

# VCUBE

## PROJECT-1 : 3-TIRE ARCHITECTURE

A **3-tier architecture** is a structured approach to software design that separates an application into three logical tiers:

1. **Presentation Tier (Web Tier)** – The user-facing layer that handles UI interactions, displays content, and forwards requests to the application tier. It typically consists of web servers (e.g., EC2 instances in an Auto Scaling Group) behind an Application Load Balancer for distributing traffic efficiently.
2. **Application Tier (Logic Tier)** – The intermediary layer that processes user requests, applies business logic, and communicates with the database. It consists of application servers that execute core functionalities and enforce business rules.
3. **Data Tier (Database Tier)** – The storage layer responsible for data management and retrieval. This includes relational database instances like Amazon RDS, ensuring secure data persistence with controlled access.



Select one Region for 3-tire project region like Mumbai (apsouth-1).

Go to AWS Search bar type vpc you can redirect to VPC and then you can start the project.

Step -1:

i) Create VPC ii)

Select VPC iii)

Name it as 3-tire iv)

CIDR as

10.0.0.0/16

v) Click on create

vi) Go to action vpc

vii) Enable DNS

hostname

The screenshot shows the AWS Management Console VPC dashboard. The URL in the browser is [sa-east-1.console.aws.amazon.com/vpcconsole/home?region=sa-east-1#VpcDetails:VpcId=vpc-0b39084742dd95639](https://sa-east-1.console.aws.amazon.com/vpcconsole/home?region=sa-east-1#VpcDetails:VpcId=vpc-0b39084742dd95639). The page displays the details of a VPC with the ID `vpc-0b39084742dd95639`, which is part of the `vpc-1-vpc` network. The VPC is in an `Available` state, has `Block Public Access` off, and `DNS hostnames` enabled. It uses the `dopt-0746e38d39fb22937` DHCP option set and the `rtb-0753548e5d7633798` main route table. The IPv4 CIDR is `10.0.0.0/16`, and there is no IPv6 pool. The VPC has no Route 53 Resolver DNS Firewall rule groups and is owned by the user with ID `745490702718`. The left sidebar shows other VPC-related options like Subnets, Route tables, Internet gateways, Egress-only internet gateways, DHCP option sets, Elastic IPs, Managed prefix lists, and NAT gateways.

Step -2:

- I) Go to subnets
- II) Create subnets click on it
- III) Attach VPC for subnets
- IV) Create two public and four private
- V) `vpc-1-subnet-public2-sa-east-1b(10.0.16.0/20)` `vpc-1-subnet-public1-sa-east-1a(10.0.0.0/20)`
- VI) `vpc-1-subnet-private1-sa-east-1a(10.0.128.0/20)` `vpc-1-subnet-private2-sa-east-1b(10.0.144.0/20)` rds- my-pvt-3(`10.0.64.0/19`) rds- my-prvt-4(`10.0.32.0/19`)
- VII) Click on create

Name	Subnet ID	State	VPC
<input checked="" type="checkbox"/> my-prvt-4	<a href="#">subnet-082974a2f445d214b</a>	<span>Available</span>	<a href="#">vpc-0b39084742dd95639   vpc...</a>
<input type="checkbox"/> vpc-1-subnet-public2-sa-east-1b	<a href="#">subnet-0bdd6845630b4bc81</a>	<span>Available</span>	<a href="#">vpc-0b39084742dd95639   vpc...</a>
<input type="checkbox"/> my-pvt-3	<a href="#">subnet-03a07c3250cf09f7d</a>	<span>Available</span>	<a href="#">vpc-0b39084742dd95639   vpc...</a>
<input type="checkbox"/> -	<a href="#">subnet-094935db622920970</a>	<span>Available</span>	<a href="#">vpc-0c05e1cba7a68f66f</a>
<input type="checkbox"/> vpc-1-subnet-private2-sa-east-1b	<a href="#">subnet-00272df0b3616802e</a>	<span>Available</span>	<a href="#">vpc-0b39084742dd95639   vpc...</a>
<input type="checkbox"/> vpc-1-subnet-public1-sa-east-1a	<a href="#">subnet-0520c930d642d1d94</a>	<span>Available</span>	<a href="#">vpc-0b39084742dd95639   vpc...</a>
<input type="checkbox"/> vpc-1-subnet-private1-sa-east-1a	<a href="#">subnet-0ae05cd68a72c7527</a>	<span>Available</span>	<a href="#">vpc-0b39084742dd95639   vpc...</a>

### Step-3:

- i) Create internet gateway for communication through internet

The screenshot shows the AWS Management Console with the URL [sa-east-1.console.aws.amazon.com/vpcconsole/home?region=sa-east-1#igws](https://sa-east-1.console.aws.amazon.com/vpcconsole/home?region=sa-east-1#igws). The page displays the 'Internet gateways' section with two entries:

