f1f6ecdc / assignment-igw

Details Info

Internet gateway ID	State	VPC ID	Owner
igw-0a96b5c23f1f6ecdc	Attached	vpc-0fdae41104c6def6 assignment vpc	915540006680

Tags

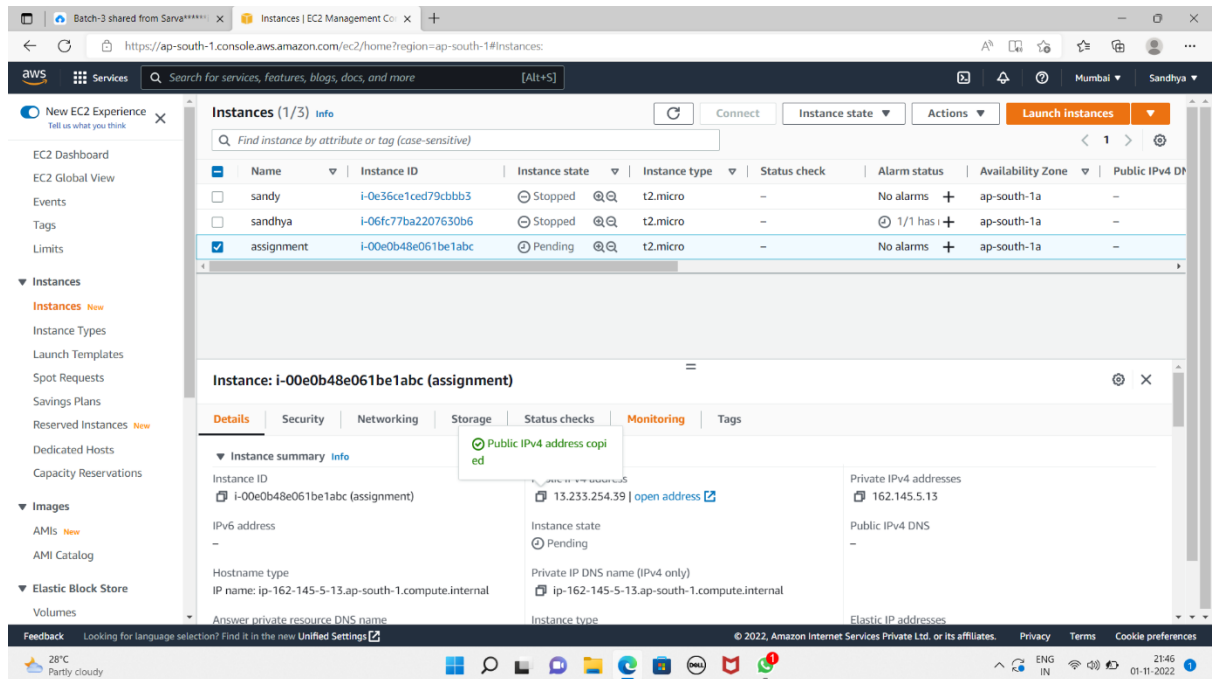
Search tags

Key	Value
Name	assignment-igw

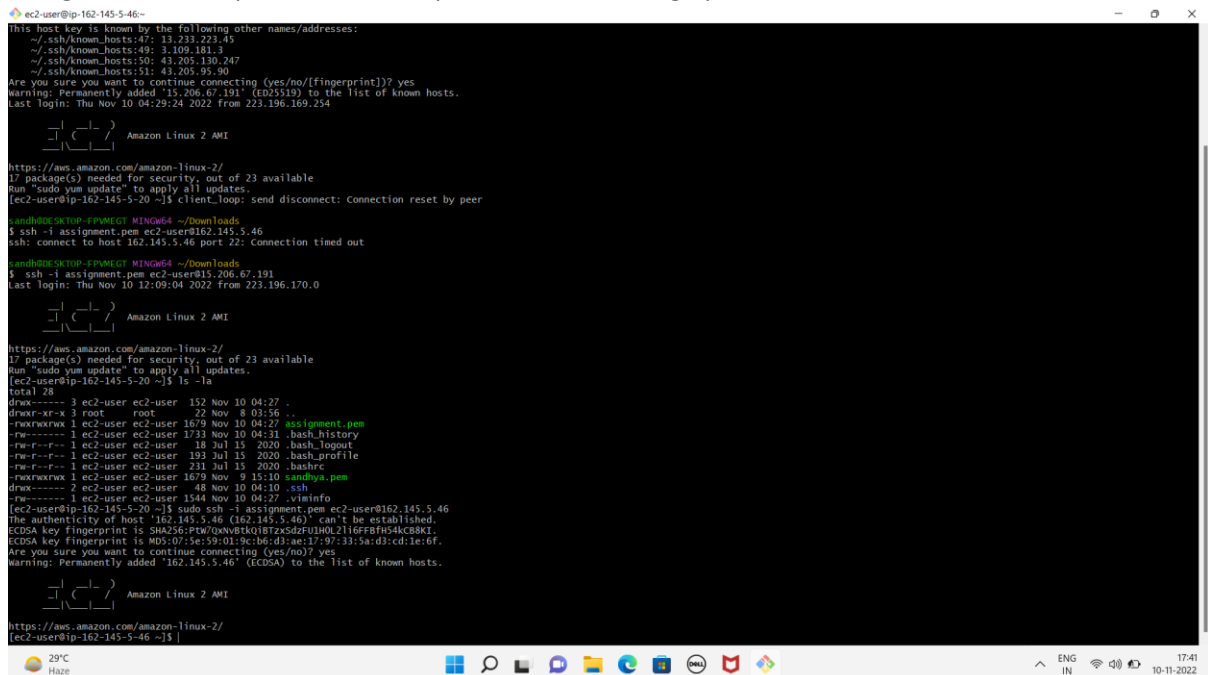
Manage tags

EC2:

Launch ec2 instance in public subnet of VPC



- Using bastion host process connect public subnet through private subnet



Install mysql in the server

```
root@ip-162-145-5-20/home/ec2-user
cannot find a valid baseurl for repo: amzn2-core/x86_64
[root@ip-162-145-5-46 ec2-user]# sudo apt install mysql-server
sudo: apt: command not found
[root@ip-162-145-5-46 ec2-user]# exit
exit
[ec2-user@ip-162-145-5-46 ~]$ exit
logout
Connection to 162.145.5.46 closed.
[ec2-user@ip-162-145-5-20 ~]$ sudo su
[root@ip-162-145-5-20 ec2-user]# yum install mysql -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core
Resolving Dependencies
--> Running transaction check
--> Package mariadb.x86_64 1:5.5.68-1.amzn2 will be installed
--> Finished Dependency Resolution
Dependencies Resolved

