Devops (7 days)
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Day 1

DevOps Fundamentals
* System Development Life Cycle(SDLC)
* SDLC Models
* Agile Methodology (Backlog, Sprint, Scrum Master)

Version Control Tool – GIT

Git Repository
* Creating a Git Repository
* Git Workflow
* Tracking File Changes
* Files or directory add to stage
* Reset from stage
* Ignoring Files in Git
* Commit to Repository
* Reverting to Earlier Commits
* Deleting Files in Git

GitHub – Cloud Repository
* Creating a Repository in GitHub
* Creating a Repository in GitHub Using SSH
* Pulling Commits from GitHub
* Collaborating between Local and Remote Repository
* Push local Repository to GitHub or remote Repository
* Merging File Changes in Git
* Issue Tracking in GitHub

Branching Merging And Rebasing in Git
* Branching in Git
* Merging Branches in Git
* Fast Forward and Recursive Merge
* Recursive MergePreview
* Resolving Merge Conflicts in Git
* Stashing in Git
* Rebasing in Git

* Cloning in Git

Day 2

Build Automation with Maven
* Installing Maven
* Understanding the lifecycle and dependencies of Maven
* Working with the Project Object Model (POM)
* Defining project relationships
* Using Maven plugins
* Creating a sample project with Maven
* Writing tests in Maven
* Packaging your app

Unit testing with Junit

JUnit Intro
* Rules of unit testing
* Obtaining, setup, configure JUnit
* Unit test execution

JUnit API
* Test case/class
* Test methods
* Assert methods
* Test suite
* Test runner

Installing and Running Jenkins
* Downloading and Installing Jenkins
* Running Jenkins as a Stand-Alone Application
* Initial Configuration

Job Types in Jenkins
* Different types of Jenkins Items
* Configuring Source Code Management(SCM)
* Working with Subversion
* Working with Git
* Storing Credentials
* Service Accounts
* Schedule Build Jobs

* Polling the SCM
* Polling vs Triggers
* Maven Build Steps

Day 3

Jenkins Plugins
* Jenkins Plugins - SCM
* Jenkins Plugins – Build and Test
* Jenkins Plugins – Analyzers
* Jenkins for Teams
* Installing Jenkins Plugins

Distributed Builds with Jenkins
* Agent Machines
* Configure Jenkins Master
* Configure Projects
* Conclusion

Continuous Delivery and the Jenkins Pipeline
* Continuous Delivery
* Continuous Delivery (cont'd)
* DevOps and Continuous Delivery
* Continuous Delivery Challenges
* Continuous Delivery with Jenkins
* The Pipeline Plugin
* The Pipeline Plugin (cont'd)
* Defining a Pipeline
* A Pipeline Example
* Pipeline Example (cont'd)
* Parallel Execution
* Creating a Pipeline
* Invoking the Pipeline
* Conclusion

Docker Containerization Boot Camp

Introduction
* What can you use Docker for?
* How Docker fits into the development lifecycle
* How Docker ensures consistency from development through UAT and staging,

and on to production
* Example use cases of Docker in the real world

Day 4

The components of Docker
* Underlying technology
* Docker client and server
* Filesystem images
* Registries
* Containers
* Networking

Getting set up to start using Docker
* Getting set up on Windows
* Trying out our first container
* Getting set up for production on Linux
* Tweaking your production environment for best performance

Container management
* Container naming
* Starting and stopping containers
* Attaching to a container
* Seeing what is happening in a container
* Running a process inside a container
* Daemonizing a container
* Automatic container restarts
* Deleting containers when we are finished with them

Docker images and repositories
* Docker images explained
* How Docker images work
* Getting a list of images
* Searching for images on a repository
* Pulling an image
* Creating our own image
* Specify an image in a Dockerfile
* Building Dockerfile images
* Using the build cache for templating
* Viewing the image we have created
* Launching a container using our new image

Day 5

Registries
* What is the Docker hub?
* Pushing images to the Docker hub
* Running your own internal Docker registry
* Testing the internal registry

A simple use case
* A single container static website
* Setting up a container running Nginx
* Launching our static site
* Updating our static site from git or bitbucket

Continuous integration with Docker
* How Docker enables and supports CI
* Getting set up for Jenkins and Docker
* A basic Jenkins job
* Multi configuration jobs
* Drone
* Shippable

A more complex use case: Multi container application stacks
* A container for our NodeJS application
* A base image for our Redis containers
* Creating our Redis back-end cluster
* Capturing logs
* Managing containers

1. Core Concepts of Kubernetes

2Cluster Orchestration

3Looking at K8S Origination at Google

4. Open Source

4.Benefits
5.Design Principles

Navigating Kubernetes Architecture

1.Master/Node
2.Kubectl
3.Replication Controller
4.Kubelet

Day 6

5.Kube-Proxy
6.Persistent Volumes
7.Etcd
8.High Availability

Using Kubernetes Features
1.Pods
2.Labels
3.Services
4.Namespaces
5.Resource Quota

ccess Control
4.Policies
5.Service Accounts
6.Secrets

Networking and Kubernetes
1.Docker Networking
2.Kubernetes Networking
3.Pod to Pod
4.Exposing Services
5.IP Per Pod
6.Inter Pod Communication
7.Intra Pod Communication

Ansible – A configuration Management (Duration-9hrs)
* Introducing Ansible – A configuration management tool
    * Basics / What Will Be Installed
    * Understanding Ansible architecture
    * Control Machine Requirements
    * Managed Node Requirements

* Inventory
    * Hosts and Groups
    * Host Variables
    * Group Variables
* Learn various ansible Modules
* How to use adhoc commands
    * Parallelism and Shell Commands
    * File Transfer
    * Managing Packages
    * Users and Groups
    * Deploying From Source Control
    * Managing Services
* Introduction to YAML script

Day 7

* Playbook
    * About Playbooks
    * Playbook Language Example – YAML
    * How to Write Playbooks
    * Tasks in Playbooks
    * Understanding about various tasks in playbook
    * Introduction to Handlers and variables
    * Learn about using handlers, variables in the playbook
    * Become (Privilege Escalation)
* Roles
    * Role Directory Structure
    * Using Roles
    * Role Duplication and Execution
    * Role Default Variables
    * Role Dependencies
    * Role Search Path
    * Ansible Galaxy
* Including and Importing
    * Includes vs. Imports
    * Importing Playbooks
    * Including and Importing Task Files
    * Including and Importing Roles
* Writing a playbook to install and configure webservers and deplo0y an application
* How to create Ansible Role and use it
* Using an ansible role in playbook

* How to use Ansible Galaxy to download roles.
* Example – Install and use Jenkins roles from ansible galaxy