Name	Internet gateway ID	State	VPC ID
-	igw-00d179573cf636092	Attached	vpc-0c05e1cba7a68f66f
vpc-1-igw	igw-09f0c796fb798bb49	Attached	vpc-0b39084742dd95639   vpc

A message at the bottom says "Select an internet gateway above". The browser toolbar at the top includes tabs for AWS Management Console, igws | VPC Console, Instance details | EC2, reader - Database Detail, screen shot shortcut key, Gmail, YouTube, Maps, and a search bar. The status bar at the bottom right shows the date and time as 03-08-2025.

- ii) Name it as “igw”, and click on create    iii) iii)  
Attach it to VPC

Step-4:

The screenshot shows the AWS Management Console with the URL [sa-east-1.console.aws.amazon.com/vpcconsole/home?region=sa-east-1#RouteTables](https://sa-east-1.console.aws.amazon.com/vpcconsole/home?region=sa-east-1#RouteTables). The page displays the 'Route tables' section for a VPC. A search bar at the top allows filtering by attribute or tag. The table lists five route tables:

Name	Route table ID	Explicit subnet associations	Edge associations	Main
vpc-1-rtb-private1-sa-east-1a	rtb-03cc3a7349ed3aba1	subnet-0ae05cd68a72c7...	-	No
<input checked="" type="checkbox"/> vpc-1-rtb-public	rtb-0e29d99754b827e61	2 subnets	-	No
-	rtb-0c3957ca40d97eab6	-	-	Yes
vpc-1-rtb-private2-sa-east-1b	rtb-02d3f92c904dad27f	subnet-00272df0b36168...	-	No
-	rtb-0753548e5d7633798	-	-	Yes

The route table **rtb-0e29d99754b827e61 / vpc-1-rtb-public** is currently selected as the main route table.

- i) Now goto Route Tables
- ii) Select main VPC and edit it add route
- iii) Edit subnets associations
- iv) Select all subnets , so it can connect to the internet for better interaction

The screenshot shows the AWS Management Console with the URL <https://sa-east-1.console.aws.amazon.com/vpcconsole/home?region=sa-east-1>EditRoutes?RouteTableId=rtb-0e29d99754b827e61>. The page title is "Edit routes". The breadcrumb navigation shows "VPC > Route tables > rtb-0e29d99754b827e61 > Edit routes". A blue banner at the top states "Missing credentials in config, if using AWS\_CONFIG\_FILE, set AWS\_SDK\_LOAD\_CONFIG=1". The main content area displays two route entries:

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No
0.0.0.0/0	Internet Gateway	Active	No

Buttons at the bottom include "Add route", "Cancel", "Preview", and "Save changes". A "Remove" button is also visible next to the second route entry.

The screenshot shows the AWS Management Console with the URL [sa-east-1.console.aws.amazon.com/vpcconsole/home?region=sa-east-1#RouteTableDetails:RouteTableId=rtb-0e29d99754b827e61](https://sa-east-1.console.aws.amazon.com/vpcconsole/home?region=sa-east-1#RouteTableDetails:RouteTableId=rtb-0e29d99754b827e61). The page displays the details for a route table with ID `rtb-0e29d99754b827e61`. The main table shows the following information:

Route table ID	Main	Explicit subnet associations	Edge associations
<a href="#">rtb-0e29d99754b827e61</a>	<input type="checkbox"/> No	2 subnets	-
VPC	Owner ID		
<a href="#">vpc-0b39084742dd95639</a>   vpc-1-vpc	<a href="#">745490702718</a>		

The "Subnet associations" tab is selected, showing two explicit subnet associations:

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
vpc-1-subnet-public2-sa-east-1b	<a href="#">subnet-0bdd6845630b4bc81</a>	10.0.16.0/20	-
vpc-1-subnet-public1-sa-east-1a	<a href="#">subnet-0520c930d642d1d94</a>	10.0.0.0/20	-

## Private-route table

The screenshot shows the AWS Management Console with the URL [sa-east-1.console.aws.amazon.com/vpcconsole/home?region=sa-east-1#RouteTableDetails:RouteTableId=rtb-02d3f92c904dad27f](https://sa-east-1.console.aws.amazon.com/vpcconsole/home?region=sa-east-1#RouteTableDetails:RouteTableId=rtb-02d3f92c904dad27f). The page displays the details of a route table with the ID `rtb-02d3f92c904dad27f`. The **Details** tab is selected, showing the following information:

