



TRAINING TRAINS

IT Services and IT Consultancy \ Internship-Inplant Training \ Software Training Institute

96985 48633
90250 10144

உங்கள் கடை மற்றும் வியாபாரத்திற்கு ஏற்ற **Website & Andriod App** மற்றும் **Software** மிகச்சிறந்த முறையில் செய்து கொடுக்கப்படும்.

Expertise : **AI, Machine Learning & Data Science \ Cybersecurity & Ethical Hacking**
IoT, Blockchain & Cloud Computing \ Full Stack Web & Mobile Development
Digital Marketing & SEO

W3 App Developers 332, MULLAMPARAPPU, N.G.PALAYAM POST
ERODE - 638 115 **DomainHostly.COM**

Linux – 100+ Lab Exercises Roadmap (Basic, Intermediate, Advanced)

□ Basic Level (30+ Exercises)

Objective: Build foundational command-line skills, understand the Linux file system, and navigate through essential operations.

□ File System Navigation & Management

- Navigate directories using `cd`, `ls`, `pwd`.
- Create, delete, and move files/directories with `touch`, `rm`, `mv`, `cp`, `mkdir`.
- Explore file permissions using `chmod`, `chown`, `umask`.
- Use `find` and `locate` to search files.
- Use `df`, `du`, and `lsblk` for disk space analysis.

□ Basic Command-Line Utilities

- Redirect input/output using `>`, `>>`, `2>`, `|`, `tee`.
- Use `cat`, `more`, `less`, `head`, `tail`.
- Archive files using `tar`, `gzip`, `bzip2`, `zip`.
- Learn and use `grep`, `awk`, `cut`, `sed`.
- Manage processes using `ps`, `top`, `htop`, `kill`.

□♂ User & Group Management

- Create and delete users (`useradd`, `userdel`).
- Create and manage groups (`groupadd`, `gpasswd`).
- Set user passwords and switch users (`passwd`, `su`, `sudo`).
- Assign users to groups and configure `/etc/sudoers`.
- Understand `/etc/passwd`, `/etc/group`, and `/etc/shadow`.

□ File Permissions & Ownership

- Change file ownership (`chown`, `chgrp`).
- Use symbolic and octal modes to set permissions.



TRAINING TRAINS

IT Services and IT Consultancy \ Internship-Inplant Training \ Software Training Institute

96985 48633
90250 10144

உங்கள் கடை மற்றும் வியாபாரத்திற்கு ஏற்ற **Website & Andriod App** மற்றும் **Software** மிகச்சிறந்த முறையில் செய்து கொடுக்கப்படும்.

Expertise : **AI, Machine Learning & Data Science \ Cybersecurity & Ethical Hacking**
IoT, Blockchain & Cloud Computing \ Full Stack Web & Mobile Development
Digital Marketing & SEO

W3 App Developers

332, MULLAMPARAPPU, N.G.PALAYAM POST
ERODE - 638 115

DomainHostly.COM

- Configure default file permissions via `umask`.
- Set SUID, SGID, and Sticky Bit.
- Test permission changes in shared directories.

□ Intermediate Level (40+ Exercises)

Objective: Gain practical experience with shell scripting, package management, system services, and network configuration.

□ Shell Scripting & Automation

- Write basic shell scripts using `bash`.
- Accept user input and arguments in scripts.
- Use conditionals (`if`, `elif`, `case`) in scripts.
- Implement loops (`for`, `while`, `until`).
- Automate tasks using `cron` (`crontab`) and `at`.

□ Package & Software Management

- Install and remove packages with `apt`, `yum`, `dnf`.
- Manage repositories and GPG keys.
- Compile software from source using `make` and `gcc`.
- Create and install `.deb` or `.rpm` packages.
- Maintain system updates and upgrades.

□ Networking & Connectivity

- Check network interfaces using `ip`, `ifconfig`, `nmcli`.
- Configure static IPs and DNS.
- Use `ping`, `traceroute`, `netstat`, `ss`.
- Scan ports with `nmap`, test services with `telnet`, `nc`.
- Transfer files using `scp`, `rsync`, `sftp`.

