



## DevOps Training Program Curriculum (40 hours training program, weekdays/weekends 6-8pm)

### DAY -1 (DevOps)

- Introductions
- pre-reqs
- Target audience(Roles) DevOps Admin/Developer
- what is devops, CI/CD, Cloud use-cases (on-prem), Agile concepts
- LAB: setting up virtual-box/vagrant

### DAY -2 (Source code version control)

- Git Basics and concepts. Enterprise github (open source)
- Repository/branch (master Personal)
- (hello world application)
- LAB: install and configure GIT, GIT desktop, cmd line usage

### DAY -3 (GIT)

- fork, pull request, clone push, create local branches, commit, pull request
- LAB - create Repo, master, personal branches.
- pull down files, make changes, push the changes and fork file diff, history, hash commits
- setting up virtual box/IDE, sublime text, pylint validators, json, yaml

### DAY -4 - (Jenkins- Build Automation)

- Jenkins, ant/maven shell scripts
- LAB - install and configure Jenkins (build scripts to integrate with GIT), package and create deployment assets

### DAY - 5 (Jira, zen hub, issue tracking and build pipeline)

- build monitoring, alerts notifications
- LAB - (build scripts to integrate with GIT), package and create deployment assets

### DAY -6 (Cloud Basics)

- cloud - public/private, hybrid, public cloud players, inter cloud, migration from on-prem to off prem
- LAB - create a user, get familiar with AWS portal

### DAY - 7 (Amazon AWS EC2 )

- IAM, security groups, creating EC2 instances, (hello world application from git form Day 2)
- LAB - introduction and real deployment of in AWS (may be backup Azure ??)

### DAY -8 (Orchestration Templates - Operations part of DevOps)

- Orchestration Templates (Chef/puppet, salt/Ansible/Tosca, heat templates) differences & similarities between these tools and when to use where

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- Ansible (based on python which is the primary language for cloud which comes default on Linux flavors)
- repeated deployments at scale to multi target environments
- LAB - Install python pip, Ansible, basic cmds to check version, config, online resource Ansible modules

### DAY - 9 (Ansible basics)

- Ansible basics/concepts, what is playbook, play, tasks, roles, inventory, host file, site.yml, tags, actions
- yaml, json basics structure
- LAB : walk through basic hello world playbook and Yaml syntax, code flow, ,usr/pwd. ssh keys, target hosts

### DAY 10 - (Ansible -Intermediate)

- Ansible constructs, directory structure, scripts, command, shell
- LAB - Modular Configuration with Roles - Roles Overview, Converting to Roles: tasks, handlers, Selective Removal: shell, register, with\_items, when, Variables: vars\_files, group\_vars

### DAY -11 (Ansible Advanced)

- Invoking shell and python scripts from Ansible playbook, vars, templates, Ansible modules
- LAB - Advanced Execution - Removing Unnecessary Steps: gather\_facts, Limiting Execution by Hosts/Tasks, Idempotence: changed\_when, failed\_when ,

### DAY - 12 - (Ansible Troubleshooting)

- Ansible orchestration to deploy and provision into AWS cloud, creating images
- LAB - Troubleshooting, Testing, & Validation, Debug, Troubleshooting Ordering Problems, Jumping to Specific Tasks: list-tasks, step, start-at-task, Retrying Failed Hosts

### DAY -13 (Python - Basics & constructs )

- Basic Syntax, Variable Types, loops, Functions, imports
- LAB - Environment Setup - install, configure,

### DAY - 14 (Python - data structures, File I/O)

- write simple python code scripts, how to use python interpreter,
- LAB - Data-structure types(Tuples, Dictionary), Functions, Modules, Files I/O, Exceptions

### DAY - 15 (Python Advanced )

- LAB - Advanced Tutorial- Classes/Objects, Reg Expressions, os system calls, XML Processing, Multi-threading



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### DAY - 16 ( Python in Ansible)

- write customer Ansible module using python
- LAB - create Ansible module and call it from Ansible playbook

### DAY - 17 (Deploy 3-tier web based App to AWS using Ansible templates)

- Production scenario deployment demo real production with multi tier application deployment to AWS using ansible
- LAB - Review multi tier production application architecture scenarios, components, middle-ware, web server, load-balancer, networking
- start the playbook to create the above deployment

### DAY - 18 (Build above E2E enterprise Application from scratch using Ansible)

- LAB - complete the deployment asset

### DAY - 19 (Target Multi cloud deploy using Ansible)

- continue here and introduction to infrastructure as code, github versioning
- LAB - E2E deployment walk-thru - use the iterative process - using git, jenkins and ansible

### DAY - 20 (introduction to Micro services and Container technologies)

- Micro services, docker container on AWS , building docker images, (Kubernetes)
- LAB - build, deploy docker images in AWS