- Route table ID:** `rtb-02d3f92c904dad27f`
- Main:** No
- VPC:** `vpc-0b39084742dd95639 | vpc-1-vpc`
- Owner ID:** `745490702718`
- Explicit subnet associations:** `subnet-00272df0b3616802e / vpc-1-subnet-private2-sa-east-1b`
- Edge associations:** -

The **Subnet associations** tab is active, showing the following table:

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
vpc-1-subnet-private2-sa-east-1b	<a href="#">subnet-00272df0b3616802e</a>	10.0.144.0/20	-

The **Subnets without explicit associations** section shows 2 subnets:

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
vpc-1-subnet-public1-sa-east-1a	<a href="#">subnet-00272df0b3616802f</a>	10.0.145.0/20	-
vpc-1-subnet-public1-sa-east-1b	<a href="#">subnet-00272df0b3616802g</a>	10.0.146.0/20	-

## Step-5:

- Now create 2 NAT gateway
- Select public access and select subnets public(public-1a, public-1b)
- Select public access and select subnets public(public-1a, public-1b)
- Select public access and select subnets public(public-1a, public-1b)
- Allocate elastic ip for both NAT

## Step-6 :

- i) Navigate to EC2 in Console ii) Create instances names as (public-1a, public-1b, private-1a-1, private-1b-1) iv) Select application and osi (ubuntu)for all instances v) Select t2micro for all instances
- vi) Create one key pair and use one key pair for all instances
- vii) Edit network settings
  - a) Select VPC
  - b) Select subnets for specific instances as same as subnets for (ex:- instance as public-1a and subnet as public -1a)
  - c) Enable auto assign ip
- viii) Create one security group and use this for all instances

a) SSH-22port, anywhere –  
0.0.0.0/0

b) HTTP-80port, anywhere –  
0.0.0.0/0 ix) Click create instance

The screenshot shows the AWS Management Console interface for the EC2 service. The left sidebar has 'EC2' selected under 'Instances'. The main area displays a table titled 'Instances (1/8) Info' with the following data:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
pvt-1	i-0f6ff298a478e6113	Running	t2.medium	2/2 checks passed	<a href="#">View alarms +</a>
my-pvt-1	i-0973d19d97ee5d842	Running	t2.micro	2/2 checks passed	<a href="#">View alarms +</a>
<input checked="" type="checkbox"/> my-pub-1	i-0682bcda1801c6640	Running	t2.micro	2/2 checks passed	<a href="#">View alarms +</a>
pub-2	i-02e243e29d1acae4	Running	t2.medium	2/2 checks passed	<a href="#">View alarms +</a>
pvt-2	i-0ba5823bf2219f475	Running	t2.medium	2/2 checks passed	<a href="#">View alarms +</a>
my-pvt-2	i-03969fff85003b021	Running	t3.micro	3/3 checks passed	<a href="#">View alarms +</a>
my-pub-2	i-0979778d4829606d1	Running	t3.micro	3/3 checks passed	<a href="#">View alarms +</a>

The instance 'my-pub-1' is selected, highlighted with a blue border. Below the table, a modal window titled 'i-0682bcda1801c6640 (my-pub-1)' is open, showing details about the selected instance.

## Step-7:

- 1 Click on public instance copy ssh past on git bash
- 2 install apache2 & update
- 3 connect to server

4.create vi index.html

5 exit to ubunte & connect to private instance

```

MINGW64/c/Users/bandanilkumar/Desktop
bandanilkumar@LAPTOP-DOLPG8EO MINGW64 ~/Desktop
$ ssh -i "mykey.pem" ubuntu@ec2-18-230-17-22.sa-east-1.compute.amazonaws.com
The authenticity of host 'ec2-18-230-17-22.sa-east-1.compute.amazonaws.com (18.230.17.22)' can't be established
.
ED25519 key fingerprint is SHA256:mN+p/9Tcq2f5FwfWtmNJTiCw9EyuowRVMVMTfecoUs.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-18-230-17-22.sa-east-1.compute.amazonaws.com' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1029-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Tue Jun 10 10:02:26 UTC 2025

System load: 1.26 Processes: 26
Usage of /home: unknown Users logged in: 0
Memory usage: 5% IPv4 address for eth0: 10.10.10.2
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-10-0-5-138:~# systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Sun 2025-08-03 05:14:22 UTC; 16s ago
     Docs: https://httpd.apache.org/docs/2.4/
 Main PID: 2200 (Apache2)
    Tasks: 55 (limit: 1124)
   Memory: 5.2M (peak: 5.4M)
      CPU: 36ms
     CGroup: /system.slice/apache2.service
             └─2200 /usr/sbin/apache2 -k start
                  ├─2203 /usr/sbin/apache2 -k start
                  ├─2204 /usr/sbin/apache2 -k start

Aug 03 05:14:22 ip-10-0-5-138 systemd[1]: starting apache2.service - The Apache HTTP Server...
Aug 03 05:14:22 ip-10-0-5-138 systemd[1]: started apache2.service - The Apache HTTP Server.
root@ip-10-0-5-138:~# cd /var/www/html
root@ip-10-0-5-138:/var/www/html# ls
index.html
root@ip-10-0-5-138:/var/www/html# rm index.html
root@ip-10-0-5-138:/var/www/html# vi index.html
root@ip-10-0-5-138:/var/www/html# top

