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DevOps with Multi Cloud
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1) Who is your trainer

2) Pre-Requisites

3) Course Content

4) Course Details

5) Q & A


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Trainer Info
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Name : Mr. Ashok

IT Exp : 11+ Yrs

Role : Project Manager

Training Exp: 8 Years

Ashok IT started in 2020

Skills : Java + DevOps + Cloud + Linux


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Pre-Requisites
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=> 4 Months of time

=> Real Intrest to become DevOps engineer

=> Time for Daily Practice

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Who are eligible to attend this course ?
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1) Experienced IT professional

2) Non-IT people

3) Career Gap people

4) Freshers

Note: DevOps fresher openings are very less in the market.

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Course Content
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Module-1 : Software Projet Life Cycle

          - Waterfall Model
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            - Agile Model
            - What is DevOps & Why
            - DevOps life cycle
            - Roles & Responsibilities of DevOps engineer

  Module-2 : Linux OS with Shell Scripting

  Module-3 : AWS Cloud (10+ Services)

  Module-4 : DevOps Tools ( 15+ Tools)

  Module-5 : DevOps Projects Setup

  Module-6 : Azure Cloud

  Module-7 : GCP Cloud

  Module-8 : Interview Guidance

            - Resume Preparation
            - Mock Intervews
            - Placement Assistance


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  DevOps Tools
  ==============
  1) Maven
  2) Gradle
  3) Git Hub & Bitbucket
  4) SonarQube
  5) Nexus / JFrog
  6) Tomcat
  7) Jenkins CI CD
  8) Docker
  9) Kubernetes
  10) Grafana & Promethues
  11) ELK Stack
  12) Terraform
  13) Ansible
  14) Trivy
  15) JIRA

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  AWS Services
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  1) EC2 : Virutal Machines setup
  2) EBS : Block storage device for VM
  3) S3 : Unlimited storage
  4) RDS : Relational Databases
  5) IAM : Identity & Access Management
  6) VPC : Virtual Private Cloud
  7) CloudWatch : Resources Monitoring
  8) SNS : Notifications
  9) Beanstack : Web App mgmt
  10) Lambdas : Serverless computing
  11) Route53 : DNS
  12) EKS : Elastic K8S Service

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  Azure
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  1) Azure Architecture
  2) Azure VM
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3) Azure Storage
4) Azure Virtual Network (Vnet)
5) Azure IAM
6) Azure Monitoring
7) Azure Automation (Azure CLI, Azure SKD, Bicep)
8) Azure Terraform
9) App deployments in Azure
10) AKS : Azure K8S service

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GCP Cloud
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1) GCP Architecture
2) GCP Dashboard
3) GCP Networking
4) GCP Vms
5) GCP Databases
6) GCP Object Storage
7) Security in GCP
8) GKE (Google K8S Engine)
9) Application deployments in GCP

Bonus : Python Scripting classes

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Course Details
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Course Name : DevOps with Multi Cloud (AWS + Azure + GCP)

Start date : Today

Duration : 4 Months

Note : Daily class notes + backup videos (1 year access) will be provided

Placement Referrals

Certification Guidance

Course Fee :

Linux + DevOps with AWS : 16, 000 INR

Linux + DevOps with Multi Cloud : 20,000 INR

Class Timings : 7:00 PM to 8:30 PM IST (DevOps with AWS)

Note: Attend 5 free sessions with same zoom link

Note: Classes will be there from Mon-Fri

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Module-1 : DevOps introduction
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1) What is Software Project

2) Why to develop software projects

3) How many types of software projects available

4) What is the architecture of software project (layers)

5) Tech Stack of software project

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Q) Software Project
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=> Collection of software programs is called as Software Project.

=> To develop software programs we will use programming languages.

Ex: C, C++, Java, Python, C# DOT Net...

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Q) Why to develop software project ?
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=> Software projects are used to reduce human efforts and simplify humans life.

