COLLEGE OF ENGINEERING CHENGANNUR

CS232

FREE AND OPEN SOURCE SOFTWARE LAB RECORD

Submitted by

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Certificate

Name : ANIJA J

Class : S4 D

Roll No : 07

Exam No : CHN17CS021

This is certified to be the bonafide record of practical work done in Free and Open Source Software as per Syllabus of class ..... in the Lab during the academic year 2018/2019

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Teacher In-charge

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Head of Dept.

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Examiner's Signature

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Principal

Date : .....

Institution Rubber Stamp

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EXPERIMENT NO.1
LINUX COMMANDS

DATE: 04/02/2019

OBJECTIVE : To familiarize the basic linux commands using terminal.

DESCRIPTION : Linux is a Unix-like, open source and community-developed operating system. Commands can be used on the terminal to accomplish administrative tasks.

Some basic linux commands executed are :

cd : Change the current directory.
mkdir : Create a new directory.
cat : Display the contents of the file. Also used to read, modify and concatenate text files.
ls : List the contents of the current directory.
ls-l : Shows file or directory size, modified date and time.
ls-lt : To sort and show files according to last modified time.
ls-ltr : To sort and show files according to first modified time.
grep : Searches given character, string or pattern in files.
sort : Sorts the contents of a text file.
rm : remove files.
rmdir : Remove a directory and files held within.

RESULT : Familiarized with various linux commands and its operations.

EXPERIMENT NO: 2
SCRIPTING TASK

DATE: 11/02/2019

AIM : To compute the scgpa of S1 and S2, calculate the cgpa of S4 D and show the results.

DESCRIPTION : First download S1 and S2 results of 2018 from KTU site.
Change the pdf file to text file using pdftotext command.

Using grep command separate CH17CS results from the file.

Change the grades to points by using sed command using following grade values respectively:
O, A+, A, B+, B, C, P, FE, F, I = 10, 9, 8.5, 8, 7, 6, 5, 0, 0, 0

awk command is used for calculating the average and thus calculate the sgpa of students.

Calculate the average Cgpa using S1 and S2 results of respective students using awk command and copied and pasted to another file.

Display the results using cat command.

RESULT : Calculated the sgpa of S1 and S2, and successfully obtained the cgpa of the respective students and displayed the results.

EXPERIMENT NO: 3
NETWORKING TASK

DATE: 11/02/2019

AIM : To set up network using network hub.

DESCRIPTION : A hub is the most basic networking device that connects multiple computers or other network devices together. The hub contains multiple ports. When a packet arrives at one port, it is copied to the other ports so that all segments of the LAN can see all packets.

Network hub was setted up using following commands:

ifconfig : It is used to configure the system's kernel-resident network interfaces.
ifconfig is also used for setting the IP address and netmask of a network interface and disabling or enabling an interface.

netmask : A netmask is a 32-bit mask used to divide an IP address into subnets and specify the network's available hosts.

ping : used to test the reachability of a device with another on a network.

RESULT : Connected two system's router to network hub and successfully networks connection has been established between two devices.

EXPERIMENT NO: 4
SSH, RSYNC AND SCP

DATE: 25/02/2019

AIM : To familiarize various file transferring commands.

DESCRIPTION : SSH- Secure Shell is a cryptographic network protocol for operating network services securely over an unsecured network.

RSYNC - Rsync (Remote sync) is a remote and local file transferring tool. It is the most commonly used command for copying and transferring files and directories remotely as well as locally in Linux or Unix systems.

SCP - SCP(Secure copy protocol) is a means of securely transferring computer files between a local host and a remote host or between two remote hosts.

Commands executed for the file transferring :
ssh user_name@host_ip : Used to connect to the server.
scp source_file_path destination_file_path : Command used to copy the files.
rsync -zvh backup.tar /tmp/backups/ - To copy/sync files and directory locally.
rsync -avzh /root/rpmpkgs /tmp/backups/ : To sync a directory on the local system.
rsync -avz rpmpkgs/ root@192.168.0.101:/home - To copy/sync files and directory to or from a server.

RESULT : The files were successfully transferred to the server and from the server.

SCP

SCP (secure copy) is a command line utility that allows you to securely copy files and directories between two locations. The scp command relies on ssh for data transfer, so it requires an ssh key or password to authenticate on the remote systems.With scp, you can copy a file or directory:

1. From your local system to a remote system.
2. From a remote system to your local system.
3. Between two remote systems from your local system.