```

6.create vi .pem file

7.chmod 400 pem file

8.copy public ssh @private ip address past

```

MINGW64/c/Users/bandanilkumar/Desktop
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-10-0-5-138:~# systemctl status apache2
● apache2.service - The Apache HTTP Server
    Loaded: Loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
    Active: active (running) since Sun 2025-08-03 05:14:22 UTC; 16s ago
      Docs: https://httpd.apache.org/docs/2.4/
        Main PID: 2200 (apache2)
          Tasks: 55 (limit: 1124)
        Memory: 5.2M (peak: 5.4M)
          CPU: 36ms
        CGroup: /system.slice/apache2.service
                  └─2200 /usr/sbin/apache2 -k start
                      ├─2203 /usr/sbin/apache2 -k start
                      ├─2204 /usr/sbin/apache2 -k start

Aug 03 05:14:22 ip-10-0-5-138 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Aug 03 05:14:22 ip-10-0-5-138 systemd[1]: started apache2.service - The Apache HTTP Server.
root@ip-10-0-5-138:~# cd /var/www/html
root@ip-10-0-5-138:/var/www/html# ls
index.html
root@ip-10-0-5-138:/var/www/html# rm index.html
root@ip-10-0-5-138:/var/www/html# vi index.html
root@ip-10-0-5-138:/var/www/html# top

```

```

MINGW64/c/Users/bandanilkumar/Desktop
ubuntu@ip-10-0-5-138:~$ ls -l
total 4
-rw-rw-r-- 1 ubuntu ubuntu 1679 Aug  3 05:28 mykey.pem
ubuntu@ip-10-0-5-138:~$ chmod 400 mykey.pem
ubuntu@ip-10-0-5-138:~$ ls -l
total 4
----- 1 ubuntu ubuntu 1679 Aug  3 05:28 mykey.pem
ubuntu@ip-10-0-5-138:~$ ssh -i "mykey.pem" ubuntu@10.0.132.9
The authenticity of host '10.0.132.9' (10.0.132.9) can't be established.
ED25519 key fingerprint is SHA256:Axm1l3kXTGwF500cc305Hxh3m9jkkm4v2ci4qtoao+I.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '10.0.132.9' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1029-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Sun Aug  3 05:31:33 UTC 2025

 System load:  0.08      Processes:           104
 Usage of /:   25.4% of 6.71GB  Users logged in:        0
 Memory usage: 20%           IPV4 address for enx0: 10.0.132.9
 Swap usage:   0%          

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

```

## Step-8:

- i) Create targets groups for to show data ii)
- Name it as public target, private target iii) In register targets select public target (public-1a,

public-1b), private target(private-1a, private-1b) iv) Select include as pending below iv)  
Create target group

The screenshot shows the AWS Management Console interface for creating a target group. The left sidebar includes sections for Network & Security, Load Balancing, and Auto Scaling. The main content area displays a table of target groups with columns for Name, ARN, Port, Protocol, and Target type. Two entries are listed: 'my-pub-tag' and 'pvt-taget'. The 'my-pub-tag' entry is selected, and its detailed configuration is shown in the lower pane, including its ARN and port settings.

Name	ARN	Port	Protocol	Target type
my-pub-tag	arn:aws:elasticloadbalancing:sa-east-1:745490702718:targetgroup/my-pub-tagt/5774808587244368	80	HTTP	Instance
pvt-taget	arn:aws:elasticloadbalancing:sa-east-1:745490702718:targetgroup/pvt-taget/5774808587244368	80	HTTP	Instance

**my-pub-tag**

**Details**

arn:aws:elasticloadbalancing:sa-east-1:745490702718:targetgroup/my-pub-tag/5774808587244368

Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	vpc-0b39084742dd95639

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
4	0	4	0	0	0

**Distribution of targets by Availability Zone (AZ)**

Select values in this table to see corresponding filters applied to the Registered targets table below.

**pvt-taget**

**Details**

arn:aws:elasticloadbalancing:sa-east-1:745490702718:targetgroup/pvt-taget/bb0940f0db26defb

Target type	Protocol : Port	Protocol version	VPC
Instance	HTTP: 80	HTTP1	vpc-0b39084742dd95639

Total targets	Healthy	Unhealthy	Unused	Initial	Draining
4	0	4	0	0	0

**Distribution of targets by Availability Zone (AZ)**

Select values in this table to see corresponding filters applied to the Registered targets table below.

