Docker

**Objective**:

Understand the origins and the need for containerization in modern applications. Learn how Docker emerged as one of the best container platforms in the industry and about the technology behind it.

**Pre-requisite:**

* Basic knowledge of Linux OS.

**Software Requirements:**

* AWS / Azure / GCP account (Free tier)
* MobaxTerm / Git Bash

**Target Audience:**

* Software Developers, Sysadmins, DevOps Engineers at any skill level.

**Docker TOC:**

**Introduction to Containerization**

* Introduction of Virtualization
* Introduction of Containerization
* Dockers vs. VMs
* The Future of Docker & Containers
* Installation of Docker
* Docker objects – Docker images, Docker containers.
* Docker Architecture: Docker client, Docker daemon, Docker hub.
* Basic Docker commands.

**Managing Containers**

* Creating a New Container
* Listing Containers
* Managing Container Resources
* Running Commands in an Existing Container
* Interacting with a Running Container
* Stopping, Starting, and Removing Containers
* Copying files in/out of Containers
* Inspecting and Updating Containers
* Docker Output Filtering & Formatting

**Managing Images**

* Docker Images
* Listing and Removing Images
* Searching for Images
* Downloading Images
* Uploading Images
* Export/Import Images
* Save/Load Images
* Committing Changes

**Creating Images with DOCKERFILE**

* Dockerfile
* Caching
* docker image build
* Dockerfile Instructions
* ENV and WORKDIR
* Running Commands
* Getting Files into the Image
* Defining Container Executable
* Best Practices
* Multi-Stage builds with Dockerfile

**Persisting Data**

* Docker volumes
* Bind mounts
* tmpfs mounts

**Docker Networking**

* Bridge Network
* Host Network
* None Network
* Overlay Network

**Docker Compose**

* Installation of Docker compose
* Writing YAML files
* Defining service set
* Bringing up multiple containers in a single docker host