

Setup Requirements:

Hardware and Software Requirements:

Participant's as well as Trainer's Machine are required to have:

Hardware

- Intel i5 [2+ GHz recommended]
- 8 GB RAM
- 100 GB HDD space
- LAN connectivity
- Good Internet connectivity and bandwidth

Software [Installed]

- AWS Subscription
- Windows PowerShell
- AWS CLI
- SQL Management Studio
- Visual Studio Code
- Chrome, Firefox, IE10+

Course Contents:

Day 1

Cloud Fundamentals

- What is On-Premise data center
- What is Cloud computing
- Need for Cloud based infrastructure
- Types of Cloud
- Cloud service models – IaaS, PaaS, SaaS
- Regions, Datacenter, Availability Zones
- High Availability and Scalability

AWS Basic

- AWS service types
- Create AWS account
- AWS Global infrastructure
- Understanding IAM- Roles, policies and permissions
- Configuring budgets
- Cost explorer

AWS CLI

- Install and configure AWS CLI
- Create and manage profiles in CLI
- Setup default and named profiles

Day 2

Amazon VPC

- Understanding default VPC
- Creating custom VPC
- CIDR blocks and subnet configurations
- Attaching Internet gateway
- Updating Route tables and Security Groups

Amazon EC2

- EC2 AMIs
- EC2 Instance Types
- EC2 Storage
- Create and connect EC2
- Install Web Server
- EC2 Auto Scaling

Day 3

High Availability and Business Continuity

- Load balancer types – NLB , ALB and Classic
- Configure Load balancers for High Availability
- Creating Application Load balancers
- Configure Target groups and listeners
- Availability Zone for High Availability
- Regional Replication for AWS services

AMAZON IDENTITY AND ACCESS MANAGEMENT (IAM)

- IAM policies and roles
- User and User Groups
- Access Keys

AWS S3

- Creating buckets
- Setting public access for objects
- S3 Storage classes
- Bucket versioning
- Lifecycle policies
- Securing objects in s3 buckets
- Monitoring S3 usage
- Uploading objects using .NET application

Day 4

Amazon RDS

- Understanding Db instance types
- Creating RDS instances
 - MySQL, Oracle, SQL Server and PostgreSQL
- Overview of Amazon Aurora
- High availability of RDS storage
- Backup and restore for RDS database
- Monitoring RDS service

Amazon RDS with Java Applications

- JDBC Connectivity with Amazon RDS
- Driver and properties
- Connection Strings as Environment variables
- Amazon RDS in Spring JPA Projects
- RDS Connection strings in spring application configurations

AWS DynamoDB

- NoSQL data models
- NoSQL on AWS
- Provision DynamoDB account
- Create and query DynamoDB tables
- Connect and query using .NET Core
- Insert new Item, Update and Delete items

Day 5

AWS DynamoDB with Java Applications

- Spring DATA for NoSQL
- Spring Data Dependencies and Config for Dynamo DB
- Using AWSCredentials in Spring projects
- CRUD with Spring Application

AWS Beanstalk

- Deploying Beanstalk instances
- Container deployment with Beanstalk
- Updating deployments
- Creating environments and versions
- Deployment, packaging and files, code
- Packaging Spring projects for AWS BeanStalk
 - Fat Jar (With all dependencies and embedded server)
- Passing System Environment keys to Spring application through beanstalk config.
- Worker roles
- Autoscaling groups
- Monitoring applications on Beanstalk

AMAZON SIMPLE QUEUE SERVICE (SQS)

- Standard queues, FIFO, DLQ, delay queue
- Decoupling applications use cases
- Event source mapping to Lambda
- Visibility timeout
- Short polling vs long polling

Day 6

AMAZON SIMPLE QUEUE SERVICE (SQS)

- Spring integration with SQS
- Spring Dependencies & Credentials for AWS SqS
- Sending and Receiving Messages
- Message Convertors and Listeners
- Exception handling

AWS SNS

- Create SNS service
- Configure Publishers and Consumers
- Integrating with Lambda
- Create subscription on SNS
- Publish messages to SNS
- Message Delivery options

AWS SNS with Spring Boot

- Handling Notifications using Spring SNS APIs
- Sending notifications using SNS APIs
- HTTP Notification APIs

Day 7

AWS Lambda

- Serverless service on Azure
- Build Serverless APIs with Lambda
- Integrate with API Gateway
- Using notifications and event source mappings
- Concurrency and throttling
- Building APIs using Serverless CLI
- Building APIs using SAM CLI

AWS Lambda with Spring

- Introduction to Spring cloud functions
- Building Cloud function using AWS Lamdas
- Packaging and deploying

Amazon API Gateway

- Why to use API Gateways
- Integration with AWS services
- Http and REST APIs on API Gateway
- Invalidation of cache
- Import / export OpenAPI Swagger specifications

- Stage variables
- Performance metrics
- Using API Gateway to invoke AWS Lambda function

Day 8

AMAZON CLOUDWATCH

- Monitoring application logs
- Trigger scheduled Lambda invocation
- Custom metrics
- Metric resolution

AWS Elastic Container Registry (ECR)

- What is a container Registry?
- Create and configure ECR
- Registry authentication
- Push images to ECR

Day 9

AWS Elastic Container Services (ECS)

- What is AWS ECS?
- Create ECS with Fargate
- Understanding AWS Copilot
- Creating clusters
- Defining Task Definitions
- Launch types and Tasks
- Task networking
- Deregistering tasks
- Maintain instance count with ECS services