

# DEPLOYMENT OF VPC IN AWS

An **Amazon VPC** is your private network in AWS. You choose its IP range and carve it into **subnets**

(public/private). You attach an **Internet Gateway (IGW)** for internet access, create **route tables** to control

traffic flow, and secure workloads with **Security Groups** (stateful, per-ENI) and **Network ACLs** (stateless,

per-subnet).

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## **Objective:**

- To understand the concept of Amazon Virtual Private Cloud (VPC) and its components.
- To learn how to design and deploy a custom VPC with subnets, internet gateway, and route tables.
- To gain practical knowledge of securing and managing workloads using Security Groups and Network ACLs.

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## **Pre-requisite:**

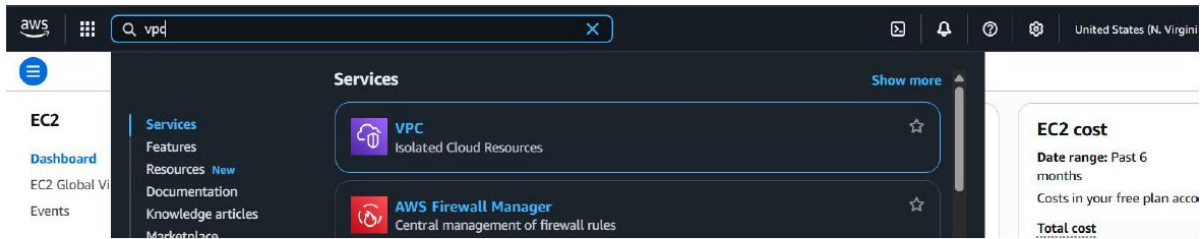
- An active AWS account with permissions to create and configure VPC resources.
- Basic understanding of networking concepts (IP addressing, subnets, routing).
- Familiarity with AWS Management Console navigation.
- Knowledge of EC2 instances for later testing connectivity inside the VPC.

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## **Procedure:**

### **To Create VPC in AWS :**

Open **VPC** → **Your VPCs** → **Create VPC**.



Fill in:

**Name tag:** vpc\_1

**IPv4 CIDR block:** 10.0.0.0/16

**IPv6 CIDR:** None (for this lab)

**Tenancy:** Default

Create the VPC.

After it appears, select **vcp\_1** → **Actions** → **Edit VPC settings** (or **Edit DNS hostnames** depending on UI) and ensure:

**Enable DNS hostnames:** ON

**Enable DNS resolution:** ON

☰ VPC > Your VPCs > vpc-0f92b78f4ac45dee6 > Edit VPC settings ⓘ ⓘ ⓘ

### Edit VPC settings ⓘ

**VPC details**  
VPC ID  
vpc-0f92b78f4ac45dee6 ⓘ  
Name  
vpc\_1 ⓘ

**DHCP settings**  
DHCP option set ⓘ  
dopt-03e9fdd96d6a88226 ⓘ

**DNS settings**  
☒ Enable DNS resolution ⓘ  
☒ Enable DNS hostnames ⓘ

**Network Address Usage metrics settings**  
☐ Enable Network Address Usage metrics ⓘ

Cancel Save

## TO CREATE SUBNET :

go to vpc → subnets → create subnet

☰ VPC > Subnets ⓘ ⓘ ⓘ ⓘ

VPC dashboard < EC2 Global View ⓘ Filter by VPC ⓘ

▼ Virtual private cloud  
Your VPCs  
Subnets  
Route tables  
Internet gateways  
Egress-only internet gateways  
Carrier gateways  
DHCP option sets  
Elastic IPs  
Managed prefix lists  
NAT gateways  
Peering connections  
Route servers New

