



Module Code & Module Title

CT505NP – Computer Networking System

Assessment Type

Logbook = 6

Semester

2024 Autumn

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Assignment Due Date: 14 December 2024

Assignment Submission Date: 14 December 2024

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I confirm that I understand my coursework needs to be submitted online via Google Classroom under the relevant module page before the deadline for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a mark of zero will be awarded.

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1. Introduction

The purpose of this report is to provide a basic understanding of the Linux Operating System and its fundamental commands explained step by step. It covers important commands such as how to view account details find our username and create files. Linux is an open-source operating system that many people use. It's known for being stable, secure, and customizable. (rusling, 1999). Ubuntu is a popular operating system based on Linux. Ubuntu Server on the other hand is designed specifically for servers. It doesn't have a graphical interface which makes it faster and more efficient for handling server tasks (Hailey, 2008).

In this report we were given a task to use several commands like "Script a1script" command starts a new shell session, where "a1script" is the log file name. "Whoami" shows the system username, "who" lists everyone on the system, and "finger" gives more account info. "Date" displays the current date and time. "Ls" lists visible files, "ls -a" includes hidden ones, and "ls -l" provides detailed file info. "Cat /etc/passwd" reads and outputs the contents of /etc/passwd. "Echo 'This is a one-line file' > test1" creates test1, and "cat > test2 This is file two" is for file two. The "combine_file" command is used to combine multiple files into one. Lastly typing "Exit" will end the script session you started earlier, indicating that we are done with the logging. The "echo" command is used to display a line of text or a variable value in the terminal.

2. Objectives

The goal of this report is to explain the Linux operating system and show how to use basic commands to move around the file system, check system information, and handle files.

3. Required Tools and Concepts

Required tools and concepts are:

Hardware

- Processor:
- Modern x86-64 processor

- RAM: 4GB or 8GB recommended for smoother performance
- Storage: 20GB or more

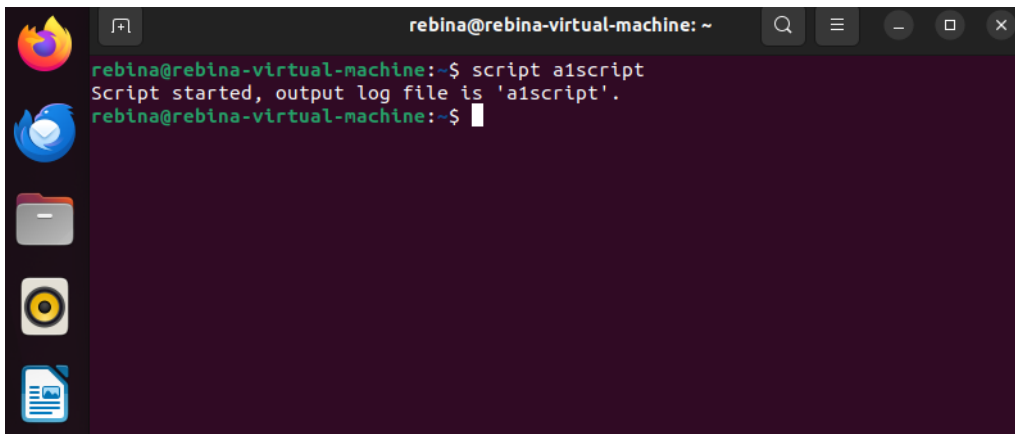
Software

- Oracle VM VirtualBox: A virtualization software to run Ubuntu as a virtual machine.
- Ubuntu ISO file

Step 1: Open a Terminal

Step 2: Start the Script

Type a1script and press Enter.