1) IRCTC for train tickets booking

2) Netbanking for banking operations

3) Amazon, Flipkart etc for online shopping

4) Swiggy, zomoto for food orders

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Types of software projects
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1) Desktop applications / Stand-Alone applications

2) Web Applications

3) Mobile Applications

=> Desktop applications will execute only in one system. Only one user can access at a time.

Ex : OS, Calculator, Hospital Billing s/w, Super Market Billing s/w ...

=> Web Applications can be accessed by multiple users at a time with internet.

Ex: gmail, youtube, linkedin, facebook, ashokit

=> Mobile applications are used to run in mobiles

Ex : whatsapp, instagram app, fb messenger, flipkart app, amazon app

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Software Project Architecture
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=> Software application divided into 3 layers / parts

1) Frontend

2) Backend

3) Database

=> Front end contains user interface (presentation layer).

    ## Frontend Technologies : Angular, React JS, Vue JS

=> Backend contains business logic of our application (Business layer).

    Ex: send email, send OTP, validate login credentials...

    ## Backend Technologies : Java, Python, DOT Net, Node JS, PHP...

=> Database is used to store the data permanently.

    Ex: Oracle, MySQL, SQL Server, PostGres, Mongo DB...

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Application Tech Stack
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App-1 : Angular + Java + Oracle

App-2 : React JS + Java + Mongo DB

App-3 : Angular + Python + MySQL

App-4 : React JS + Dot Net + SQL Server

App-5 : Angular + Dot Net + SQL Server

App-6 : React JS + Node JS + Mongo DB (MERN)

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Teams in the project
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1) Business Team (Functional Team)

2) Development Team

3) Testing Team

4) Operations Team (DevOps)
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=> Busines team is responsible to get requirements from the client and give it to Development team.

=> Development Team is responsible for coding (develop the project).

=> Testing team is responsible to verify project is working as expected or not.

=> Operations team (DevOps) is responsible for below activites

        1) Infrastructure Setup

            Ex: Machines, Servers, Storage, Network, Security..

        2) Configuration Management

            Ex: install s/w, copy files etc...

        3) Project Code Reviews

        4) Build & Deployment

        5) Appliation Release / Delivery

6) Monitoring (infrastructure & application)

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What is DevOps & Why DevOps
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=> DevOps is a culture.

=> DevOps is a process.

=> DevOps means set of best practices.

DEVOPS = Development + Operations

Development team : Responsisble for coding

Operations Team : Responsible for project delivery

=> DevOps is used to establish colloboration between development team & Operations team.

=> The main aim of devops is used to simplify and automate and speed up project "build + deployment + delivery" process to client with high quality.

Build = convert code into executable format (jar/war/dll)

Deployment = Execute the code using server (tomcat, jboss, iis)

Delivery = Release project to the client

=> By following DevOps culture we can deliver application to client quickly with quality.

=> By using several tools we can adopt "DevOps culture" in our project. Those tools are called as DevOps tools.

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DevOps Tools
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1) Terraform : To create infrastructure in cloud platform (AWS, Azure, GCP)

Ex: Machines, Databases, Storage, Network, Security, Monitoring..

2) Ansible : Configuration Management

Ex: install softwares, os patchings, copy files...

3) Git Hub / Bit Bucket : Source Code Repository Servers

a) Code Integration

b) Monitoring (who, when, what, why)

4) Maven / Gradle / MS Build / NPM : To perform project build process

=> Convert code into executable format

5) SonarQube : For Code Review (code quality check)

=> bugs
=> security issues
=> duplicate lines of code
=> code coverage
=> quality gate (pass or fail)

6) Nexus / Jfrog : To store project build artifacts (jar, war, dll)

7) Tomcat : Webserver (to run java based web applications)

8) Docker : Containerization (package app code and app dependencies as one unit)

9) Kubernetes : Orchestration (Management)

10) Jenkins : For CI CD (automate build & deployment)

11) Promethues & Grafana : Monitoring

12) ELK / Splunk : Application Log Monitoring

13) JIRA : Project Management Tool + Bug Reporting

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Roles and Responsibilities of DevOps Engineers
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1) Infrastructure setup (servers, network, storage, security...)