▼ Security  
Network ACLs  
Security groups

**Subnets (6) ⓘ**  
Find subnets by attribute or tag  
Last updated 8 minutes ago ⓘ Actions ⓘ Create subnet ⓘ

<input type="checkbox"/>	Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR
<input type="checkbox"/>	-	subnet-0070cf586ffbc4ff	Available	vpc-0d719f8b82d024e18	Off	172.31.48.0
<input type="checkbox"/>	-	subnet-048ae2b65d9a33828	Available	vpc-0d719f8b82d024e18	Off	172.31.16.0
<input type="checkbox"/>	-	subnet-0da13df1df0f4f28e	Available	vpc-0d719f8b82d024e18	Off	172.31.64.0
<input type="checkbox"/>	-	subnet-0ec07d0de4a39d6d6	Available	vpc-0d719f8b82d024e18	Off	172.31.80.0
<input type="checkbox"/>	-	subnet-06c3eed44462e4931	Available	vpc-0d719f8b82d024e18	Off	172.31.32.0
<input type="checkbox"/>	-	subnet-00b59e4528d13f776	Available	vpc-0d719f8b82d024e18	Off	172.31.0.0/

Select a subnet ⓘ

settings for **public subnet**:

**vpc id**: select MyLabVPC

**subnet name**: Public-Subnet

**availability zone**: pick one (e.g. ap-south-1a)

**ipv4 cidr block**: 10.0.1.0/24

click **create subnet**

VPC > Subnets > Create subnet

### Create subnet [Info](#)

**VPC**  
**VPC ID**  
 Create subnets in this VPC.  
 vpc-0f92b78f4ac45dee6 (vpc\_1)

**Associated VPC CIDRs**  
**IPv4 CIDRs**  
 10.0.0.0/16

**Subnet settings**  
 Specify the CIDR blocks and Availability Zone for the subnet.

**Subnet 1 of 1**

**Subnet name**  
 Create a tag with a key of 'Name' and a value that you specify.  
 Public\_Subnet  
 The name can be up to 256 characters long.

**Availability Zone** [Info](#)  
 Choose the zone in which your subnet will reside, or let Amazon choose one for you.

VPC > Subnets > Create subnet

### Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

**Subnet 1 of 1**

**Subnet name**  
 Create a tag with a key of 'Name' and a value that you specify.  
 Public\_Subnet  
 The name can be up to 256 characters long.

**Availability Zone** [Info](#)  
 Choose the zone in which your subnet will reside, or let Amazon choose one for you.  
 No preference

**IPv4 VPC CIDR block** [Info](#)  
 Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.  
 10.0.0.0/16

**IPv4 subnet CIDR block**  
 10.0.0.0/20

**Tags - optional**

Key	Value - optional	
Q Name	Q Public_Subnet	Remove

VPC dashboard

EC2 Global View

Filter by VPC

**Virtual private cloud**

- Your VPCs
- Subnets**
- Route tables
- Internet gateways
- Egress-only internet gateways
- Carrier gateways
- DHCP option sets
- Client IP

**Subnets (1)** [Info](#)

Last updated less than a minute ago [Actions](#) [Create subnet](#)