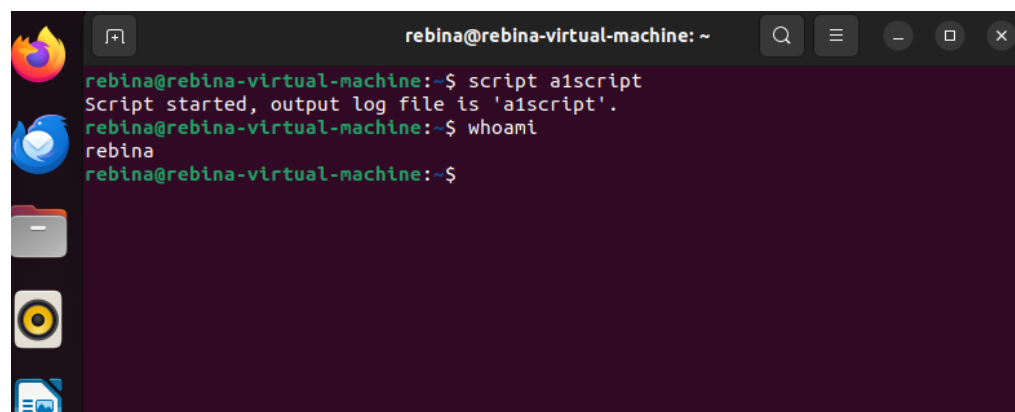
A terminal window titled 'rebina@rebina-virtual-machine: ~' with search, menu, and window control icons. The terminal shows the command 'script a1script' being executed, followed by the output 'Script started, output log file is 'a1script''. The prompt returns to 'rebina@rebina-virtual-machine:~\$'. On the left side of the terminal, there is a vertical dock with icons for Firefox, Telegram, a file manager, a media player, and a document editor.

```
rebina@rebina-virtual-machine:~$ script a1script
Script started, output log file is 'a1script'.
rebina@rebina-virtual-machine:~$
```

Figure 1 Script a1script

Step 3: Exploring the environment

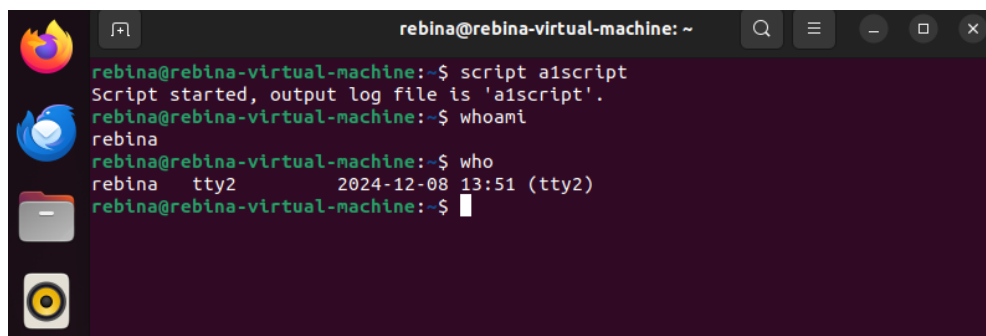
whoami: It displays our current username .

A terminal window titled 'rebina@rebina-virtual-machine: ~' with search, menu, and window control icons. The terminal shows the command 'script a1script' being executed, followed by the output 'Script started, output log file is 'a1script''. Then, the command 'whoami' is entered, and the output 'rebina' is displayed. The prompt returns to 'rebina@rebina-virtual-machine:~\$'. On the left side of the terminal, there is a vertical dock with icons for Firefox, Telegram, a file manager, a media player, and a document editor.

```
rebina@rebina-virtual-machine:~$ script a1script
Script started, output log file is 'a1script'.
rebina@rebina-virtual-machine:~$ whoami
rebina
rebina@rebina-virtual-machine:~$
```

Figure 2 Showing user name

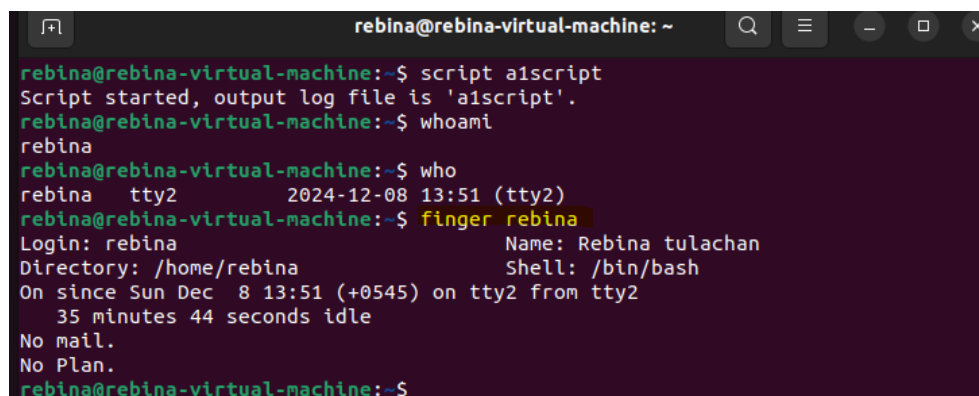
who: It lists all currently logged-in users.