Commands used :

ssh username@host_ip : Connect the system server to the host ip server.

scp root@root_ip:/home/root/location/filename/home/username : Downloads the file from the host server to the system.

scp username@host_ip:/home/hostdiectory/filename/home/root :

CODE SNIPPET :

```
Script started on 2019-04-04 16:40:08+0530
 ]0;anija@anija-HP-Laptop-15-bs1xx: ~/Desktop
[01;32manija@anija-HP-Laptop-15-bs1xx [00m: [01;34m~/Desktop
[00m$ ssh cs17d07@192.168.0.30
.
_____|
. .   . .-. | .-..-. .--.--. .-.
 \ \ / (.-' |(  (  )|  |  |(.-'
  `' `'  `--'` `-'`-' '  '  `` `--'
cs17d07@192.168.0.30's password:
```

Welcome to elementary OS 0.4.1 Loki (GNU/Linux 4.13.0-32-generic x86_64)

 * Website: http://elementary.io/

278 packages can be updated.
0 updates are security updates.

Last login: Thu Apr 4 11:09:22 2019 from 192.168.0.192

$ scp anija@192.168.1   0.192:/home/anija/DEs
esktop/hello.txt/home/cs17d07
usage: scp [-12346BCpqrv] [-c cipher] [-F ssh_config] [-i identity_file]
          [-l limit] [-o ssh_option] [-P port] [-S program]
          [[user@]host1:]file1 ... [[user@]host2:]file2
$ ls
examples.desktop first.txt hello.txt
$ exit
Connection to 192.168.0.30 closed.

 ]0;anija@anija-HP-Laptop-15-bs1xx: ~/Desktop
[01;32manija@anija-HP-Laptop-15-bs1xx [00m: [01;34m~/Desktop
[00m$ exit
exit

Script done on 2019-04-04 16:42:02+0530

SHELL SCRIPT :

```
#!/bin/sh
ssh cs17d07@192.168.0.30
ls
scp
anija@192.168.0.30:/home/anija/Desktop/hello.txt/home/cs17d07
ls
hello.txt
scp cs17d07@192.168.0.30:/home/cs17d07/hello.txt/anija/Desktop
ls
```

hello.txt
exit
exit

RESULT : The files were successfully transferred to the server and from the server.

EXPERIMENT NO: 5
FTP USAGE

DATE: 11/03/2019

AIM : To login to an ftp server with the provided username and password and to perform file transfer operations.

DESCRIPTION : The FTP (File Transfer Protocol) is a standard network protocol used for the transfer of computer files between a client and server on a computer network. SFTP (Secure File Transfer Protocol) is a separate protocol packaged with SSH that works in a similar way over a secure connection.

sftp remote_username@server_ip : To open an sftp connection.

sftp> ls : To list the files and directories.

sftp> get filename : To download files from FTP server.

sftp> get -r directoryname : To download a directory from the FTP server.

sftp> put filename : To upload a file from the system to FTP server.

sftp> put directoryname - To upload a directory from the system to the FTP server.

sftp> reput filename - To resume an interrupted upload.

RESULT : FTP server was set up and files were uploaded to the server.

EXPERIMENT NO: 6
OS INSTALLATION

DATE: 11/03/2019

AIM : To install Linux distro from the DVD.

DESCRIPTION : Fedora 15 was provided for the installation on the system. Fedora 15 is a Linux distribution developed by the community-supported Fedora Project and sponsored by Red Hat. Fedora 15 was released on May 24, 2011.

Fedora 15 installation has following steps:

1. Insert the DVD.
2. Enter the boot setup screen using boot setup key.
3. Choose the boot from DVD/CD option.
4. Start the Installation from Application —> System Tools —>Install to Hard Drive.
5. Select the installation device type and click Next.
6. Select your Time Zone and click Next.
7. Enter the password for root account and click Next.
8. Select your installation type and click Next.
9. Confirm the installation.
10. Once confirmed, fedora 15 will start to install on hard drive.
11. Reboot to complete the installation.
12. Once rebooted, select the fedora from the GRUB menu
13. Click Forward to the Welcome screen.
14. Fill the information on the create user screen.
15. Click on Finish.
16. Login to the created user.

RESULT : Fedora 15 was successfully installed to the system.

EXPERIMENT NO: 7
HTTP AND FTP SERVER

DATE: 25/03/2019

AIM : To setup HTTP and FTP server.

