Docker Fundamentals (FI- DoF)

Course Description

This course is intended for any IT professionals who wants to start working with Docker. At the end of this course, you will have all the main information to understand the core concepts of Docker technologies and how you can use containers in the software development process. Understanding how containerization in particular works is a great skill nowadays in the DevOps world. You will get familiarized with Docker commands through hands-on exercises that will give you the chance to get confidence with Docker components. Given the needs of scalability in any IT application implementation and container orchestrations, in this course we will also cover concepts like networking, data persistence and orchestrations with Docker Swarm

Course Duration:

2 days

Prerequisites:

- Although the course doesn't have specific requirements, a good understanding of general OS functionalities and structures will help you to better understand how containerization works.
- Familiarity with Linux command-line also helps you to interact with Docker containers

Objectives:

In the process of learning we will show you some easy ways to learn Docker that will give you at the end of the course a firm understanding of core Docker technologies and key features like:

- Building Docker Images
- Hands-On Labs for creating Docker containers, Dockerfile, Docker Compose,
- Hands-On Labs for working with Docker Networking and persistent data
- Understands Docker Swarm components

After completing this course, students will have a firm understanding of many core Docker technologies and key features including the Docker Hub, Docker Compose, Docker Swarm, Dockerfile, Docker Containers, Docker Engine, Docker Images, Docker Network, Docker Daemon and Docker Storage.

Course Outline:

Chapter 01: Docker History

- Age of Virtualization Virtualization
- Why Containers?
- Docker History

Chapter 02: VMs vs Containers. Docker Architecture

- Containerization
- OS Components (Namespaces, Control Groups)
- Docker Engine
- What about Windows?
- Windows Container Types
- Containers vs VMs?

Chapter 03: Installing Docker

- Docker Versions
- Docker Update Channels
- Installing Docker on different OS
- Hands-on Lab

Chapter 04: Docker Images. Image Registries. Repositories and Tags

- Docker Images
- Image Contents and Layers
- Multiple architectures support
- Image registry and security
- Repositories
- Hands-on Lab

Chapter 05: Docker Commands

- Linux Command structure
- General Docker commands with examples
- Downloading, viewing, and deleting items commands
- Hands-on Lab

Course 6: Docker Networking

- Network types
- Working with networks
- Testing the network
- Hands-on Lab

Course 7: Persisting Data in Docker

- Persistent Storage in Docker
- Creating and mounting a volume
- Listing, inspecting, and deleting volumes
- Hands-on Lab

Course 8: Creating Dockerfiles

- Explaining Dockerfiles
- Dockerfiles contents
- The build environment
- Creating your first custom image
- Reviewing image history
- Dockerfile best practices
- Building from Github
- Hands-on Lab

Course 9: Introduction to Docker Swarm and beyond

- Docker Swarm components
- Building a Swarm

Who should attend:

- DevOps engineers
- Linux system administrators
- Virtualization Engineers
- Systems design engineers

Architects