Docker Fundamentals

Duration: 2 Days

Prerequisites for this course: Basic Linux Knowledge

Hands-On Format: This hands-on class is approximately 80/20 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

Expected Outcome:

How to use Docker and Docker Compose

Build and publish your own custom images

Build development environments with your code running in containers

Course Content –

Module 1 - Introduction

- Introduction
- Overview
- Setup and installation
- What is a Container?
- How's Docker Running on Your Computer

Module 2 -Docker dive in

- Using the Docker Client
- Docker runs
- Listing Running Containers
- Container Lifecycle
- Restarting, removing Stopped Containers
- Retrieving Log Outputs
- Stopping Containers
- Executing Commands in Running Containers
- Running containers in detach mode
- Inspect containers
- Container port mapping
- Copy files to containers and vice-versa
- Export/Import Docker Containers

Module 3 - Docker Images

- Creating Docker Images
- Building a Dockerfile
- Dockerfile Teardown
- What is a Base Image
- The Build Process in Detail
- Tagging an Image
- Manual Image Generation with Docker Commit
- Docker save and Docker load

Module 4 - Docker engine, storage and networking

- Docker Engine
- Docker Storage
- Persistent Data: Data Volumes
- Docker Bind, Mount
- Docker Networking

Module 5 - Docker compose

- Assembling a Dockerfile
- Docker Compose
- Docker Compose Files
- Networking with Docker Compose
- Docker Compose Commands
- Stopping Docker Compose Containers
- Container Maintenance with Compose
- Automatic Container Restarts

Module 6 -Docker registry

- Docker Hub
- Understanding Docker Registry
- Private registry
- Docker Registry with authentication

Module 7 - Container Orchestration

- Container Orchestration
- Introduction to Docker Swarm
- Kubernetes Introduction

Module 8 - Using Docker into Continuous Integration and Deployment

- Introduction to Continuous Integration
- Introduction to Jenkins
- Jenkins Installation
- Jenkins Dashboard - UI
- Create and Deploy first Job with Jenkins
- Install Jenkins in Docker Container
- SSH Plugin
- Integrate your Docker SSH server with Jenkins
- Run a Jenkins job on Remote Host through SSH
- Build Java Program
- Run Jobs on Remote Machines