Find subnets by attribute or tag

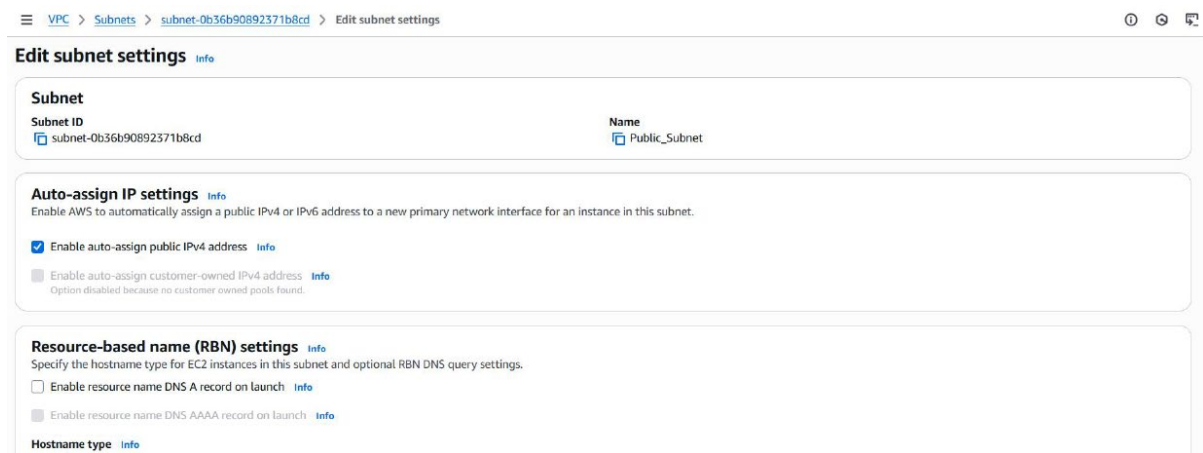
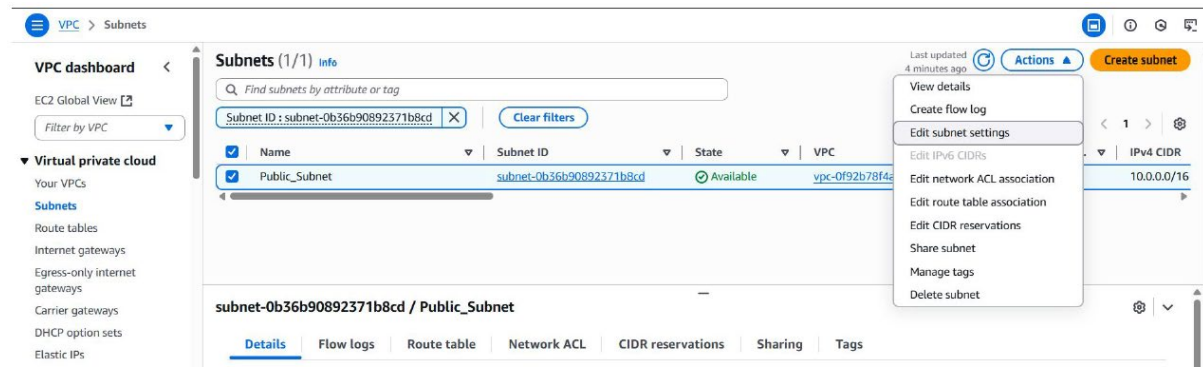
Subnet ID: subnet-0b36b90892371b8cd [Clear filters](#)

<input type="checkbox"/>	Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR
<input type="checkbox"/>	Public_Subnet	subnet-0b36b90892371b8cd	Available	vpc-0f92b78f4ac45dee6   vpc_1	Off	10.0.0.0/16

Select a subnet

after creation, select **public-subnet** → **actions** → **edit subnet settings**

