

**TRAINING TRAINS**

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IT Services and IT Consultancy \ Internship-Inplant Training \ Software Training Institute

உங்கள் கடை மற்றும் வியாபாரத்திற்கு ஏற்ற **Website & Andriod App** மற்றும் **Software** மிகச்சிறந்த முறையில் செய்து கொடுக்கப்படும்.

Expertise : **AI, Machine Learning & Data Science \ Cybersecurity & Ethical Hacking**  
**IoT, Blockchain & Cloud Computing \ Full Stack Web & Mobile Development**  
**Digital Marketing & SEO**

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# AWS Developer / Engineer – 100+ Lab Exercises (Basic, Intermediate, Advanced)

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## □ Basic Level (30+ Exercises)

**Objective:** Gain fundamental understanding of AWS services, infrastructure setup, and basic automation.

### Cloud Fundamentals & IAM

- Create an AWS Free Tier account.
- Navigate AWS Management Console & CLI.
- Create IAM users, groups, roles, and policies.
- Implement MFA and IAM best practices.
- Understand shared responsibility model.

### Compute (EC2)

- Launch and connect to EC2 instances (Amazon Linux, Ubuntu).
- Configure key pairs, security groups, and SSH access.
- Install and host a static website on EC2.
- Take snapshots and create AMIs.

### Storage (S3, EBS)

- Create S3 buckets and configure permissions.
- Upload, download, and organize files in S3.
- Enable versioning, lifecycle rules, and encryption.
- Mount and manage EBS volumes with EC2.

### Networking & Monitoring

- Create and manage VPCs, subnets, and route tables.
  - Launch EC2 in custom VPC with public/private subnets.
  - Configure CloudWatch Alarms and Logs.
  - Use AWS Cost Explorer to track Free Tier usage.
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## □ Intermediate Level (40+ Exercises)

**Objective:** Strengthen cloud-native skills with serverless, databases, automation, and identity federation.

### Serverless & Event-driven Architecture

- Create Lambda functions using Python/Node.js.
- Trigger Lambda via API Gateway and S3.
- Build a simple REST API with Lambda + API Gateway.
- Chain multiple Lambdas with Step Functions.
- Schedule jobs with CloudWatch Events (cron).

### Databases & Caching

- Launch and connect to RDS (MySQL/PostgreSQL).
- Create DynamoDB tables and perform CRUD with AWS SDK.
- Implement data backup & restore strategies.
- Use ElastiCache (Redis) for in-memory caching.
- Write queries and indexing in DynamoDB.

### Infrastructure as Code (IaC)

- Write CloudFormation templates for EC2, S3, and IAM.
- Use AWS CDK (Python/TypeScript) for IaC deployments.
- Automate environment creation using CloudFormation stacks.
- Use SAM CLI to deploy serverless apps.

### Developer Tools & Automation

- Set up CodeCommit, CodeBuild, and CodePipeline.
- Deploy a full-stack app using CI/CD pipeline.
- Automate testing and packaging with CodeBuild.
- Use AWS CLI for scripting and deployment.

### Identity & Access

- Set up SSO with third-party identity providers (Google, Okta).
  - Configure federated access using Cognito.
  - Build secure login systems for web apps.
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## □ Advanced Level (40+ Exercises)

**Objective:** Architect, optimize, and secure large-scale systems using advanced AWS technologies.

### High Availability & Load Balancing

- Configure Elastic Load Balancers (ALB/NLB).
- Deploy scalable web apps using Auto Scaling Groups.
- Implement health checks and scaling policies.

### Advanced Networking & Security

- Use NAT gateways, internet gateways, and bastion hosts.
- Implement VPC peering and Transit Gateway.
- Deploy and manage AWS WAF and Shield.
- Create secure hybrid environments with VPN.

### Advanced Serverless Architectures

- Build a GraphQL API using AWS AppSync.
- Integrate Lambda with DynamoDB and SQS for decoupled systems.
- Create a real-time chat app using API Gateway + WebSockets.
- Manage complex workflows with Step Functions.

### Data Lake & Analytics

- Use AWS Glue to crawl and prepare data.
- Query data in S3 using Athena.
- Analyze real-time data with Kinesis Data Streams.
- Create dashboards with QuickSight.
- Deploy Redshift clusters for data warehousing.

### Containers & Microservices

- Deploy Docker containers with ECS (Fargate & EC2).
- Use ECR for storing private images.
- Orchestrate containers using EKS (Kubernetes).
- Set up service discovery and autoscaling in ECS.

### Observability, Security & Governance



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- Configure GuardDuty, Security Hub, and Config Rules.
- Enable centralized logging with CloudTrail and CloudWatch.
- Set up Budget Alerts and billing alarms.
- Encrypt data at rest and in transit with KMS.
- Manage access with Service Control Policies (SCPs) via AWS Organizations.

## Capstone Projects

- Build a serverless e-commerce backend with Lambda, DynamoDB, API Gateway.
- Deploy a containerized microservices app with ECS and RDS.
- Architect a secure multi-account landing zone.
- Implement a CI/CD pipeline for React + Node.js app on AWS.
- Build and analyze a real-time event processing pipeline.

## □ Tools & Services

- Compute:** EC2, Lambda, ECS, EKS, Fargate
- Storage:** S3, EBS, EFS, Glacier
- Networking:** VPC, Route 53, ELB, NAT, VPN
- Databases:** RDS, DynamoDB, Aurora, ElastiCache
- IaC:** CloudFormation, AWS CDK, SAM
- CI/CD:** CodePipeline, CodeBuild, CodeDeploy
- Monitoring:** CloudWatch, X-Ray, CloudTrail
- Security:** IAM, Cognito, KMS, GuardDuty, WAF, Shield
- Analytics:** Athena, Glue, Redshift, QuickSight
- Dev Tools:** AWS CLI, Boto3, SDKs (Python, JavaScript)