A terminal window titled 'rebina@rebina-virtual-machine: ~' with search, menu, and window control icons. The terminal shows the following commands and output:

```
rebina@rebina-virtual-machine:~$ script a1script
Script started, output log file is 'a1script'.
rebina@rebina-virtual-machine:~$ whoami
rebina
rebina@rebina-virtual-machine:~$ who
rebina  tty2          2024-12-08 13:51 (tty2)
rebina@rebina-virtual-machine:~$
```

Figure 3 Showing list of everyone

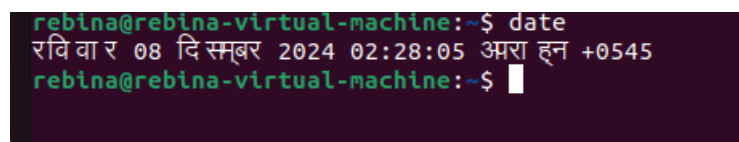
finger username: It provides detailed information about the specified user

A terminal window titled 'rebina@rebina-virtual-machine: ~' with search, menu, and window control icons. The terminal shows the following commands and output:

```
rebina@rebina-virtual-machine:~$ script a1script
Script started, output log file is 'a1script'.
rebina@rebina-virtual-machine:~$ whoami
rebina
rebina@rebina-virtual-machine:~$ who
rebina  tty2          2024-12-08 13:51 (tty2)
rebina@rebina-virtual-machine:~$ finger rebina
Login: rebina                Name: Rebina tulachan
Directory: /home/rebina      Shell: /bin/bash
On since Sun Dec  8 13:51 (+0545) on tty2 from tty2
      35 minutes 44 seconds idle
No mail.
No Plan.
rebina@rebina-virtual-machine:~$
```

Figure 4 More information about account

date: It shows the current date and time.

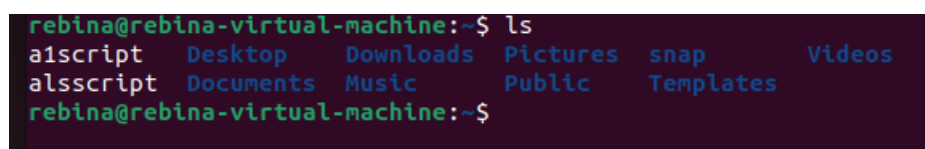
A terminal window showing the output of the 'date' command:

```
rebina@rebina-virtual-machine:~$ date
रवि वार 08 दिस्म्बर 2024 02:28:05 अपरा ह्न +0545
rebina@rebina-virtual-machine:~$
```

Figure 5 Displaying date and time

Step 4: Listing files and directories:

ls: It lists files and directories in the current directory.

A terminal window titled 'rebina@rebina-virtual-machine:~\$' showing the output of the 'ls' command:

```
rebina@rebina-virtual-machine:~$ ls
a1script  Desktop  Downloads  Pictures  snap      Videos
alsscript Documents Music      Public    Templates
rebina@rebina-virtual-machine:~$
```

Figure 6 Output of ls

ls -a: It lists all files, including hidden ones.

```
rebina@rebina-virtual-machine:~$ ls -a
.          .bashrc   Downloads .profile  Templates
..         .cache    .gnupg   Public     Videos
a1script   .config   .local   snap
alsscript  Desktop  Music    .ssh
.bash_logout Documents Pictures .sudo_as_admin_successful
rebina@rebina-virtual-machine:~$
```