turn **auto-assign ip settings** → enable *auto-assign public ipv4 address*

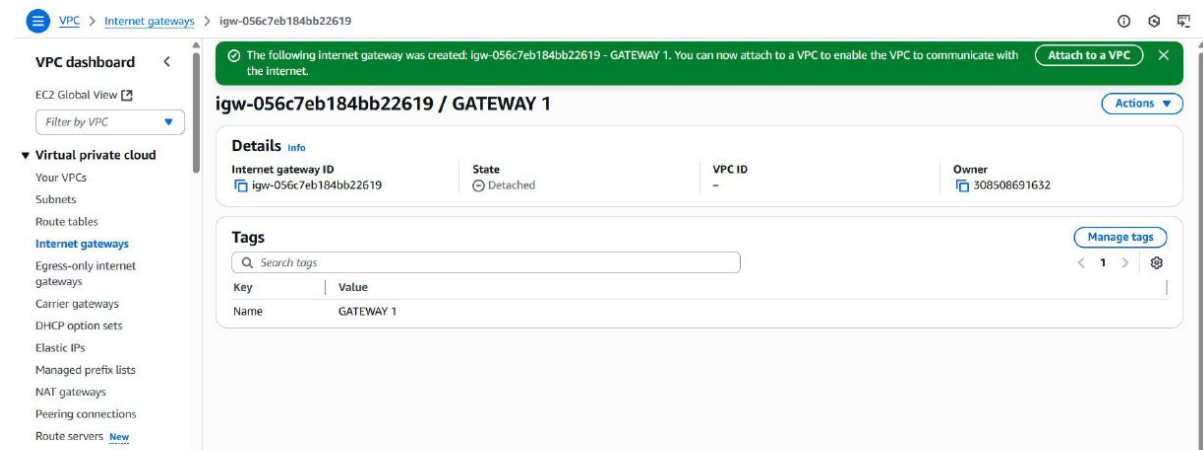
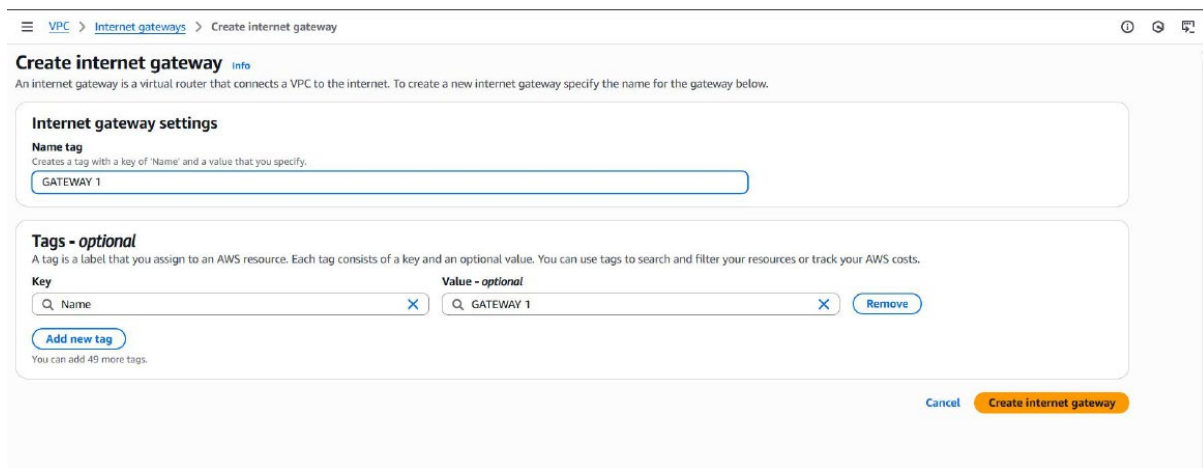
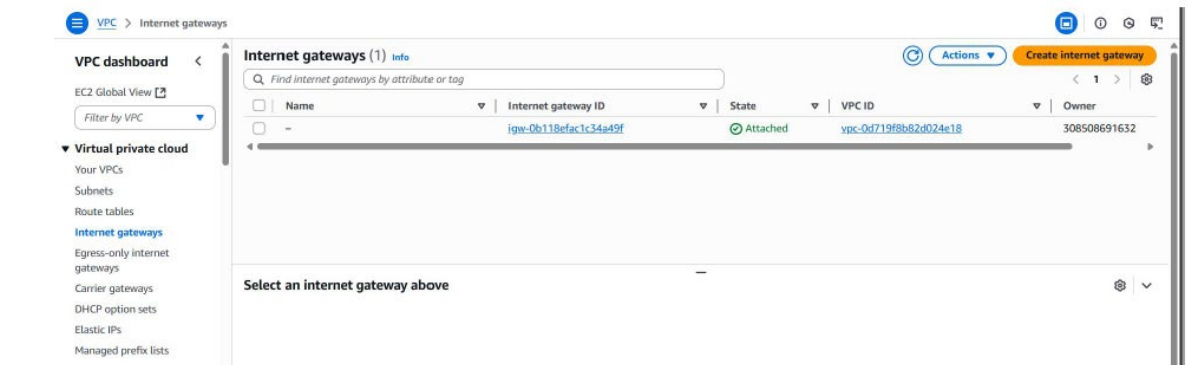


