Operating Systems

Lab – 06

Objectives:

- Understanding the concept and working of `cron` and `anacron`
- Understanding the concept of software packages and package managers
- Installing software using binary and source packages
- Understanding the concept of user management in Linux
- Creating and deleting users and groups and understanding the related configuration files

Resources:

1. Video Lecture 13: https://youtu.be/WLu1csgMMvs?si=DRWUc7rt86cqJrsm
2. Video Lecture 14: https://www.youtube.com/watch?v=vX2whCYjhec
3. Video Lecture 15: https://www.youtube.com/watch?v=eA3YOhtWHQk

background process running continously perfoming sepcific task
ps -ajx

at : runs at specified time
batch : runs when system load is less
cron: if systen is rebooted it will not do those tasks

Task 1:

1. What do you mean by a `daemon`, give command to display daemons running on your system
2. Difference between `at` and `batch` command
3. Difference between `cron` and `anacron` command
4. Write a `cron` entry that will execute a command on 1st of every month at 3:45 pm 45 15 1 * *

Task 2:

binary: contains machine code for s/w
source: is conerted into binary

1. What is the difference between a binary package and a source package?
2. What is the role of a package manger, what all package managers are available to you for installing Debian packages? used to install remove and manage packages apt, dpkg
3. Install binary package **`cmatrix`** on your machine using **`apt-get`** command.
4. Download source package **`hello-2.10.tar.gz`** using **`apt-get`** as well as using **`wget`** command. Install it on your machine, see its manual page, use it and finally uninstall it. Note down all your observations.

Task 3:

1. What is the difference between **`su`** and **`sudo`** command
2. What is the difference between switching user using **`su`** command and **`su -`** command
3. Login as root, and create a new user named **`kakamanna`**
4. View the contents of **`/etc/passwd`**, **`/etc/shadow`**, and **`/etc/group`** and try understanding the new entries in those files
5. Try logging in as `kakamanna`, what happened.
6. As root, assign password to `kakamanna` and try again logging in as `kakamanna`. View the contents of **`/etc/shadow`** file, what difference have you noticed
7. Login as **`kakamanna`**, and see the contents of his home directory. What all hidden files you see, from where they come from, what are their contents, for what all purpose they are used.

Task 4:

1. Change his personal information of kakamanna using **`chfn`** command. Do it as **`root`** and then do it as kakamanna and note the difference. What all files have been changed
2. Login as **`root`** and **`lock`** kakamanna. Try logging in as **kakamanna**, what happened. View the contents of **/etc/passwd** file, what difference you observed.
3. Login as root and **`unlock`** **kakamanna**. Repeat above procedure, and note your observations

Task 5:

4. Login as root, and delete user **kakamanna**. See the contents of files **`/etc/passwd`**, **`/etc/shadow`**, and **`/etc/group`**. Note your observations. Also see if the home directory of the user is **deleted** or not?
5. View the contents of the file /**`etc/default/useradd`**, and try to understand its impact on user creation and his password expiration.
6. View the contents of the file /**`etc/login.defs`**, and make a note of its contents and its usage.
7. View the contents of the file /**`etc/login.defs`**, and make a note of its contents and its usage.

Task 6:

8. Login as root, and create three users and assign them passwords. Use **`su-`** command to switch user and login as these three users one after another, create files within their respective home directories. Try entering the home directories of other users and see what happens. Keep a note of your observations.
9. Delete all these three users and observe the contents of the related configuration files again
10. Explore the **`newusers`** command and see if you have to create 100 users at a time how this command can help you.

Task 7:

11. Login as root, and create **three** groups with the name of **faculty**, **staff** and **students**.
12. Create three users and made them member of **faculty** group
13. Create three users and made them members of **staff** group
14. Create three users and made them members of **students** group
15. Give sudo privileges to the users of faculty group by adding them in the **sudo** group
16. Test what you have done, and keep a note of your observations