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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.*

## **Table of Contents**

<b>1. Introduction .....</b>	<b>4</b>
<b>2. Objectives .....</b>	<b>4</b>
<b>3. Required Tools and Concepts.....</b>	<b>4</b>
<b>4. Conclusion.....</b>	<b>10</b>
<b>5. References.....</b>	<b>10</b>

## Table of figures

Figure 1 Script a1script .....	5
Figure 2 Showing user name .....	5
Figure 3 Showing list of everyone .....	6
Figure 4 More information about account.....	6
Figure 5 Displaying date and time .....	6
Figure 6 Output of ls.....	6
Figure 7 Output of ls -a.....	7
Figure 8 Output of ls -a -l.....	7
Figure 9 Running the command cat /etc/passwd .....	8
Figure 10 Creating a file "test1" .....	8
Figure 11 Creating another file "test2".....	8
Figure 12 Displaying the files of the system .....	9
Figure 13 Combinig the file .....	9
Figure 14 Exit .....	9

## 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

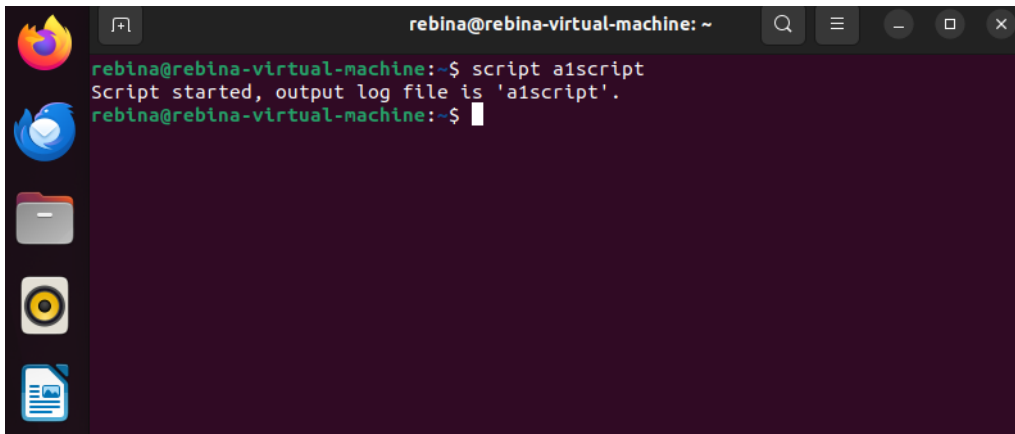
## Software

- 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.

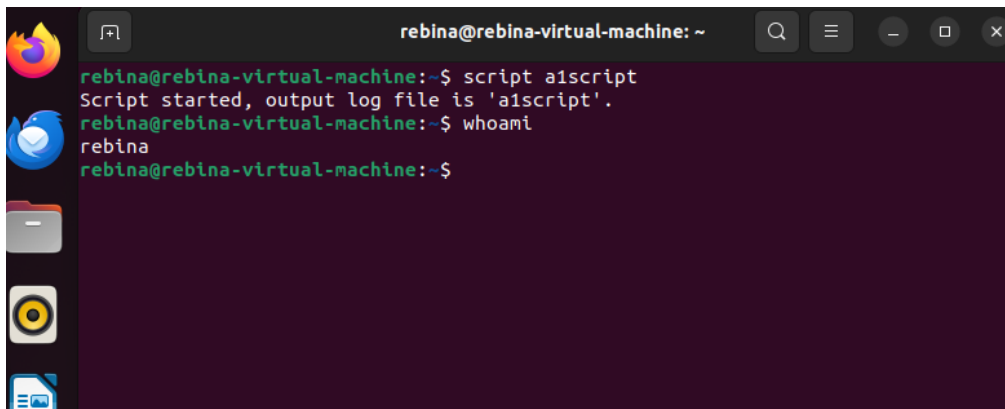
A terminal window titled 'rebina@rebina-virtual-machine: ~' with search, menu, and window control icons. The terminal shows the command 'script a1script' being entered and executed. The output is 'Script started, output log file is 'a1script''. The prompt returns to 'rebina@rebina-virtual-machine:~\$'. 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: ~  
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

