Step 1: Create a Virtual Private Cloud (VPC):

IPv4 CIDR block: 10.0.0.0/16

Created two subnets, one public and one private.

- IPv4 CIDR blocks for public: 10.0.1.0/24
- IPv4 CIDR blocks for private: 10.0.2.0/24

Created routing table for our public subnet

Created internet gateway and attached it to our VPC

⊘ Internet gateway igw-0ea7d5b285dd4cd78 successfully attached to vpc-0ccc02518d0ed2c98   ✕

VPC > Internet gateways > igw-0ea7d5b285dd4cd78

igw-0ea7d5b285dd4cd78 / coffee-shop-IGW   Actions ▼

Details Info

Internet gateway ID	State	VPC ID	Owner
⧉ igw-0ea7d5b285dd4cd78	⊘ Attached	vpc-0ccc02518d0ed2c98 | VPC-coffee-shop	⧉ 858881817729

Tags   Manage tags

Q Search tags   ‹ 1 › ⚙

Key	Value
Name	coffee-shop-IGW

Attached internet gateway to the route table

VPC > Route tables > rtb-0a7a296d9aa9f93da

rtb-0a7a296d9aa9f93da / Public-RT   Actions ▼

ⓘ You can now check network connectivity with Reachability Analyzer   Run Reachability Analyzer ✕

Details Info

Route table ID	Main	Explicit subnet associations	Edge associations
⧉ rtb-0a7a296d9aa9f93da	⧉ No	subnet-0c6d26e0414236a21 / Public-Subnet	–
VPC	**Owner ID**		
vpc-0ccc02518d0ed2c98 | VPC-coffee-shop	⧉ 858881817729		

Routes | Subnet associations | Edge associations | Route propagation | Tags

Routes (2)   Edit routes

Q Filter routes   Both ▼   ‹ 1 › ⚙

Destination ▽	Target ▽	Status ▽	Propagated ▽
0.0.0.0/0	igw-0ea7d5b285dd4cd78	⊘ Active	No
10.0.0.0/16	local	⊘ Active	No

Created security group to allow inbound and outbound traffic

VPC > Security Groups > sg-01b6c61269f84b5ac - Coffee-shop-SG

sg-01b6c61269f84b5ac - Coffee-shop-SG

Actions ▼

Details

Security group name	Security group ID	Description	VPC ID
Coffee-shop-SG	sg-01b6c61269f84b5ac	Allow all inbound and Outbound traffic	vpc-0ccc02518d0ed2c98

Owner	Inbound rules count	Outbound rules count	
858881817729	2 Permission entries	1 Permission entry	

Inbound rules | Outbound rules | Tags

Inbound rules (2)

Manage tags | Edit inbound rules

< 1 >

	Name	Security group rule...	IP version	Type	Protocol	Port range	So
☐	–	sgr-0e7fb091943a6bc91	IPv4	HTTP	TCP	80	0.0
☐	–	sgr-09717b05501aca6...	IPv4	SSH	TCP	22	0.0

Step 2: Launch EC2 Instances:

Created EC2 instance for the website (Public Subnet)

| ☑ | Website-Coffee-Shop | i-049ca92248d4e4aee | ⊘ Running | t2.micro | ⊘ 2/2 checks passed | No alarms + | eu-west-3a | ec2-35-180-22-96.eu-w... | 35.180.22.96 |

Instance: i-049ca92248d4e4aee (Website-Coffee-Shop)

Details | Security | Networking | Storage | Status checks | Monitoring | Tags

▼ Instance summary Info

Instance ID	Public IPv4 address	Private IPv4 addresses
i-049ca92248d4e4aee (Website-Coffee-Shop)	35.180.22.96	open address	10.0.1.149

IPv6 address	Instance state	Public IPv4 DNS
–	⊘ Running	ec2-35-180-22-96.eu-west-3.compute.amazonaws.com	open address

Hostname type	Private IP DNS name (IPv4 only)	
IP name: ip-10-0-1-149.eu-west-3.compute.internal	ip-10-0-1-149.eu-west-3.compute.internal	

Answer private resource DNS name	Instance type	Elastic IP addresses
–	t2.micro	–

Auto-assigned IP address	VPC ID	AWS Compute Optimizer finding
35.180.22.96 [Public IP]	vpc-0ccc02518d0ed2c98 (VPC-coffee-shop)	Opt-in to AWS Compute Optimizer for recommendations.	