## TO CREATE INTERNET GATEWAY

go to **VPC** → **internet gateways** → **create internet gateway**

name: GATEWAY 1

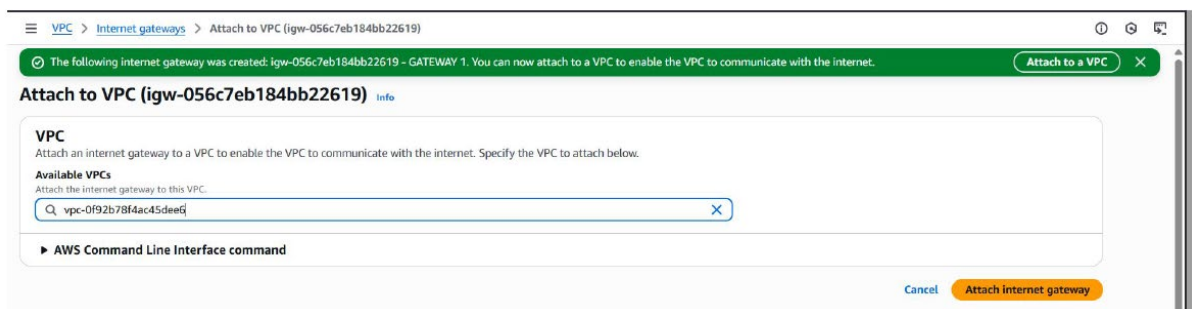
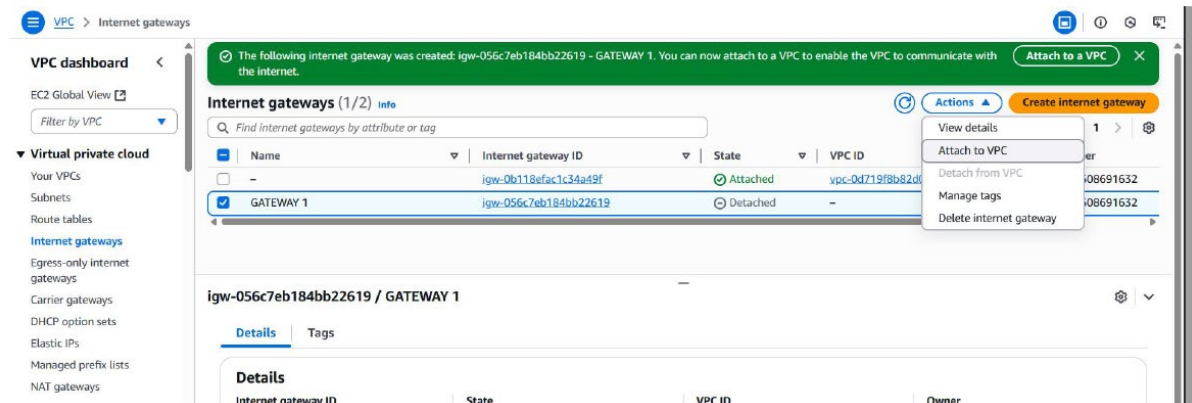
create



**attach IGW to vpc**

**select GATEWAT 1**

**actions → attach to vpc → choose vpc\_1**



## CONFIGURE ROUTE TABLE

in **route tables**, find the one automatically created for your vpc

rename it to Public-RT (for clarity)