Step-9:

- i) Create load balancer for balancing load between two servers
- ii) Create load balancer names as (public-lb, private-lb) (public-la, private-lb)
  - iii) Select target groups for specified load balancer only

**Load balancers (2)**

Name	State	Type	Scheme	IP address type	VPC ID
pub-load	Active	application	Internet-facing	IPv4	vpc-0b390
pvt-load	Active	application	Internet-facing	IPv4	vpc-0b390

0 load balancers selected

Select a load balancer above.

The screenshot shows two separate browser windows side-by-side, both displaying the AWS Management Console interface.

**Top Window (Load balancers page):**

- Left sidebar:** Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), Load Balancing (Load Balancers, Target Groups, Trust Stores), Auto Scaling (Auto Scaling Groups).
- Center:**
  - Section title:** Load balancers (2)
  - Description:** Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.
  - Table:** Shows two load balancers: "pub-load" and "pvt-load", both active, application type, Internet-facing, IPv4, VPC ID vpc-0b390.
  - Bottom:** 0 load balancers selected. Select a load balancer above.
- Bottom:** CloudShell, Feedback, and system status bar.

**Bottom Window (Load balancer details page):**

- Left sidebar:** Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), Load Balancing (Load Balancers, Target Groups, Trust Stores), Auto Scaling (Auto Scaling Groups).
- Center:**
  - Section title:** pub-load
  - Details:**

Load balancer type: Application	Status: Active	VPC: vpc-0b39084742dd95639	Load balancer IP address type: IPv4
Scheme: Internet-facing	Hosted zone: Z2P70J7HTTTPLU	Availability Zones: <ul style="list-style-type: none"> <li>subnet-0bdd6845630b4bc81 (sa-east-1b (sae1-az2))</li> <li>subnet-0520c930d642d1d94 (sa-east-1a (sae1-az1))</li> </ul>	Date created: August 3, 2025, 10:53 (UTC+05:30)
Load balancer ARN: arn:aws:elasticloadbalancing:sa-east-1:745490702718:loadbalancer/app/pub-load/e2a79f882ad95491		DNS name info: pub-load-380123824.sa-east-1.elb.amazonaws.com (A Record)	
- Bottom:** CloudShell, Feedback, and system status bar.

Step-10:

- Go to target groups and edit load balancer for private and attach target existing for load balancer

The screenshot shows the AWS Management Console with the URL <https://sa-east-1.console.aws.amazon.com/ec2/home?region=sa-east-1#LoadBalancer:loadBalancerArn=arn:aws:elasticloadbalancing:sa-east-1:745490702718:loadbalancer/app/pvt-load/1b42c53e1c5f6dd7>. The page is titled 'pvt-load' and shows the 'Details' section for the load balancer. Key information includes:

- Load balancer type:** Application
- Status:** Active
- VPC:** [vpc-0b39084742dd95639](#)
- Load balancer IP address type:** IPv4
- Scheme:** Internet-facing
- Hosted zone:** Z2P70J7HTTTPLU
- Availability Zones:**
  - [subnet-00272df0b3616802e](#) sa-east-1b (sae1-az2)
  - [subnet-0ae05cd68a72c7527](#) sa-east-1a (sae1-az1)
- Load balancer ARN:** arn:aws:elasticloadbalancing:sa-east-1:745490702718:loadbalancer/app/pvt-load/1b42c53e1c5f6dd7
- DNS name:** [pvt-load-2116297340.sa-east-1.elb.amazonaws.com](#) (A Record)

## Step-11:

- i) Create Auto scaling for both load balancer
- ii) Create asg and attach created launch template
- iii) Select instance launch option
- iv) Attach existing load balancers for both asg show in fig above
- v) Create asg
- vi) Now you can see desired instance launched in instances
- vii) Edit it and name it

Amazon Machine Images (AMIs) (1) [Info](#)

Owned by me [Find AMI by attribute or tag](#)

Name	AMI name	AMI ID	Source	Owner
	my-ami	ami-09c0652676b2d8af3	745490702718/my-ami	745490702718

Select an AMI

## 1.Create public auto scaling groups

## 2.Create private auto scaling

Auto Scaling groups (2) [Info](#)

Last updated 1 minute ago

Launch configurations [Launch templates](#) Actions [Create Auto Scaling group](#)

Name	Launch template/configuration	Instances	Status	Desi
prvt-auto	my-tem   Version Default	2	-	2
pub-auto	my-tem   Version Default	2	-	2