Package Arch Version Repository Size
--
Installing:
mariadb x86_64 1:5.5.68-1.amzn2 amzn2-core 8.8 M

Transaction Summary
--
Install 1 Package
Total download size: 8.8 M
Installed size: 49 M
Downloading packages:
mariadb-5.5.68-1.amzn2.x86_64.rpm
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
Installing : 1:mariadb-5.5.68-1.amzn2.x86_64
Verifying : 1:mariadb-5.5.68-1.amzn2.x86_64

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

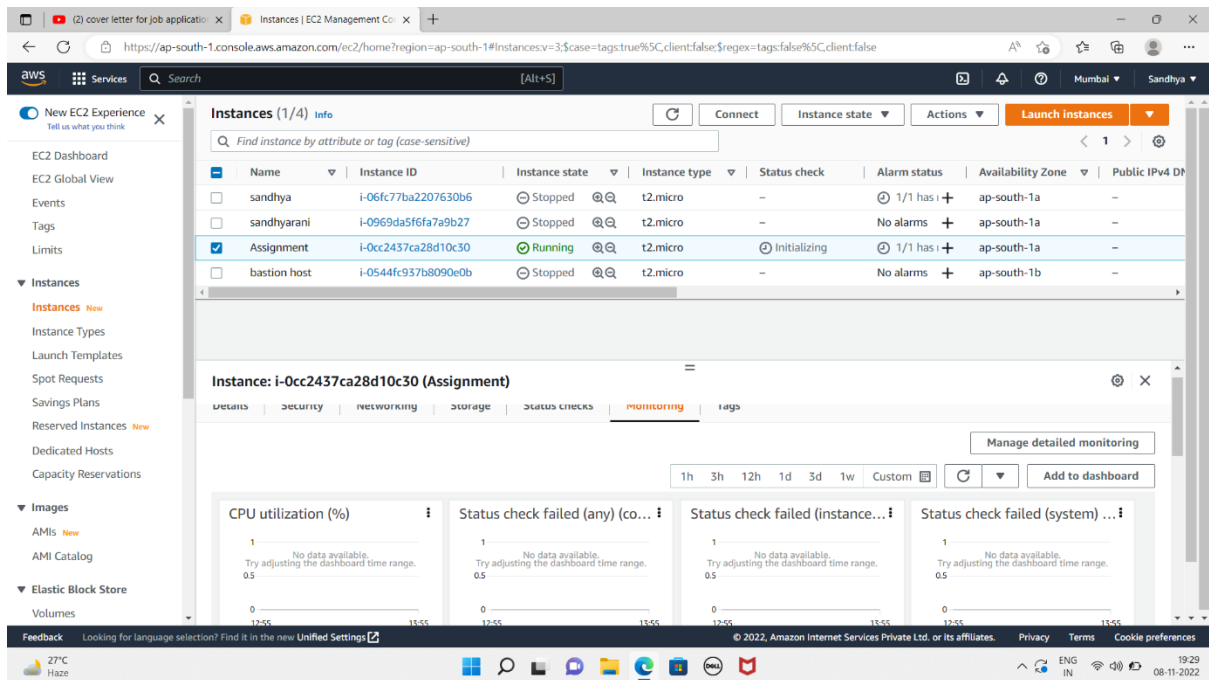
Complete!
[root@ip-162-145-5-20 ec2-user]# yum install mysql-agent -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
No package mysql-agent available.
Error: Nothing to do.
[root@ip-162-145-5-20 ec2-user]# yum install mysql-agent -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Package 1:mariadb-5.5.68-1.amzn2.x86_64 already installed and latest version
No package agent available.
Nothing to do.
[root@ip-162-145-5-20 ec2-user]# mysql
ERROR 2002 (HY000): Can't connect to local MySQL server through socket '/var/lib/mysql/mysql.sock' (2)
[root@ip-162-145-5-20 ec2-user]# clear
[root@ip-162-145-5-20 ec2-user]# mysql
```

