**Cloud Computing Real Time Projects Training -COURSE CONTENT**

* Introduction to Cloud Computing
* Introduction to Dev Ops

**A Short History**

* Client Server Computing Concepts
* Challenges with Distributed Computing
* Introduction to Cloud Computing
* Why Cloud Computing?
* Benefits of Cloud Computing

**Cloud Computing Deployment Model**

* Private Cloud
* Public Cloud
* Hybrid Cloud

**Cloud Delivery/Service Models**

* Software as a Service (SaaS)
* Platform as a Service (PaaS)
* Infrastructure as a Service (IaaS)

**Linux Basics**

* Linux basic Commands
* Linux basic Administration
* Linux Root & Sudo users
* Linux File System Hierarchy
* YUM package management
* Linux Services Management

**AWS Services**

* Identity and Access Management (IAM)
* Amazon Elastic Compute Cloud (EC2)
* Amazon Simple Storage Service (S3)
* Elastic Block Storage (EBS)
* Elastic Load Balancing (ELB)
* Amazon Relational Database Service (RDS)
* Auto Scaling ϖ Virtual Private Cloud (VPC)
* Cloud Formation ϖ Simple Email Services (SES)
* Simple Notification Services (SNS)
* Server less computing (Lambda)
* Cloud Trail
* Route-53
* Glacier
* Key Management Service (KMS)

**DevOps Tools**

* Python
* Lambda
* Cloud Formation
* Jenkins
* Git Hub
* Terraform
* Docker
* Ansible

**Introduction to AWS**

* + Subscription to AWS
  + Introduction to the AWS Management Console
  + Project overview

**Identity and Access management (IAM)**

* + Creation of user accounts
  + Setting up multi factor Authentication (MFA)
  + Roles in IAM
  + Groups in IAM
  + Delegation of permissions for users
  + Creation of custom policies for delegation
  + Using Identity Providers
  + Cross-Account Access
  + Account settings
  + Credential Report
  + Encryption - Key Management Service (KMS)

**Elastic Compute Cloud (EC2) Essentials**

* + Regions and Availability Zones – Choose the right Region
  + Amazon Machine Images (AMI)
  + Working with AMIs
  + Choosing the right AMI
  + Deciding what goes into an AMI
  + Finding the right AMI
  + Pricing model in EC2 instances
  + On-demand, Reserved, Scheduled, Spot instances, Dedicated Hosts
  + EC2 Reserved Instance Marketplace
  + Importing and Exporting Instances

**EC2 Instances**

* + Building an EC2 Windows instance & Linux Instance
  + Boot strapping with user-data
  + Setting up security
  + Security with Key Pairs
  + Working with the Security Group
  + Different IPs assigned to an EC2 instance
  + Assigning Elastic IPs
  + Login/Access to the instance
  + Creating your own custom AMI, Registering & Granting access to the AMI
  + Placement groups
  + EC2 instance protection
  + Instance Roles
  + Importing and Exporting Instances
  + Elastic Network Interfaces (ENIs)
  + Resources and Tags
  + Accessing Meta-Data & use cases.

**Elastic Block Store (EBS)**

* + EBS Volume Types
  + EBS Encryption
  + EBS Performance
  + Instance Store volumes
  + Instance Stores Available on Instance Types
  + Instance Store Usage Scenarios
  + Adding Instance Store Volumes to an AMI
  + Optimizing Disk Performance
  + Creating and deleting volumes
  + Attaching and detaching volumes
  + Mounting and Unmounting the attached volume
  + Increasing the volume size
  + Creating snapshots
  + Creating Volumes & AMIs from Snapshots.
  + Cross-Region snapshot copy & use cases.

**Elastic Load Balancer (ELB)**

* What Is Elastic Load Balancing
* How Elastic Load Balancing Works
* Classic & App ELB types.
* Creating load balancer
* Internal & External Load balancers
* Load balancing protocols
* Listener Configurations
* Attach & Detach Subnets
* Security groups for the load balancer
* Configure health check for the load balancer
* Adding multiple instance to the load balancer
* Custom Domain Names
* Monitoring and Logging
* ELB traffic logging

**Auto Scaling**

* + What is auto scaling
  + Auto scaling components
  + Benefits of auto scaling
  + Creating launch configuration, and its prerequisites.
  + Creating Auto Scaling Groups (ASG)
  + Attach & Detach EC2 Instances in ASG
  + Configuration of auto scaling policies based on the Load on EC2 instances.
  + Using Auto scaling with Elastic Load balancer (ELB).
  + Temporarily Removing Instances
  + Suspend and Resume Process
  + Shut Down Your Auto Scaling Process
  + Monitoring Your Auto Scaling Instances
  + Health Checks ϖ Getting Notifications When Your Auto Scaling Group Changes.