Figure 7 Output of ls -a

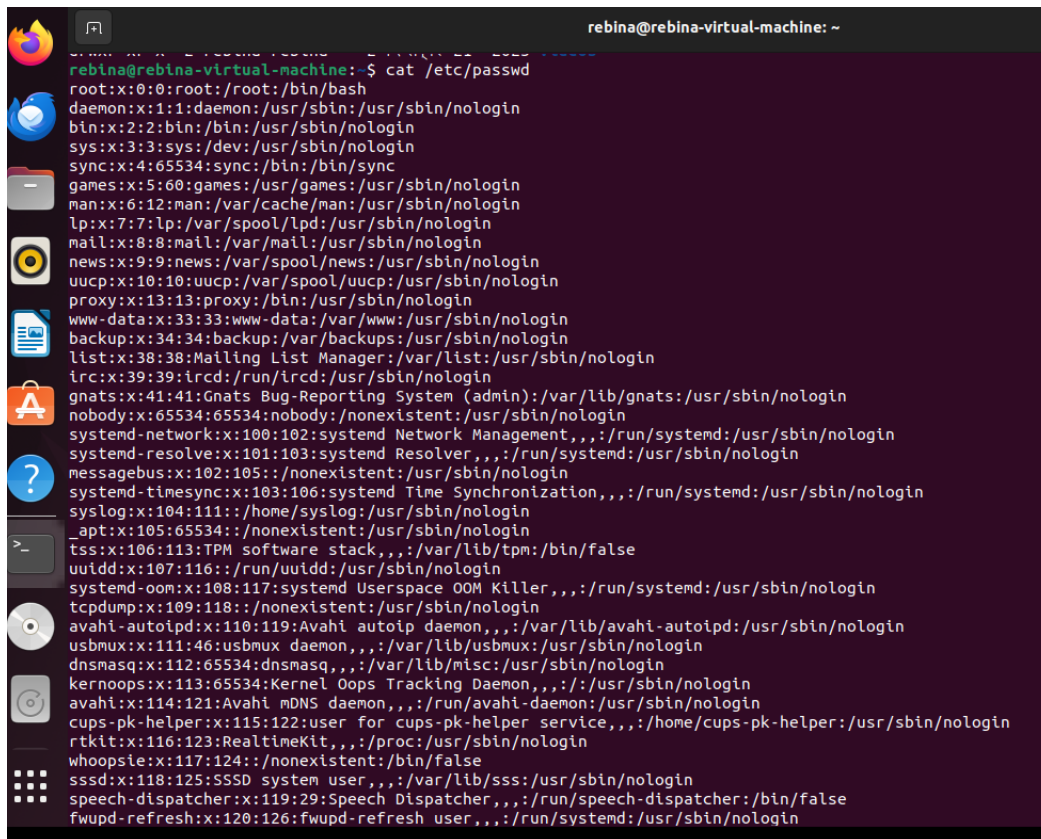
ls -a -l: It lists all files with detailed information, including permissions, ownership, size, modification time, etc

```
rebina@rebina-virtual-machine:~$ ls -a -l
total 98
drwxr-x--- 16 rebina rebina  22 दि सप्  8 14:21 .
drwxr-xr-x  3 root   root    3 दि सप् 21 2023 ..
-rw-rw-r--  1 rebina rebina   0 दि सप्  8 14:21 a1script
-rw-rw-r--  1 rebina rebina   0 दि सप्  8 14:08 alsscript
-rw-r--r--  1 rebina rebina 220 दि सप् 21 2023 .bash_logout
-rw-r--r--  1 rebina rebina 3771 दि सप् 21 2023 .bashrc
drwx-----  9 rebina rebina  10 दि सप्  8 13:52 .cache
drwx----- 10 rebina rebina  14 दि सप्  8 13:52 .config
drwxr-xr-x  2 rebina rebina   2 दि सप् 21 2023 Desktop
drwxr-xr-x  2 rebina rebina   2 दि सप् 21 2023 Documents
drwxr-xr-x  2 rebina rebina   2 दि सप् 21 2023 Downloads
drwx-----  2 rebina rebina   4 दि सप्  8 14:03 .gnupg
drwx-----  3 rebina rebina   3 दि सप् 21 2023 .local
drwxr-xr-x  2 rebina rebina   2 दि सप् 21 2023 Music
drwxr-xr-x  2 rebina rebina   2 दि सप् 21 2023 Pictures
-rw-r--r--  1 rebina rebina 807 दि सप् 21 2023 .profile
drwxr-xr-x  2 rebina rebina   2 दि सप् 21 2023 Public
drwx-----  3 rebina rebina   3 दि सप् 21 2023 snap
drwx-----  2 rebina rebina   2 दि सप्  8 14:03 .ssh
-rw-r--r--  1 rebina rebina   0 दि सप्  8 14:11 .sudo_as_admin_successful
drwxr-xr-x  2 rebina rebina   2 दि सप् 21 2023 Templates
drwxr-xr-x  2 rebina rebina   2 दि सप् 21 2023 Videos
rebina@rebina-virtual-machine:~$
```

Figure 8 Output of ls -a -l

Step 5: Viewing File Contents

cat /etc/passwd: It displays the contents of the /etc/passwd file, which contains information about user accounts.

