

### 1. CI/CD Workflow Diagram

Tools: Jenkins, Git, Build Tools (e.g., Maven), Testing Tools, Deployment (e.g., AWS CodeDeploy)

Flow:

Code Commit: Developers push code to a repository.

Build: Jenkins triggers the build.

Test: Automated tests are run.

Deploy: The code is deployed to a staging environment.

Review: Manual/automated review in staging.

Release: Code is deployed to production.

Monitor: Application is monitored post-deployment.

### 2. Architecture Diagram

Tools: AWS Services (EC2, S3, RDS, Lambda, etc.)

Flow:

Route 53: Directs traffic to ELB.

ELB: Distributes load among EC2 instances.

EC2: Hosts the backend application.

S3: Stores static assets.

RDS: Manages relational database.

Lambda: Handles serverless operations.

CloudFront: Delivers content.

WAF: Protects the application.

### 3. Monitoring and Alerting Diagram

Tools: CloudWatch, Prometheus, Grafana, SNS

Flow:

CloudWatch: Monitors AWS services.

Prometheus: Collects metrics from EC2/containers.

Grafana: Visualizes metrics.

SNS: Sends alerts.

### 4. Security Diagram

Tools: IAM, KMS, WAF, Security Groups

Flow:

IAM: Manages access.

KMS: Encrypts data at rest.

WAF: Protects web applications.

Security Groups: Controls network traffic.

### 5. Management and Maintenance Diagram

Tools: Terraform, Ansible, AWS Config, Auto Scaling

Flow:

Terraform/CloudFormation: Manages infrastructure as code.

Ansible: Automates configurations.

AWS Config: Tracks resource configurations.

Auto Scaling: Adjusts capacity automatically.