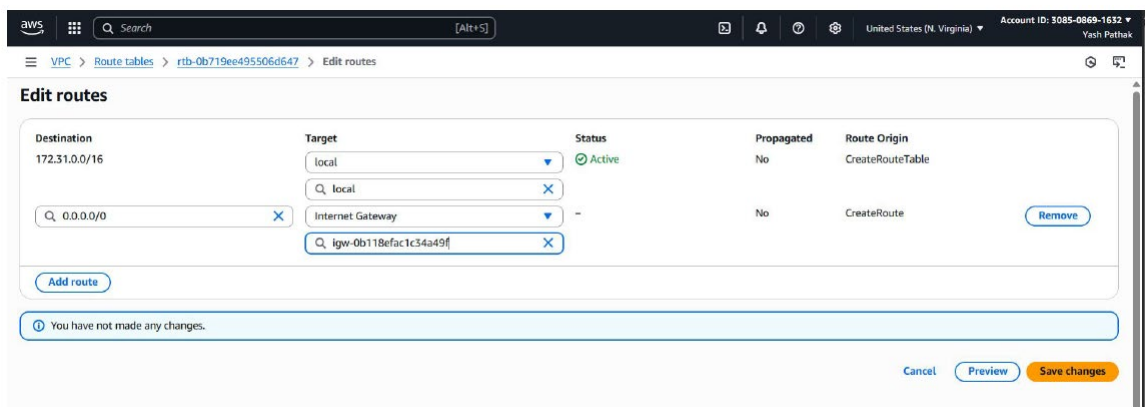
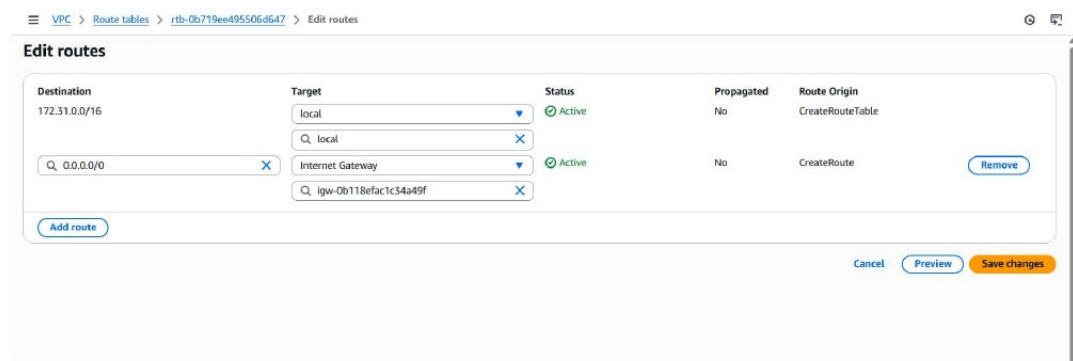
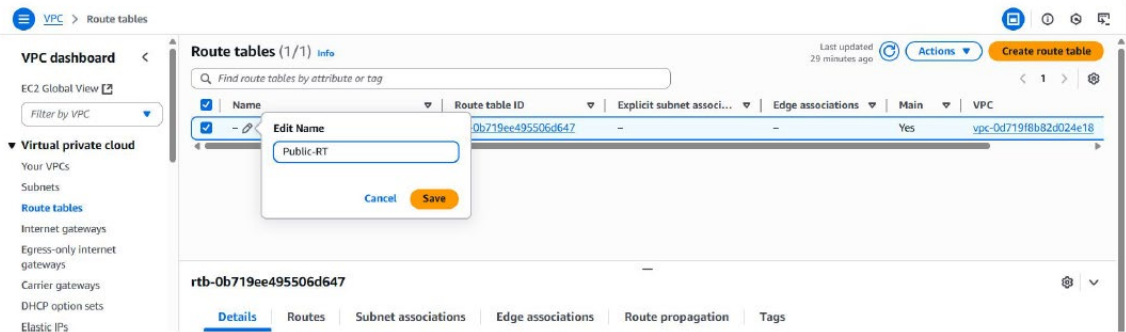
select Public-RT → **routes** → **edit routes**

add route:

destination: 0.0.0.0/0

target: GATEWAY 1

Save changes



## ASSOCIATE PUBLIC SUBNET WITH PUBLIC-RT

in same route table → **subnet associations** → **edit subnet associations**

select Public-Subnet

Save



### Edit subnet associations

Change which subnets are associated with this route table.

#### Available subnets (6)

Filter subnet associations

<input type="checkbox"/>	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
<input type="checkbox"/>		<a href="#">subnet-0070cf586ffbc4ff</a>	172.31.48.0/20	–	<a href="#">Main (rtb-0b719ee495506d647 / Publi...</a>
<input type="checkbox"/>		<a href="#">subnet-048ae2b65d9a33828</a>	172.31.16.0/20	–	<a href="#">Main (rtb-0b719ee495506d647 / Publi...</a>
<input type="checkbox"/>		<a href="#">subnet-0da13df1df0f4f28e</a>	172.31.64.0/20	–	<a href="#">Main (rtb-0b719ee495506d647 / Publi...</a>
<input type="checkbox"/>		<a href="#">subnet-0ec07d0de4a39d6d6</a>	172.31.80.0/20	–	<a href="#">Main (rtb-0b719ee495506d647 / Publi...</a>
<input type="checkbox"/>		<a href="#">subnet-05c3eed44462e4931</a>	172.31.32.0/20	–	<a href="#">Main (rtb-0b719ee495506d647 / Publi...</a>
<input type="checkbox"/>		<a href="#">subnet-00b59e4528d13f776</a>	172.31.0.0/20	–	<a href="#">Main (rtb-0b719ee495506d647 / Publi...</a>

Cancel

Save associations

## Conclusion:

In this lab, we successfully deployed a Virtual Private Cloud (VPC) in AWS by creating a custom IP range, subnets, an internet gateway, and route tables. The VPC setup provides a secure and isolated networking environment where resources can be managed efficiently. This exercise highlights the flexibility of AWS networking, enabling users to design architectures tailored to application requirements while maintaining security and control over traffic flow.