🌟 **Step 1 – IAM & Access Key**

✅ Login ke AWS Console

✅ Masuk IAM → Users → pilih user → Security Credentials

✅ Create access key → pilih: “Application running outside AWS” → download CSV

✅ Simpan baik-baik Access Key & Secret Key – ini dipakai scoring.

🌟 **Step 2 – Buat VPC & Subnet**

2.1 Buat VPC

👉 VPC → Your VPCs → Create VPC

Name: LKS-CC-2024-VPC

IPv4 CIDR: 10.0.0.0/16

Tag: Key=LKS-CC-2024, Value=VPC

Klik Create VPC

2.2 Buat Subnet

👉 VPC → Subnets → Create subnet

VPC: LKS-CC-2024-VPC

Availability Zone:

us-west-2a → Subnet 10.0.0.0/28 (PUBLIC-SUBNET-A)

us-west-2b → Subnet 10.0.0.16/28 (PUBLIC-SUBNET-B)

us-west-2a → Subnet 10.0.0.32/28 (PRIVATE-SUBNET-A)

us-west-2b → Subnet 10.0.0.48/28 (PRIVATE-SUBNET-B)

Tambahkan tag di masing-masing subnet sesuai soal.

🌟 **Step 3 – Internet Gateway & NAT Gateway**

3.1 Buat Internet Gateway

👉 VPC → Internet Gateways → Create internet gateway

Name: INTERNET-GW

Tag: Key=LKS-CC-2024, Value=INTERNET-GW

Attach to VPC: pilih VPC LKS-CC-2024-VPC

3.2 Buat Elastic IP

👉 EC2 → Network & Security → Elastic IPs → Allocate Elastic IP

Klik Allocate – ini buat NAT Gateway.

3.3 Buat NAT Gateway

👉 VPC → NAT Gateways → Create NAT Gateway

Subnet: pilih PUBLIC-SUBNET-A

Elastic IP: pilih EIP yang sudah dialokasikan

Name: NAT-GW

Tag: Key=LKS-CC-2024, Value=NAT-GW

Klik Create NAT Gateway

🌟 **Step 4 – Route Tables**

4.1 Buat Route Table

👉 VPC → Route Tables → Create route table

Public Route:

Name: PUBLIC-ROUTE

Tag: Key=LKS-CC-2024, Value=PUBLIC-ROUTE

Private Route:

Name: PRIVATE-ROUTE

Tag: Key=LKS-CC-2024, Value=PRIVATE-ROUTE

4.2 Tambahkan Route

Public:

Pilih PUBLIC-ROUTE → Routes → Edit routes → Add route

Destination: 0.0.0.0/0

Target: pilih Internet Gateway (INTERNET-GW)

Private:

Pilih PRIVATE-ROUTE → Routes → Edit routes → Add route

Destination: 0.0.0.0/0

Target: pilih NAT Gateway (NAT-GW)

4.3 Associate Subnet

Public:

Pilih PUBLIC-ROUTE → Subnet associations → Edit

Centang: PUBLIC-SUBNET-A & PUBLIC-SUBNET-B

Private:

Pilih PRIVATE-ROUTE → Subnet associations → Edit

Centang: PRIVATE-SUBNET-A & PRIVATE-SUBNET-B

🌟 **Step 5 – Security Group**

👉 EC2 → Security Groups → Create security group

Name: SECURITY-GROUP

Description: LKS-CC-2024

VPC: LKS-CC-2024-VPC

Inbound Rules:

HTTP (80), Source: 0.0.0.0/0

HTTPS (443), Source: 0.0.0.0/0

Tag: Key=LKS-CC-2024, Value=SECURITY-GROUP

Klik Create

🌟 **Step 6 – Launch Template**

👉 EC2 → Launch Templates → Create launch template

Name: LKS-CC-2024-ASG-TEMPLATE

AMI: Ubuntu 24.04 (default AWS Marketplace)

Instance type: t3a.micro

Key pair: pilih (atau buat baru)

Network: No preference

Security Group: SECURITY-GROUP

Advanced details → User data:

Copy user_data.sh dari repo:

https://github.com/itsgitz/lksccjabar2024modul1_aplikasi

Paste script ke kolom.

Tag: Key=LKS-CC-2024, Value=ASG-TEMPLATE

Klik Create launch template

🌟 **Step 7 – Application Load Balancer**

👉 EC2 → Load Balancers → Create Load Balancer

Type: Application Load Balancer

Name: LKS-CC-2024-ELB

Scheme: Internet-facing

Subnets: PUBLIC-SUBNET-A & PUBLIC-SUBNET-B

Security Group: SECURITY-GROUP

Listener: HTTP (80) redirect ke HTTPS (443)

Target Group:

Name: LKS-CC-2024-ELB-TARGET

Protocol: HTTP

Health Check: enable

Tag: Key=LKS-CC-2024, Value=ELB-TARGET-GROUP

Tag Load Balancer: Key=LKS-CC-2024, Value=ELB

🌟 **Step 8 – ACM Certificate**

👉 ACM → Request Certificate

Domain: *.[YOUR_DOMAIN]

Validation: email / DNS

Tag: Key=LKS-CC-2024, Value=ACM

🌟 **Step 9 – Auto Scaling Group**

👉 EC2 → Auto Scaling Groups → Create Auto Scaling group

Name: LKS-CC-2024-ASG

Launch Template: LKS-CC-2024-ASG-TEMPLATE

VPC: LKS-CC-2024-VPC

Subnets: PRIVATE-SUBNET-A & PRIVATE-SUBNET-B

Attach ke Target Group: LKS-CC-2024-ELB-TARGET

Desired/Min/Max: 2 / 2 / 4

Scaling policy: average CPU utilization = 85%

Tag: Key=LKS-CC-2024, Value=ASG

🌟 **Step 10 – Route53 Hosted Zone**

👉 Route 53 → Hosted Zones → Create hosted zone

Domain: [YOUR_DOMAIN]

Tag: Key=LKS-CC-2024, Value=DNS

👉 Buat record A / alias ke ALB DNS.

🌟 **Step 11 – Setup HTTPS Listener di ALB**

👉 EC2 → Load Balancers → Pilih LKS-CC-2024-ELB → Listeners

Edit:

HTTP (80) → redirect ke HTTPS (443)

HTTPS (443): gunakan certificate dari ACM.

🌟 **Step 12 – SNS Notification**

👉 SNS → Create topic

Name: LKS-CC-2024-TOPIC

Tag: Key=LKS-CC-2024, Value=SNS

👉 Create subscription

Protocol: Email

Endpoint: email aktif kamu

Konfirmasi email (cek inbox!)