



Devops

1. INTRODUCTION TO DEVOPS

- Why DevOps
 - o DevOps and Its Lifecycle
 - o Agile and DevOps
 - o DevOps Objectives
 - o Pre-requisites for DevOps
 - o Cultural shift
- What is DevOps?
 - o Definition
 - o Purpose
 - o Who is part of DevOps
 - o How DevOps can help solve many issues with current practices
- Dev and Ops
 - o What are the benefits of learning DevOps for software developers, QA and automation engineers
 - o How operations can improve infrastructure management and monitoring by writing some code
 - o Building DevOps perspective to solve issues
- Tools and practices
 - o Overview of DevOps tools
 - o Overview of Source code management
 - o Overview of Build automation
 - o Continuous integration and deployment

2. Development Basics

- Linux essentials
 - o Basic commands
 - o OS basics
 - o Files and permissions





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- o SSH, SCP and some networking commands
- Python essentials
 - o How Python helps in various DevOps activities
 - o IDE
 - o Basic programming
 - o Reading and writing to files
- Ruby Overview
- Source code management
 - o GIT Essentials
 - o Creating Repository
 - o Cloning, Committing
 - o Branching
 - o Merging
- Build tools
 - o Maven
 - Maven Archetypes
 - Maven commands
 - Maven Lifecycle
 - o Docker
 - Containerization vs Virtualization
 - How Docker Works
 - Managing Images and Containers
 - Networking
 - Persistent Data Storage
 - Creation of custom images (Dockerfile)
 - Docker Registry
 - Linking Containers
 - Docker-compose





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- o Jenkins
 - Introduction
 - Installation and Configuration
 - Adding/Creating jobs
 - CI/CD Pipeline

3. Configuration Management Tools

- Chef
 - o Chef Architecture
 - o Chef Server
 - o Chef Building Blocks
 - Recipe
 - Cookbook
 - Knife
 - o Chef Nodes, Bootstrapping
 - o Workstation Setup
 - o Chef Supermarket
- Puppet
 - o Introduction
 - o Puppet Architecture
 - o Installation of Puppet Master and Agents
 - o Puppet Configuration Files
 - o Puppet DSL Basics
 - o Puppet Manifests
 - o Understanding various resources
 - o Puppet Modules and Classes
 - o Puppet Forge
- Ansible





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- o Introduction
- o Ansible Architecture
- o Setting-up Ansible Controller and Nodes
- o Ansible Tower
- o Ansible Playbooks

4. Networking basics

- HTTP protocol
 - o Basic methods
 - o HTTPS
- Web servers
 - o Configuration

5. Continuous Monitoring

- ELK
 - o Introduction
 - o ELK Architecture
 - o ElasticSearch
 - o LogStash
 - o Kibana Dashboard
 - o Configuration
- Nagios
 - o Installation and configuration
 - o Monitoring
 - o Triggering alerts

6. Cloud Platforms

- Introduction
- IaaS, PaaS and SaaS
- Amazon Web Services
 - o EC2





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- o Creation of AWS account
- o Free Tier eligible services
- o Regions and Zones
- o Provisioning Instances
- o Configuring Network and Firewall rules
- o Elastic IP addresses – Allocation, Association & Release
- Google Cloud Platform
 - o Terminology and basic concepts
 - o Setting up Google Cloud SDK
 - o Compute Engine
 - o Configuring Network and Firewall Rules
 - o Provisioning Instances



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