0 Auto Scaling groups selected

The screenshot shows the AWS Management Console with the URL [sa-east-1.console.aws.amazon.com/ec2/home?region=sa-east-1#AutoScalingGroupDetails:id=pub-auto;view=details](https://sa-east-1.console.aws.amazon.com/ec2/home?region=sa-east-1#AutoScalingGroupDetails:id=pub-auto;view=details). The page displays the 'pub-auto' Auto Scaling group details. The 'Capacity overview' section shows a Desired capacity of 2, Scaling limits (Min - Max) of 2 - 3, and a Status of -. The 'Launch template' section is visible below. The left sidebar includes sections for Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces, Load Balancing, Auto Scaling (selected), and Settings.

The screenshot shows the AWS Management Console with the URL [sa-east-1.console.aws.amazon.com/ec2/home?region=sa-east-1#AutoScalingGroupDetails:id=prvt-auto;view=details](https://sa-east-1.console.aws.amazon.com/ec2/home?region=sa-east-1#AutoScalingGroupDetails:id=prvt-auto;view=details). The page displays the 'prvt-auto' Auto Scaling group details. The 'Capacity overview' section shows a Desired capacity of 2, Scaling limits (Min - Max) of 2 - 3, and a Status of -. The 'Launch template' section is visible below. The left sidebar includes sections for Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces, Load Balancing, Auto Scaling (selected), and Settings.

1. After creating auto scaling group
2. public ec2 instance increase (2-public instance )
3. private ec2 increase(2-private instance)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
pub-1	i-005b967263121521e	Running	t2.medium	2/2 checks passed	<a href="#">View alarms +</a>
pvt-1	i-0f6ff298a478e6113	Running	t2.medium	2/2 checks passed	<a href="#">View alarms +</a>
my-pvt-1	i-0973d19d97ee5d842	Running	t2.micro	2/2 checks passed	<a href="#">View alarms +</a>
<b>my-pub-1</b>	<b>i-0682bcda1801c6640</b>	<b>Running</b>	<b>t2.micro</b>	<b>2/2 checks passed</b>	<b><a href="#">View alarms +</a></b>
pub-2	i-02e243e29d1acaee4	Running	t2.medium	2/2 checks passed	<a href="#">View alarms +</a>
pvt-2	i-0ba5823bf2219f475	Running	t2.medium	2/2 checks passed	<a href="#">View alarms +</a>
my-pvt-2	i-03969fff85003b021	Running	t3.micro	3/3 checks passed	<a href="#">View alarms +</a>

Next : RDS

- 1.create a rds
- 2.create a subnets in vpc for rds (2-private subnets)(prvt-3,pvt-4)

The screenshot shows the AWS Management Console VPC Subnets details page for a subnet named `subnet-082974a2f445d214b / my-prvt-4`. The subnet has the following configuration:

Setting	Value
Subnet ID	<code>subnet-082974a2f445d214b</code>
IPv4 CIDR	<code>10.0.32.0/19</code>
Availability Zone	<code>sa-east-1a</code>
Network ACL	<code>acl-03f317677b4f3ab31</code>
Auto-assign customer-owned IPv4 address	No
IPv6 CIDR reservations	—
State	Available
IPv6 CIDR	—
Available IPv4 addresses	8185
Availability Zone ID	<code>sae1-az1</code>
Default subnet	No
Customer-owned IPv4 pool	—
IPv6-only	IPV6-only
Block Public Access	Off
IPv6 CIDR association ID	—
Route table	<code>rtb-0b39084742dd95639   vpc-1-vpc</code>
Auto-assign IPv6 address	No
IPv4 CIDR reservations	—
Hostname type	IP name
Resource name DNS A record	Disabled

The left sidebar shows the VPC dashboard and navigation to the subnet details. The bottom status bar indicates the date as 03-08-2025 and the time as 23:08.

The screenshot shows the AWS Management Console VPC Subnets details page for a subnet named `subnet-03a07c3250cf09f7d / my-pvt-3`. The subnet has the following configuration:

Setting	Value
Subnet ID	<code>subnet-03a07c3250cf09f7d</code>
IPv4 CIDR	<code>10.0.64.0/19</code>
Availability Zone	<code>sa-east-1b</code>
Network ACL	<code>acl-03f317677b4f3ab31</code>
Auto-assign customer-owned IPv4 address	No
IPv6 CIDR reservations	—
State	Available
IPv6 CIDR	—
Available IPv4 addresses	8185
Availability Zone ID	<code>sae1-az2</code>
Default subnet	No
Customer-owned IPv4 pool	—
IPv6-only	IPV6-only
Block Public Access	Off
IPv6 CIDR association ID	—
Route table	<code>rtb-0b39084742dd95639   vpc-1-vpc</code>
Auto-assign IPv6 address	No
IPv4 CIDR reservations	—
Hostname type	IP name
Resource name DNS A record	Disabled

The left sidebar shows the VPC dashboard and navigation to the subnet details. The bottom status bar indicates the date as 03-08-2025 and the time as 23:09.