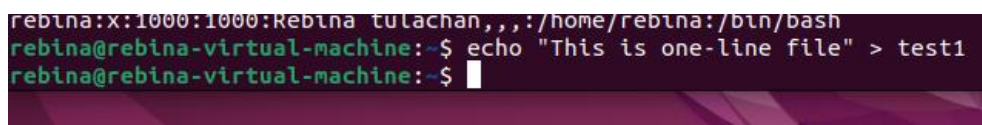


```
rebina@rebina-virtual-machine:~$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:102:105:/:/nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
syslog:x:104:111:/:/home/syslog:/usr/sbin/nologin
_apt:x:105:65534:/:/nonexistent:/usr/sbin/nologin
tss:x:106:113:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:116:/:/run/uuidd:/usr/sbin/nologin
systemd-oom:x:108:117:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:109:118:/:/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
rtkit:x:116:123:RealtimeKit,,,:/proc:/usr/sbin/nologin
whoopsie:x:117:124:/:/nonexistent:/bin/false
sssd:x:118:125:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
speech-dispatcher:x:119:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
fwupd-refresh:x:120:126:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
```

Figure 9 Running the command `cat /etc/passwd`

Step 6: Creating Files

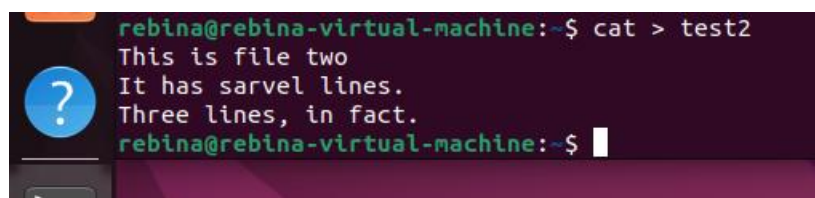
`echo "This is a one-line file" > test1`: It creates a new file named `test1` and writes the specified text to it.



```
rebina@rebina-virtual-machine:~$ echo "This is one-line file" > test1
rebina@rebina-virtual-machine:~$
```

Figure 10 Creating a file "test1"

`cat > test2`: It opens a new file named `test2` for writing.



```
rebina@rebina-virtual-machine:~$ cat > test2
This is file two
It has sarvel lines.
Three lines, in fact.
rebina@rebina-virtual-machine:~$
```

Figure 11 Creating another file "test2"

Step 7: Verifying File Creation and Contents

ls: It lists the files in the current directory, including the newly created test1 and test2 files.

```
rebina@rebina-virtual-machine:~$ ls
a1script Desktop Downloads Pictures snap test1 Videos
alsscript Documents Music Public Templates test2
rebina@rebina-virtual-machine:~$
```

Figure 12 Displaying the files of the system

Step 8: Combining Files

cat test1 test2 > combined_file: It connects the contents of test1 and test2 and writes the result to a new file named combined_file.

```
rebina@rebina-virtual-machine:~$ cat test1 test2 > combine_file
rebina@rebina-virtual-machine:~$ ls
a1script combine_file Documents Music Public Templates test2
alsscript Desktop Downloads Pictures snap test1 Videos
rebina@rebina-virtual-machine:~$
```

Figure 13 Combining the file

Step 9: Exiting the Script

exit: This command exits the script.

```
rebina@rebina-virtual-machine:~$ exit
exit
Script done.
rebina@rebina-virtual-machine:~$
```

Figure 14 Exit

4. Conclusion

I learned how to use basic Linux commands to do things like see files, create new files, and move them around. It was a bit tricky at first especially typing the commands correctly but it was a good way to learn how Linux works.

5. References

Hailey, J. (2008). *Ubuntu: A literature Review*.

rusling, D. A. (1999). *The Linux Kernel*.