DESCRIPTION : A web server is server software, or hardware dedicated to running said software, that can satisfy World Wide Web client request.

HTTP Server : The HTTP Server is the implementation of the protocol in a piece of Software. An HTTP server serves data to clients using the HTTP protocols.

FTP Server : FTP server is a piece of software running on a system and it uses the FTP to store and share files.
It requires an IP address to connect the server and share the files.

The following commands are used to setup the servers:

sudo apt-get install nginx : To install nginx web server.
sudo /usr/sbin/nginx : To start the server.
sudo gedit /etc/nginx/sites-enabled-default : Update the configuration files.
sudo gedit /var/www/html/index.html : To edit the index.html file.
sudo apt install vsftpd : To install vsftpd FTP server.
sudo nano /etc/vsftpd.conf : To configure FTP access.
ftp -p 192.168.0.189 - To check the FTP access.

RESULT : HTTP and FTP server has been established.

EXPERIMENT NO: 8
1. PACKAGE MANAGEMENT

DATE: 11/04/2019

AIM : To install consistent sets of binary packages to the system from the archive.

DESCRIPTION : Package management is a method of installing and maintaining software on the system.

sudo apt update : It downloads the package lists from the repositories and updates them to get information on the newest versions of packages and their dependencies.

sudo apt upgrade : Fetches new versions of packages existing on the system.

sudo apt search vlc : It searches for the VLC package to see if its available or not in the system.

sudo apt install vlc : To install the VLC package.

sudo apt show vlc

sudo apt full-upgrade

sudo apt remove vlc : To uninstall the VLC package

sudo apt purge vlc - It uninstalls the package along with the configuration files.

RESULT : VLC package has been successfully installed and then uninstalled along with the configuration files.

EXPERIMENT NO: 8
2. PERL

DATE: 11/04/2019

AIM : To install perl and run a perl program.

DESCRIPTION : Perl (Practical Extraction and Reporting Language)

perl -v : To check if perl is already install, if then shows the version of the installed perl.

sudo apt-get install perl : Command used to install perl.

touch first.pl : Create a file named first.pl

cat >first.pl : To write the perlscript.
Write a program.

perl first.pl : Command used to run the perl script.

RESULT : Perl was installed and perl program was successfully executed.

EXPERIMENT NO: 8

3. LAMP STACK

DATE: 11/04/2019

AIM : To install and configure LAMP stack.

DESCRIPTION :

MySQL is a database management system.

PHP is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

sudo apt install apache2 : To install apache.

sudo apt install mysql-server : To install MySQL.

sudo mysql_secure_installation : To run the security script.

sudo apt install php libapache2-mod-php php-mysql : To install php and related packages.

sudo systemctl restart apache2 : To restart the apache web server.

sudo gedit /var/www/html/info.php : To create a basic PHP script.

RESULT : Apache, MySQL and PHP were installed successfully and a PHP script was created.

EXPERIMENT NO: 8
4. KERNEL COMPILATION

DATE: 11/04/2019

AIM : To install the latest linux kernel from the sources.

DESCRIPTION :

The various steps involving building and installing the latest linux kernel are :

wget
https://cdn.kernel.org/pub/linux/kernel/v4.x/linux-4.20.12.tar.xz : To get the latest Linux kernel source code.

unzx -v linux-4.20.12.tar.xzb : Extract tar.xz file
cd linux-4.20.12

cp -v /boot/config-$(uname -r) .config : Configure the Linux kernel features and modules.

sudo apt-get install build-essential libncurses-dev bison flex libssl-dev libelf-dev : To install the required compilers and other tools.

sudo make modules_install : To install the Linux kernel modules.

sudo make install - To install the linux kernel.
sudo update-grub : Update the grub

RESULT : The latest linux kernel has been successfully built and installed.

EXPERIMENT NO: 9

OWN WEB PAGES ON SERVER

DATE: 09/05/2019

AIM : To create own web pages on server and upload contents on our home directory to 192.168.0.30. The pages could be accessed as http://192.168.0.30/cs17d/cs17d07.

DESCRIPTION : Web pages were created using HTML and the links to different GitHub uploaded files are available along with other details.

A table has been created which displays following details :
1. No.
2. Experiment description
3. Code link(typescript)
4. Date of upload
5. GitHub link
5. Shell script

The pages were made accessible as:
http://192.168.0.30/cs17d/cs17d07

RESULT : The webpages has been successfully uploaded to the FTP server and has made accessible with the relevant file links and details.