Not secure | 35.180.22.96

Welcome to the coffee shop website EC2 instance

Created the 2ⁿᵈ instance for backend (Private subnet)

| ✓ | Backend-coffee-shop | i-0cd56aad77c910d3d | ⊘ Running | ⊕⊖ | t2.micro | ⊘ 2/2 checks passed | No alarms | + | eu-west-3a | – | – |

Instance: i-0cd56aad77c910d3d (Backend-coffee-shop)

Details | Security | Networking | Storage | Status checks | Monitoring | Tags

▼ Instance summary Info

Instance ID ☐ i-0cd56aad77c910d3d (Backend-coffee-shop)	Public IPv4 address –	Private IPv4 addresses ☐ 10.0.2.221
IPv6 address –	Instance state ⊘ Running	Public IPv4 DNS –
Hostname type IP name: ip-10-0-2-221.eu-west-3.compute.internal	Private IP DNS name (IPv4 only) ☐ ip-10-0-2-221.eu-west-3.compute.internal	
Answer private resource DNS name –	Instance type t2.micro	Elastic IP addresses –
Auto-assigned IP address –	VPC ID ☐ vpc-0ccc02518d0ed2c98 (VPC-coffee-shop) ↗	AWS Compute Optimizer finding ⓘ Opt-in to AWS Compute Optimizer for recommendations. | Learn more ↗
IAM Role –	Subnet ID ☐ subnet-0642d57419e857a29 (Private-Subnet) ↗	Auto Scaling Group name –

Step 3: Configure Network ACLs:

Created Network ACL and associated to 2 subnets

VPC > Network ACLs > acl-0323760f098f1c2ba / coffee-shop-ACL

acl-0323760f098f1c2ba / coffee-shop-ACL

Actions ▼

Details Info

Network ACL ID	Associated with	Default	VPC ID
⊡ acl-0323760f098f1c2ba	2 Subnets	No	vpc-0ccc02518d0ed2c98 / VPC-coffee-shop
Owner			
⊡ 858881817729			

Inbound rules   Outbound rules   Subnet associations   Tags

ⓘ You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer   ✕

Inbound rules (2)

Edit inbound rules

Q Filter inbound rules

‹ 1 › ⚙

Rule number ▽	Type ▽	Protocol ▽	Port range ▽	Source ▽	Allow/Deny ▽
1	HTTP (80)	TCP (6)	80	0.0.0.0/0	⊘ Allow
*	All traffic	All	All	0.0.0.0/0	⊗ Deny

Step 4: Set Up Elastic Load Balancer (ELB):

Created target groups

EC2 > Target groups

Target groups (1/1) Info

🔄   Actions ▼   **Create target group**

Q Search or filter target groups

‹ 1 › ⚙

☑	Name ▽	ARN ▽	Port ▽	Protocol ▽	Target type ▽	Load balancer ▽	VPC ID ▽
☑	Coffee-shop-TG	⊡ arn:aws:elasticloadbalanci...	80	HTTP	Instance	Coffee-Shop-LB	vpc-0ccc02518d0ed2c98

=

Target group: Coffee-shop-TG

✕

Details   **Targets**   Monitoring   Health checks   Attributes   Tags

Registered targets (2)

🔄   Deregister   Register targets

Q Filter resources by property or value

‹ 1 › ⚙

☐	Instance ID ▽	Name ▽	Port ▽	Zone ▽	Health status ▽	Health status details
☐	i-0f2c1df39589a7c89	website-coffee-shop-2	80	eu-west-3c	⊘ healthy	
☐	i-049ca92248d4e4aee	Website-Coffee-Shop	80	eu-west-3a	⊘ healthy	

Created Application load balancer

To check if the load balancer is running
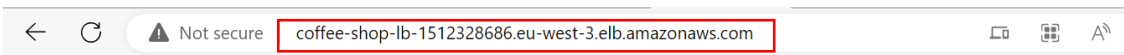
Welcome to the coffee shop website EC2 instance
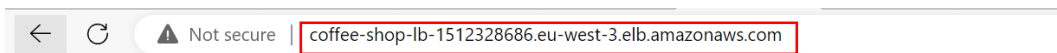
Welcome to the 2nd coffee shop website EC2 instance