Auto scaling groups:

- Create auto scaling group with launch configuration

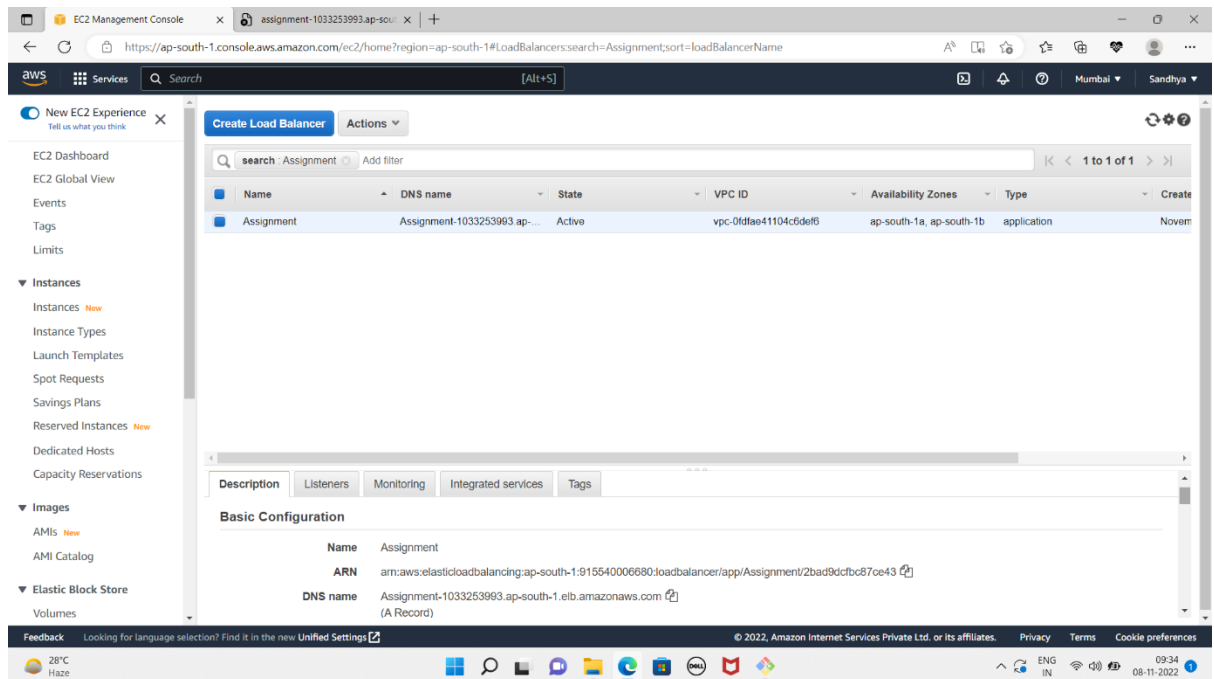
The screenshot displays the AWS Management Console interface for EC2 instances. On the left, a navigation menu includes options like 'New EC2 Experience', 'EC2 Dashboard', 'Events', 'Tags', 'Limits', 'Instances', 'Images', and 'Elastic Block Store'. The main panel shows a list of instances with columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, and Public IPv4 D. Two instances are listed, both in a 'Running' state. Below the list, the details for instance 'i-0cf664746cf4ff135' are expanded, showing its public IP address (15.206.166.53) and private IP address (162.145.5.23).

- Create an alarm by using cloud watch and SNS topic



Application load balancer:

- Create Application Load balancer by using the target groups
- Launch an ec2 instance by using the bootstrap process that helps the what we want to execute
- Bootstrap means add some data to the user data



- In the above image , we have copy the DNS name and paste into the web browser.

➤ We can see the result in the figure below