**Simple Storage Service (S3)**

* + Creating and deleting buckets
  + Adding objects to buckets
  + Getting objects
  + Deleting objects
  + Notifications
  + Uses of S3 storage
  + Working with Permissions of S3, Access Control, Bucket policy
  + S3 Data encryption types
  + Enable Versioning, Logging for S3 objects
  + Lifecycle rules in s3
  + Accessing S3 storage with Tools
  + Hosting a Static Website
  + Audit Logging with AWS CloudTrail

**Glacier Storage**

* + Creating Vaults
  + Working with Archives
  + Accessing the Glacier vault using tools
  + Using Glacier for backups

**Virtual Private Cloud (VPC)**

* + Different types of networks that can be setup in AWS
  + Creating a custom VPC
  + NACLs & Security Groups
  + Creation of Internet Gateway (IGW)
  + Connecting to instances in the gateway
  + Subnets, Route Tables & Association
  + NAT Instances & NAT-Gateways
  + VPC Peering
  + VPN overview & components
  + Transit gateway

**Route 53**

* + Configuring Amazon Route 53 as Your DNS Service
  + Registering a Domain Name and Configuring Amazon Route 53 as the DNS Service
  + Migrating DNS Service for an Existing Domain to Amazon Route 53
  + Creating a Subdomain That Uses Amazon Route 53 without Migrating the Parent Domain
  + Working with Public Hosted Zones
  + Working with Private Hosted Zones
  + Working with Resource Record Sets

**Cloud watch**

* + Monitoring the AWS Service Health Dashboard
  + Monitoring with Cloud watch
  + Getting statistics for a specific EC2 instance
  + Getting aggregated statistics
  + Metrics for other AWS Services and related namespaces
  + Setting up notifications

**Simple Notification Service (SNS)**

* + Creation of a topic
  + Subscribing to topic via Email
  + Setting notification for EC2 instance changes

**Simple Email Services (SES)**

* + Setting up email domain
  + Limits of SES
  + Test Email setup

**Python**

* + Introduction to Python
  + Installation of Python
  + Python Input and Output statements
  + Python Data Types
  + List, Set, Tuple, Dictionary
  + Looping and Conditional statements in python
  + Functions in Python

**Lambda**

* + Introduction to Lambda
  + Working with Functions
  + Lambda Use cases
  + Lambda Roles
  + Lambda Time-out
  + Lambda Use cases for DR
  + Lambda Disaster recovery Configuration
  + Lambda Stop/Star Instance

**Cloud Formation**

* + Building AWS infrastructure as a code
  + Utilization of Sample templates
  + Introduction to JSON & YAML
  + Cloud Formation Vs Terraform
  + CFT Stack
  + CFT Structure
  + CFT code for EC2 instance with Sec group & EIP
  + CFT code for VPC Whole setup

**Ansible**

* + What is Ansible? Why Ansible?
  + Configuration management Tools
  + what is Pull and Push based tool
  + Ansible Installation
  + Ansible Command Modules
  + Working with different modules in Ansible
  + Ansible Host Entries
  + Ansible Playbook
  + How to create and work Playbook
  + Ansible with AWS
  + AWS automation using ansible

**Docker**

* + Hypervisor Vs Docker Container
  + Container Architecture
  + Docker Basics
  + Docker Architecture
  + Docker Installation
  + Docker Commands
  + Docker Image Build
  + Docker-hub registry
  + Docker Volumes
  + Docker Networking
  + Docker Compose
  + Deploying web application in container

**Jenkins**

* + Jenkins Basics
  + Jenkins Installation Linux + Windows
  + Jenkins Global Tool Configurations
  + Jenkins Jobs creation
  + Jenkins with GitHub
  + Jenkins Folders for job
  + Jenkins Pipeline
  + Jenkins job and pipeline for AWS
  + Jenkins Groovy Scripting
  + Pipelien with different stage
  + Pluge in management
  + Master and slave configuration
  + Jenkins integration with Git repo
  + Jenkins Credential Management

**Git-hub**

* + Creating Login/Access
  + Working with Public & Private Repo
  + working with repo settings
  + Web hooks in Git hub
  + Jenkins integration with Git repo

**Terraform**

* + Terraform introduction
  + Terraform implementation
  + Terraform Vs Cloud Formation
  + Terraform working with providers
  + Terraform Code Writing
  + Terraform Plugins
  + Terraform Cloud Modules
  + Terraform StateFiles
  + Terraform as Infrastructure as a code
  + Terraform StateFiles Backup
  + Terraform Modules
  + Terraform Variable file