1.open rds and create a subnets group

The screenshot shows two separate browser windows side-by-side, both displaying the AWS Management Console interface.

**Top Window (Subnet Group Creation):**

- URL:** sa-east-1.console.aws.amazon.com/rds/home?region=sa-east-1#db-subnet-group:id=my-subnet
- Subnet group details:**
  - VPC ID: vpc-0b39084742dd95639
  - ARN: arn:aws:rds:sa-east-1:745490702718:subgrp:my-subnet
  - Supported network types: IPv4
  - Description: allow
- Subnets (2):**
  - Subnet 1: project1 (Available, Primary, MySQL Engine, sa-east-1)
  - Subnet 2: reader (Available, Replica, MySQL Engine, sa-east-1)

**Bottom Window (Database List):**

- URL:** sa-east-1.console.aws.amazon.com/rds/home?region=sa-east-1#databases:
- Databases (2):**

DB identifier	Status	Role	Engine	Region
project1	Available	Primary	MySQL Co...	sa-ea...
reader	Available	Replica	MySQL Co...	sa-ea...

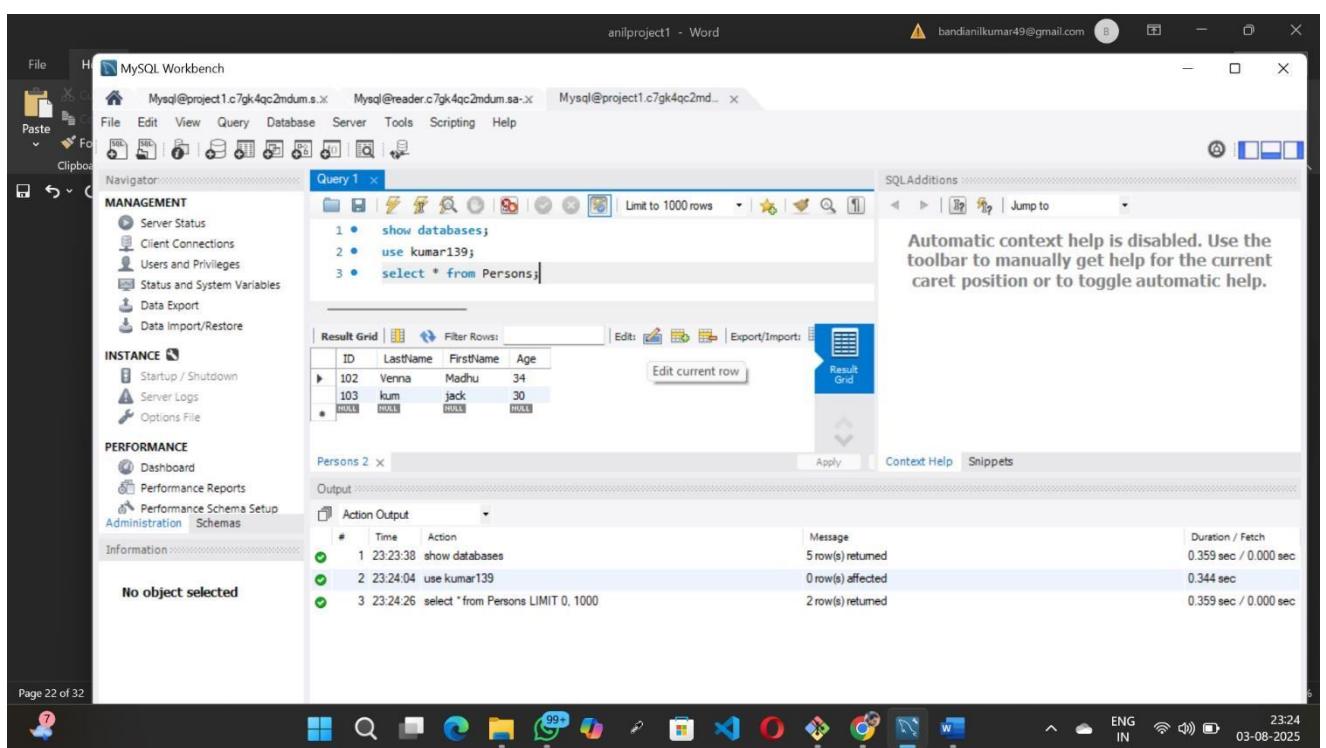
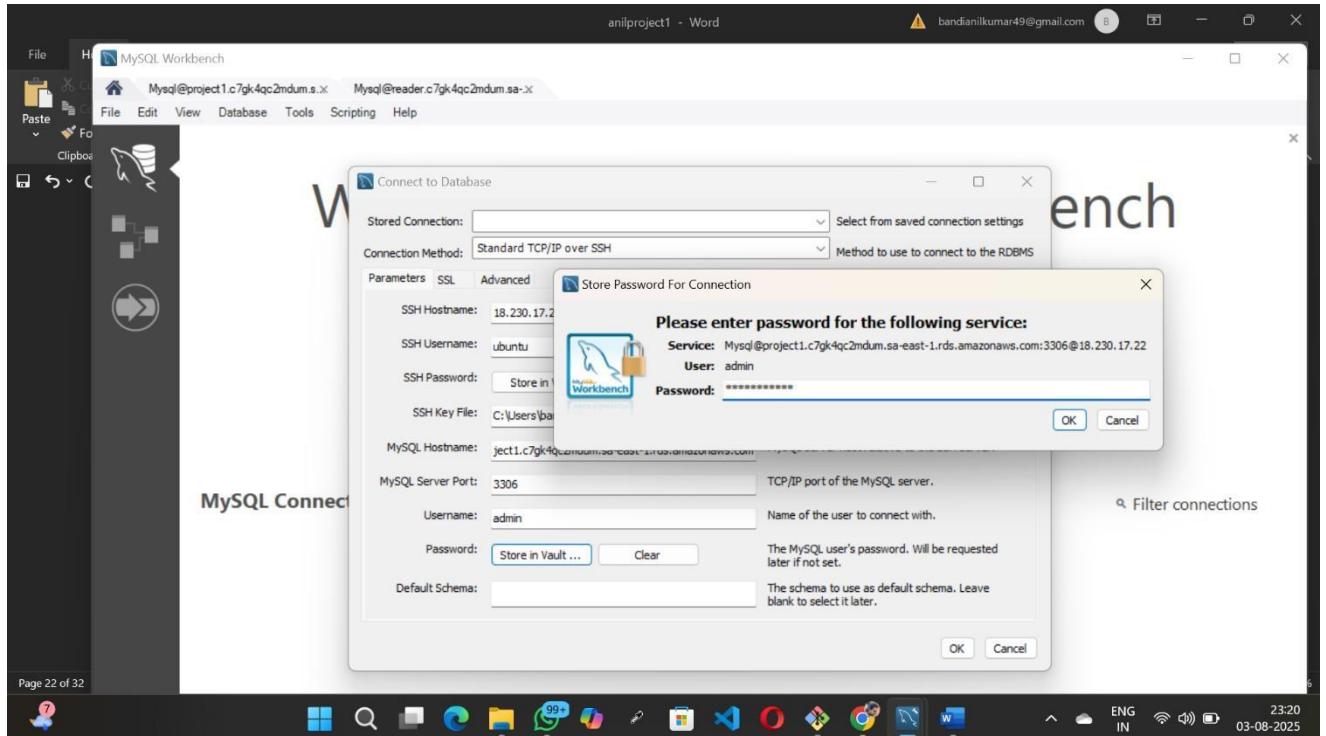
1.create database

