

Linux Shell Scripting & DevOps

(Training program on Bash Shell Automation & Container management using Docker)

Module 1 : Introduction to Shell Scripting (3 sessions)

- Understanding *shell*, *scripting fundamentals* and use cases.
- Creating & executing scripts.
- Variables, arrays, loops and functions in scripts.
- Examples of shell scripts on these concepts.

Module 2 : Using GNU utilities in scripts (5 sessions)

- Scripts for searching and sorting data (using *grep*, *awk*, *sort*, *unique*, etc).
- Scripts to automate backup procedures (using *cron*, *scp* and *rsync*).
- Scripts to monitor services (using *firewalld*, *netstat*, *systemctl*, etc).

Module 3: Managing Log Files, Processes, Services & Network devices (5 sessions)

- Scripts for searching & interpreting *syslog* and other services files.
- Scripts for managing log files for popular services (*SSH*, *NFS*, etc).
- Scripts to manage Networking interfaces.
- Automating service management for remote machines using *SSH*.
- Checking status of processes (Id, CPU & Memory utilization, etc) with shell scripts.

Module 4: Docker Essentials (3 sessions)

- What is virtualization? How are *containers* different from *Virtual Machines*?
- Setting up Docker service on your system (Windows & Linux setup).
- Downloading docker images, creating containers, accessing containers through command line.
- Essential docker commands explained with examples.

Module 5: Docker networking (5 sessions)

- Container-to-container networks for docker.
- Connecting containers to host machine.
- Exposing dockerized servers to the external network.
- Managing different network mode configuration.
- Docker overlay networks.
- Connecting docker containers across different networks (same and different hosts).

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Module 6: Docker Volume Management (3 sessions)

- Understanding volume management in docker containers.
- Understanding non-persistent data storage.
- Creating storage volumes for containers.
- Using services with volumes.

Module 7: Docker Compose & Image Creation (3 sessions)

- Understanding docker images and how they can be composed..
- Understanding how images can be layered and optimized.
- Dockerizing apps with various technology stacks.
- Examples on hosting docker images on repositories.

Module 8: Cluster management using Docker Swarm (3 sessions)

- Understanding the role of Docker Swarm.
- Building a docker swarm..
- Initializing and using Swarm.
- Managing Swarm services (Scaling, rolling update, etc).