2) Managing Multiple Environments (Ex: DEV, SIT, UAT, PILOT, PROD)

DEV Env : Servers + Database + Network + Storage + Security + Monitoring

SIT Env : Servers + Database + Network + Storage + Security + Monitoring

UAT Env : Servers + Database + Network + Storage + Security + Monitoring
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PROD Env : Servers + Database + Network + Storage + Security + Monitoring

3) Configuration Management

4) Source Code Repositories management

5) CI CD Pipelines creation/monitoring

- Build
- Code Review
- Artifacts management
- Containerization
- Orchestration

6) Infrastructure Monitoring & Application Monitoring

7) Application Release

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Skills Required To Apply For JOBS As DevOps Engineer
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1) Linux OS

2) Scripting (shell scripting / python scripting)

3) Multi Cloud

4) DevOps Tools

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1) Course Introduction

2) Course Road Map

3) Software Project & Why

4) Software Project Architecture

5) Technology stack

6) Project Teams

7) What is DevOps & Why

8) DevOps tools overview

9) Roles & Responsibilities of DevOps engineer

10) Skills Required To Become DevOps engineer

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What is IT Infrastructure
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=> To run a software project we need below resources

1) Machines
2) Database
3) Network
4) Power
5) Storage
6) Security
7) Backup

=> The above resources are called as IT infrastructure.

=> We can maintain infrastructure in 2 ways

1) On-Prem infrastructure

2) Cloud Infrastructure

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What is On-Prem Infrastructure ?
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=> Purchase and manage everthing on your own

=> On-Prem means we need to purchase and we need to maintain our resources to run our business.

1) Lot of money investment

2) Man Power

3) Network issues

4) Scalability (inrease/decrease)

5) Availability

6) Security

7) Backup & Recovery

=> To overcome the problems of on-prem infrastructure companies are preferring Cloud Infrastructure.

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What is Cloud Computing ?
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=> The process of delivering "IT resources" over the internet "on demand" basis is called as Cloud Computing.

=> We have several advantages with cloud computing

1) No investment

2) Pay as you go Model (Month end bill)

3) Scalability (up/down)

4) Availability

5) Unlimited Storage

6) Isolated Network for security

7) Backup & Restore

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Cloud Providers
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=> The companies which are providing IT infrastructure based on "pay as you go" model are called as Cloud Providers.

1) Amazon (AWS)

2) Microsoft (AZURE)

3) Google (GCP)

4) Salesforce

5) Alibaba

6) Digital Ocena

1) What is IT infrastructure

2) On-Prem Infrastructure

3) Challenges with On-Prem Infrastructure

4) What is Cloud Computing

5) Cloud Advantages

6) Cloud Providers

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AWS Cloud

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=> AWS stands for Amazon webservices.

=> AWS providing cloud services from 2006 onwards

=> AWS works based on Pay as you go model

=> 190+ countries using AWS cloud services to run their businesses

=> AWS having global infrastructure

    36 launched Regions

    114 Availability Zones

Note-1 : Region means a location

Note-2 : AZ means Data Center (Server Room)

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How to use AWS Cloud ?
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=> We can create free tier account in aws cloud for practice (1 year limit).

Note: If we use any paid service then bill be generated. AWS will not deduct bill amount from our card.

=> AWS will send reminders for bill payment. If we don't pay bill then our AWS account will suspended.

Note: We can request AWS support team to make bill amount as zero for 1 or 2 times.

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How to create AWS free account
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Video URL : https://www.youtube.com/watch?v=xi-JDeceLeI

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Assignment
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Linux VM Setup in AWS : https://www.youtube.com/watch?v=JMlQaTXvw5o

Connect Linux VM with MobaXterm : https://youtu.be/uI2iDk8iTps?si=ZuZs0lQTxoRpbRMk

Connect Linux VM with putty : https://youtu.be/GXc_bxmP0AA?si=HgSydrP89mPxv23s