

## Training Day - 2 Report:

### Learning Basic Linux Commands and Understanding Linux

#### What is Open Source?

Open source software is built on the principles of transparency, collaboration, and user freedom, allowing anyone to use, modify, and share the software, often under licenses that ensure these freedoms while enabling community-driven innovation and continuous improvement.

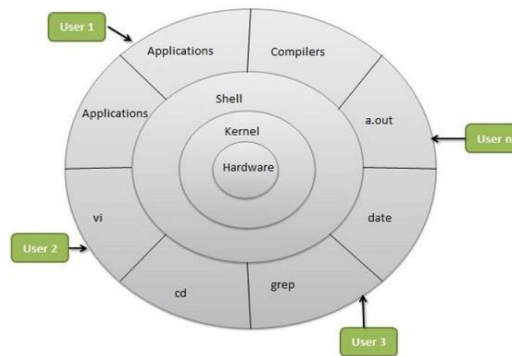
#### Key Points on Linux Origins:

- **1984:** The **GNU Project** and **Free Software Foundation** were established, aiming to create an open-source version of UNIX utilities and introducing the **General Public License (GPL)**, a license enforcing open-source principles.
- **1991:** **Linus Torvalds** developed an open-source, UNIX-like kernel, also licensed under the GPL, and integrated GNU utilities, seeking community support online.
- **Today:** The **Linux kernel combined with GNU utilities** forms a complete, open-source, UNIX-like operating system. It's packaged into various **distributions** tailored for specific users and needs.

#### Why Linux?

- Open Source
- Community Support
- Highly Customizable
- Server Dominance
- DevOps Integration
- Automation
- Security

#### Architecture of Linux:



### Some Important Directories:

- Home Directories: /root, /home/username
- User Executable: /bin, /usr/bin, /usr/local/bin
- System Executables: /sbin, /usr/sbin, /usr/local/sbin
- Other Mount points: /media, /mnt
- Configuration: /etc
- Temporary Files: /tmp
- Kernels and Bootloader: /boot
- Server Data: /var, /srv
- System Information: /proc, /sys
- Shared Libraries: /lib, /usr/lib, /usr/local/lib

### Different Linux Distributions:

#### Desktop Linux OS:

- Ubuntu: User-friendly, strong community, frequent updates.
- Linux Mint: Stable, beginner-friendly, based on Ubuntu.
- Arch Linux: Minimalist, customizable, rolling-release.
- Fedora: Cutting-edge, developer-focused, Red Hat-sponsored.

- Debian: Stable, versatile, widely used in desktop/server.
- OpenSUSE: Robust system management, developer-friendly.

#### **Server Linux OS:**

- **Red Hat Enterprise Linux (RHEL):** Enterprise-grade, stable, secure.
- Ubuntu Server: Scalable, flexible, popular in cloud environments.
- CentOS: Free RHEL alternative, community-driven, stable.
- SUSE Enterprise Linux: High performance, enterprise-focused.

#### **Most Used in IT:**

- RPM-based: RHEL, CentOS (enterprise, stability).
- Debian-based: Ubuntu Server (cloud, DevOps, flexibility).

## Linux Commands

### File and Directory Operations:

1. **ls:** Lists all files and directories in the current directory.

```
ls
```

2. **cd:** Changes the current directory to the specified directory.

```
cd demo_dir  
pwd
```

3. **pwd:** Prints the current working directory, showing the full path of the directory you are in. Useful for confirming your location within the file system.

```
pwd
```

4. **mkdir:** Creates a new directory with the specified name.

```
mkdir new_folder  
ls
```

5. **rm:** Remove files

```
touch file_to_delete.txt  
ls  
rm file_to_delete.txt  
ls
```

6. **rm -r**: Recursively removes a directory and all of its contents.

```
rm -r new_folder  
ls
```

7. **cp**: Copy files

```
echo "Sample Content" > sample_file.txt  
cp sample_file.txt copy_file.txt  
ls
```

8. **mv**: Move or rename files.

```
mv copy_file.txt renamed_file.txt  
ls
```

9. **touch**: Create an empty file.

```
touch new_file.txt  
ls
```