AWS Architect Course Curriculum

Introduction to AWS Learning Objective: In this module, you will learn about the different services provided by AWS. You will be provided with an overview of the important resources required to architect an application.

Day 1:

Topics:

- Cloud Computing
- Cloud deployment and service models
- AWS Global Infrastructure and its benefits AWS Regions, Availability Zones, and Edge Locations
- AWS Services Ways to access AWS Services: AWS CLI, AWS SDK, AWS Management Console

Hands-On:

- Sign-up for AWS free-tier account
- Create an S3 bucket through Console
- Create an S3 bucket through
- AWS CLI Launch an EC2 instance

Day 2:

Topics:

- User management through Identity Access Management (IAM)
- Various access policies across AWS Services
- AWS Directory Service
- IAM Access billing and create alerts on billing

Hands-On:

- Create new users who can login to AWS console
- Create role for an application to access S3
- Create policies for new user to have either admin or limited privileges
- Credential rotation for IAM users
- Login to AWS console via MFA

Day 3:

Topics:

- S3 bucket
- Storage classes in S3
- Glacier Deep Archive
- Life cycle policy in S3
- S3 Lock Policies
- S3 Performance Optimization
- Cost optimization for S3
- Difference between S3, EBS and EFS Glacier: Glacier Vault Policies
- AWS Global Accelerator
- Amazon FSx
- Storage Gateway and its types

Hands-On:

- Hosting a Static Website on Amazon S3
- Versioning in AWS S3
- Replicating data across regions
- S3 Transfer acceleration
- Transfer and retrieve data from Glacier through lifecycle policy
- Upload a file to AWS S3 through a Website
- Accessing a static website through Cloud Front
- Mount FSx into windows servers and share same file

Day 4:

Topics:

- Start, stop and terminate an EC2 Instance
- Security Groups
- AMI
- VPC, ENI, Public, and Private IP
- Storage services
- Instance Store
- EBS and its types
- SSDs and Provisioned IOPS
- Hard Disk Drives
- EFS EBS vs EFS
- AWS Parallel Cluster
- Cost optimization

Hands-On:

- Host your website inside EC2
- Create an AMI
- Create an Elastic IP
- Attaching an EBS volume externally
- To create a snapshot
- Mount EFS volumes

Day 5:

Topics:

- Elastic Load Balancer and its types
- Advanced features of ELB
- Launch Templates
- Launch Configurations
- Comparison of Classic, Network and Application Load Balancer
- Auto-Scaling Components of Auto-Scaling
- Lifecycle of Auto-Scaling
- Auto-Scaling policy
- Working of Route 53
- Various Routing Policies

Hands-On:

- Create a Classic Load Balancer
- Create a Network Load Balancer
- Work with Application Load Balancer and Auto-Scaling
- Auto-Scaling and Scaling policy
- Point a sub-domain to EC2 box in Route 53

Day 6:

Topics:

- Amazon RDS and its benefits
- Read Replica
- RDS IAM Authentication
- Aurora: Aurora Serverless & Global Databases
- DynamoDB

- ElastiCache: Working, Redis vs Memcached
- Amazon RedShift: Redshift Spectrum
- Kinesis: AWS Kinesis Data Streams, AWS Kinesis Data Firehouse
- AWS Lake Formation
- AWS Athena
- AWS QLDB

Hands-On:

- Storing an application data in MySQL DB using Relational Database Service (RDS)
- Creating Tables, loading sample data and running queries
- Redis Cache
- Visualize the web traffic using Kinesis Data Stream
- Analyse csv data in S3 with Athena

Day 7:

Topics:

- VPC – Benefits and Components
- CIDR Notations
- Network Access Control List v/s Security Groups
- NAT (Network Address Translation): NAT Devices, NAT Gateway and NAT instance
- VPC peering
- Direct Connect
- Private Link
- Classic Link
- AWS CloudWatch
- AWS CloudTrail
- AWS Config
- Trusted Advisor

Hands-On:

- Create a Non-default VPC and attach it to an EC2 instance
- Accessing Internet inside Private Subnet using NAT Gateway
- Connect two instances in different VPC's using VPC peering
- Monitoring an EC2 instance using CloudWatch
- Enable CloudTrail and Store Logs in S3
- Explore Trusted Advisor
- Connect to an App hosted in different VPC through Private Link

Day 8:

Topics:

- AWS Simple Email Service (SES)
- Implement SES
- Demonstrate the working of SNS
- SQS: Work with SQS, ASG with SQS
- Amazon MQ
- Amazon Event Bridge
- AWS Simple Notification Service (SNS)
- AWS Simple Work Flow (SWF)
- AWS Lambda AWS
- Serverless Application Model

Hands-On:

- Send an email through AWS SES
- Send notification through SNS
- Send an e-mail through Lambda when an object is added to S3
- Send notification through Lambda when a message is sent to SQS

Day 9:

Topics:

- Infrastructure as Code
- CloudFormation and its components
- Templates in CloudFormation
- Stack in CloudFormation
- Resource deletion policies in CloudFormation
- Introduction to AWS OpsWorks
- AWS OpsWorks services
- Components of AWS OpsWorks Stack
- OpsWorks Lifecycle Events and Deployment Commands
- OpsWorks for Chef Automate
- AWS OpsWorks for Puppet Enterprise
- Auto Healing
- Elastic Beanstalk
- Components of Elastic Beanstalk
- Beanstalk v/s OpsWorks v/s CloudFormation

Hands-On:

- Installation of LAMP server in EC2 through CloudFormation
- AWS OpsWorks Stack
- Deploy a Web Application with DynamoDB using Beanstalk

AWS Architectural Designs – I

Topics:

- AWS Well-Architected Framework
- How to Build a Well-Architected Framework
- Pillars of AWS Well-Architected Framework
- Basics of Resilient Architecture
- Disaster Recovery (DR)
- Options to Implement DR Plans
- Basics of Performant Architecture

AWS Architectural Designs – II

- Well-Architected Framework
- Specify Secure Applications and Architectures
- Determine how to secure application tiers
- Determine how to secure data
- Define networking infrastructure for a single VPC application
- Design Cost-Optimized Architectures
- Determine how to design cost-optimized storage
- Determine how to design cost-optimized compute