□ System Services & Logs

- Use `systemctl` to manage services.
- Analyze logs via `journalctl` and `/var/log/`.
- Enable/disable startup services.



TRAINING TRAINS

IT Services and IT Consultancy \ Internship-Inplant Training \ Software Training Institute

96985 48633
90250 10144

உங்கள் கடை மற்றும் வியாபாரத்திற்கு ஏற்ற **Website & Andriod App** மற்றும் **Software** மிகச்சிறந்த முறையில் செய்து கொடுக்கப்படும்.

Expertise : **AI, Machine Learning & Data Science \ Cybersecurity & Ethical Hacking**
IoT, Blockchain & Cloud Computing \ Full Stack Web & Mobile Development
Digital Marketing & SEO

W3 App Developers

332, MULLAMPARAPPU, N.G.PALAYAM POST
ERODE - 638 115

DomainHostly.COM

- Monitor resource usage with `iostat`, `vmstat`, `sar`.
- Check system boot and uptime information.

□ Advanced Level (40+ Exercises)

Objective: Master Linux administration, performance tuning, security, and advanced scripting techniques.

□ Security & Access Control

- Set up and configure `iptables`, `firewalld`, or `ufw`.
- Implement `SELinux` or `AppArmor`.
- Configure and monitor `fail2ban`.
- Manage SSH keys and restrict SSH access.
- Conduct file integrity checks with `aide` or `tripwire`.

□ Advanced Shell & Tools

- Debug scripts with `set -x` and `trap`.
- Use functions and error handling in Bash scripts.
- Schedule job dependencies with `anacron`.
- Automate system reports (disk, memory, logs).
- Use `expect` for automating interactive sessions.

□ Server & Service Management

- Set up and secure an Apache/Nginx server.
- Install and configure an FTP/SFTP server.
- Deploy and manage MySQL/PostgreSQL servers.
- Configure DNS using `bind9`.
- Implement load balancing using `HAProxy`.

□ Virtualization & Containers

- Install and manage VMs with KVM/QEMU.
- Use `virt-manager` and `virsh` CLI.
- Run containers using Docker on Linux.
- Manage `cgroups` and `namespaces`.



TRAINING TRAINS

IT Services and IT Consultancy \ Internship-Inplant Training \ Software Training Institute

96985 48633
90250 10144

உங்கள் கடை மற்றும் வியாபாரத்திற்கு ஏற்ற **Website & Andriod App** மற்றும் **Software** மிகச்சிறந்த முறையில் செய்து கொடுக்கப்படும்.

Expertise : **AI, Machine Learning & Data Science \ Cybersecurity & Ethical Hacking**
IoT, Blockchain & Cloud Computing \ Full Stack Web & Mobile Development
Digital Marketing & SEO

W3 App Developers 332, MULLAMPARAPPU, N.G.PALAYAM POST
ERODE - 638 115 **DomainHostly.COM**

- Set up LXD/LXC containers.

□ Performance Tuning & Monitoring

- Monitor system with `top`, `iostat`, `glances`, `dstat`.
- Optimize memory usage and swappiness.
- Tweak kernel parameters with `sysctl`.
- Profile performance with `perf`, `strace`.
- Analyze boot time with `systemd-analyze`.

□ Capstone Projects

- Set up a complete LAMP/LEMP stack from scratch.
- Automate server hardening via Bash scripts.
- Create a log monitoring and alerting solution.
- Configure a secure file transfer system with auditing.
- Deploy and benchmark containerized apps on Linux.

□ Tools & Utilities

- `vim`, `nano`, `tmux`, `screen`, `ssh`, `scp`, `rsync`
- `bash`, `cron`, `systemd`, `tcpdump`, `nmap`
- `firewalld`, `iptables`, `ufw`, `selinux`, `appArmor`
- `docker`, `lxd`, `kvm`, `virsh`, `qemu`