Experiment 3: Linux System Administration (Part 1)

1. Aim:

a. Perform user management activities in Linux OS.
b. Perform file management activities in Linux OS.

2. Requirements: LINUX OS

3. Related Theory:

The job of a Linux systems administrator is to manage the operations of a computer system like maintain, enhance, create user account/report, taking backups using Linux tools and access control.

Duties of Linux Administrator:

- Enhance, maintain & create the tools for the Linux environment and its users.
- Detecting & solving service problems ranging from disaster recovery to login issues.
- Installing the necessary systems and security tools.
- Troubleshoot, when the problem occurs in the server.
- Run backups of data regularly and design new stored procedures
- Use bash shell scripting to schedule and automate processes
- Manage DNS, send mail, IP space, and co-location facility transition.
- Manage installation, configuration, upgrades, and patch systems.
- Manage and configure active directories and setup firewall to fix security issue.
- Work on implementation of several native Linux services like NFS, FTP, DNS etc.
- Troubleshooting and hardware maintenance
- Security of users and services
- Setup security policies for users

4. Laboratory Exercise:

Linux's major difference from other OSs is its ability to have multiple users. Linux was designed to allow more than one user to have access to the system at the same time.

Perform following system admin activities on Linux machine.

a. Add simple user
b. Assign password to user
c. Verify users and password settings/files.
d. Verify user group
e. Create secondary groups and add users to it
f. Verify file permissions
g. Change file permissions

5. Post-Experiment Exercise:

A. Conclusion:

#Summarize your experience about the skills acquired from this experiment.

B. Tasks:

For each question, Students need to submit the question and screenshot of the response (answer and output).

1. Create a user
    a. with a home directory
    b. with tcsh as the default shell
    c. with "Temp" in the comment field
    d. with user id
2. Create a user by assigning the primary group explicitly.
3. Demonstrate the account status using the password aging settings and infer on the various account status.
4. Demonstrate locking and unlocking of the user password
5. Demonstrate aging setting of password for permanent and periodic passwords (Change a permanent password to a periodic password using chage command).
6. Change the existing primary group of the user.
7. Add the user to existing supplementary group
8. Perform following file operations:
    a. Create a text file. Infer the file permissions.
    b. Using Octal mode change the permission on a particular file as rw-rw-r
    c. Using Symbolic mode change permission on a particular file as rw-rw-r–
9. Demonstrate changing file ownership using chown command.
10. Create a file & share between multiple users (all users must be able to rwx file).
11. List and explain in brief all the files that get modified while creating/deleting users, creating/deleting groups and while working on file permissions and ownership in Linux.