Cloud Computing with AWS Course Outline

Day 1
- **Fundamentals of Amazon Web Services (AWS)**
- **Regions**
- **Availability Zones and Data centers**
- **AWS Credentials**
- **Review of All AWS Services**

- **Amazon S3 & Glacier Policies.**
- **Fundamental APIs: PUT, GET, LIST, DELETE**
- **Consistency model**
- **Types of consistency model for distributed storage**
- **S3's consistency model**
- **Really understanding eventual consistency**
- **S3 Namespace**
- **Access Control List**
- **Bucket Policy**
- **Pre-signed URL**
- **Multipart upload**
- **Understanding Pricing for S3**

- **Hands-on: S3 Lab; Creating Buckets, objects, and managing access control**
- **Data encryption with S3**
- **Multipart upload**
- **Understanding Pricing for S3**
- **Data encryption with S3**
- **AWS Import/Export Service**
- **Server side logging**
- **Versioning of data in S3**
- **Architecture case study of common Use Cases of S3**

- **Amazon EC2**
- **EC2 Architecture**
- **EC2 Instance types**
- **Hardware differences**
- **On-Demand Instances**
- **Reserved Instances**
- **Spot Instances**
- **Data Persistence Models**
- **Amazon Elastic Block Storage (EBS)**
- **Amazon Machine Image (AMI)**
- **S3 AMI**
- **EBS AMI**
- **EC2 Security Model**
- **Security Credentials**
  - Signon Credentials
  - **Key pairs**
  - X.509 certificate
  - **Access keys**
- **EC2 Security Groups**
- **Instance addressing**
- **Generating Custom AMIs**
- **Working with EC2 Console**
- **Monitoring Instances with Amazon CloudWatch**
- **Amazon Elastic IP**

- **Hands-on:** Hosting an Application on EC2

Day 2

- **Amazon Relational Database Services (RDS)**
- Core advantages of EBS
- **Starting an EBS database instance**
- Starting read-replica of database
- **High fault tolerant multi AZ deployment**

- **Amazon Elastic Load Balancer (ELB)**
- **Fundamentals of a Load Balancer**
- **starting a load balancer instance**
- SSL termination on ELB

- **Amazon CloudWatch**
- **Architecture of CloudWatch**
- APIs and Use Cases
- **Custom metrics**
- **Application Monitoring with Cloud Watch**

- **Auto-Scaling + ELB**
- **Understanding auto-scaling**
- **Auto-scaling Fundamentals**
- **Setting up auto-scaling rules**

- **Use Case Study and Lab: Deploying an auto-scaling app on the cloud using auto-scaling, EC2,** RDS, ELB

- **Lambda Automation**.
- Lambda Snapshot Process running with Jason Code.

Day 3

- **Amazon VPC**
- **Deep Dive into AWS networking infrastructure**
- **VPC Networking Fundamentals**
- **Private and Public Subnets**
- **Allocation of IP Addresses**
- **CIDR Notation**
- **Elastic Network Interface (ENI)**
- **Routing inside VPC**
- **Network Address Translation (NAT)**
- **Internet Gateways**
- **Configuring Routes**

- **VPN tunnels to VPC**

- **Hands-on**: Hosting secure applications using public and private subnets

- **Identity and Access Management (IAM)**
- **Understanding IAM**
- **Groups and Users**
- **Application "Roles" in IAM**
- **Access Policies**
- **Federated Authentication on IAM**

- **Hands-on: Generating groups, users, access policies and**
- **Route 53**
- Deep Dive on DNS Architecture
- Using Route53 for your Domain Name
- Creating Name Server Entries
- Setting up Health Checks
- Configuring for Multi-Location application
- Master – Slave Configuration
- Master – Master Configuration
- **Weighted Round Robin**
- Geo-location Aware Routing

- **Hands-on**: Moving an existing domain name to Route53 and configuring multi-location Routing

Day 4

- **Cloud Formation**
- Infrastructure as Code
- Understanding the Cloud Formation template sub-sections
- Generating template for our Infrastructure
- Deploying using Cloud Formation

- **Hands-on: Generating and Deploying Cloud Formation Templates**
- **CloudFront**
- **CDN Fundamentals**
- **Using CloudFront for Public Data**
- **Using CloudFront for Access Controlled Data**

- **Hands-on: Setup CloudFront CDN for an Application**

- **AWS Frequently Used Design Patterns**
- **Architecting on AWS**
- **For Batch Processing**
- **For Online Applications**
- **For Disaster Recovery**
- **Data Security**

- **Code Star , Data Pipeline ,**

Day 5

- Common Customer Issues/Request
- Hands-on: Enabling 2way Authentication based login
- Hands-on: EC2 Windows password Recovery
- Hands-on: EBS Resizing/Shrinking
- Hands-on: Elastic Load Balancer on Webserver.
- Real Time use case like how we are managing on Production for a customer.