2.open mysql workbench

3.copy the ec2 public instance ip address past in my sql

4.ubuntu

5.copy database endpoint past in my sql



A screenshot of the AWS RDS console. The left sidebar shows 'Aurora and RDS' with various options like Dashboard, Databases, and Query editor. The main area shows 'Databases (2)' with two entries: 'project1' (Available) and 'reader' (Available). A context menu is open over the 'reader' entry, listing options such as Stop temporarily, Reboot, Delete, Set up EC2 connection, Set up Lambda connection, Migrate data from EC2 database - new, Create read replica, Create Aurora read replica, Create blue/green deployment, Promote, Convert to Multi-AZ deployment, Take snapshot, and Restore to point in time.

A screenshot of the AWS RDS console, specifically the 'reader' database details page. The left sidebar is identical to the previous screenshot. The main area shows the 'reader' database under 'project1'. The 'Connectivity & security' tab is selected. It displays the following details:

Endpoint & port	Networking	Security
Endpoint reader.c7gk4qc2mdum.sa-east-1.rds.amazonaws.com	Availability Zone sa-east-1b	VPC security groups securit-pro (sg-0d95d3d6de583deb8) Active
Port 3306	VPC vpc-1-vpc (vpc-0b39084742dd95639)	Publicly accessible Yes
	Subnet group mv-subnet	Certificate authority Info

## 1. Reader- copy endpoint and check database in reader

## 2.In reader no data insert because of reader its only read