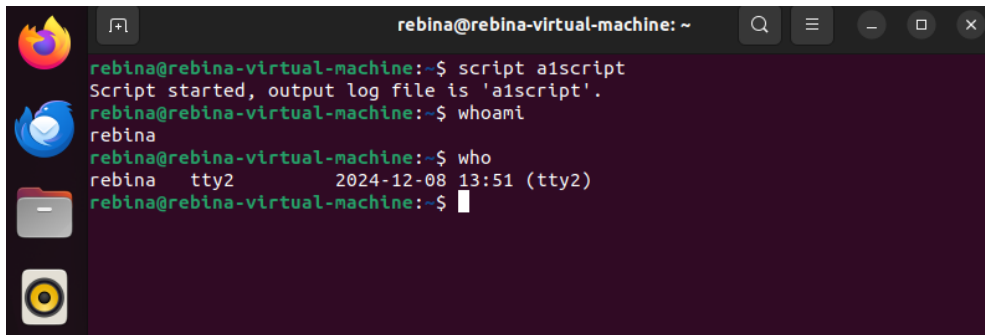
whoami: It displays our current username .

A terminal window titled 'rebina@rebina-virtual-machine: ~' with search, menu, and window control icons. The terminal shows the command 'script a1script' being entered and executed, followed by 'whoami'. The output of 'whoami' is 'rebina'. 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*

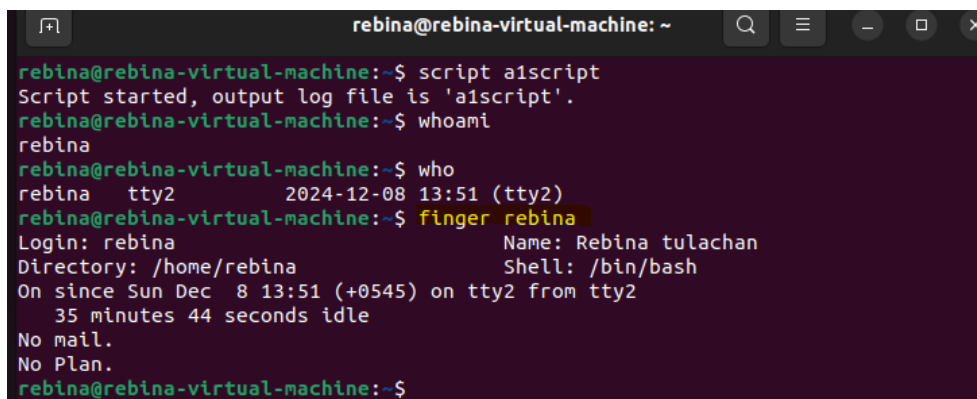
who: It lists all currently logged-in users.

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

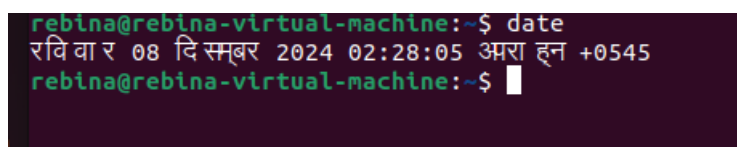
finger username: It provides detailed information about the specified user

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.

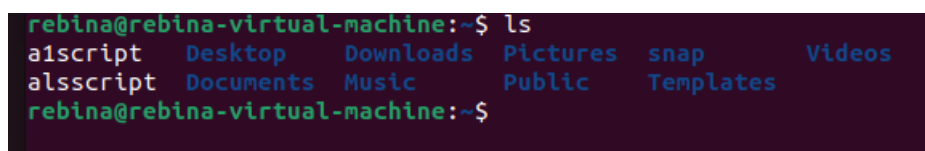
A terminal window showing the output of the 'date' command:

```
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 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`

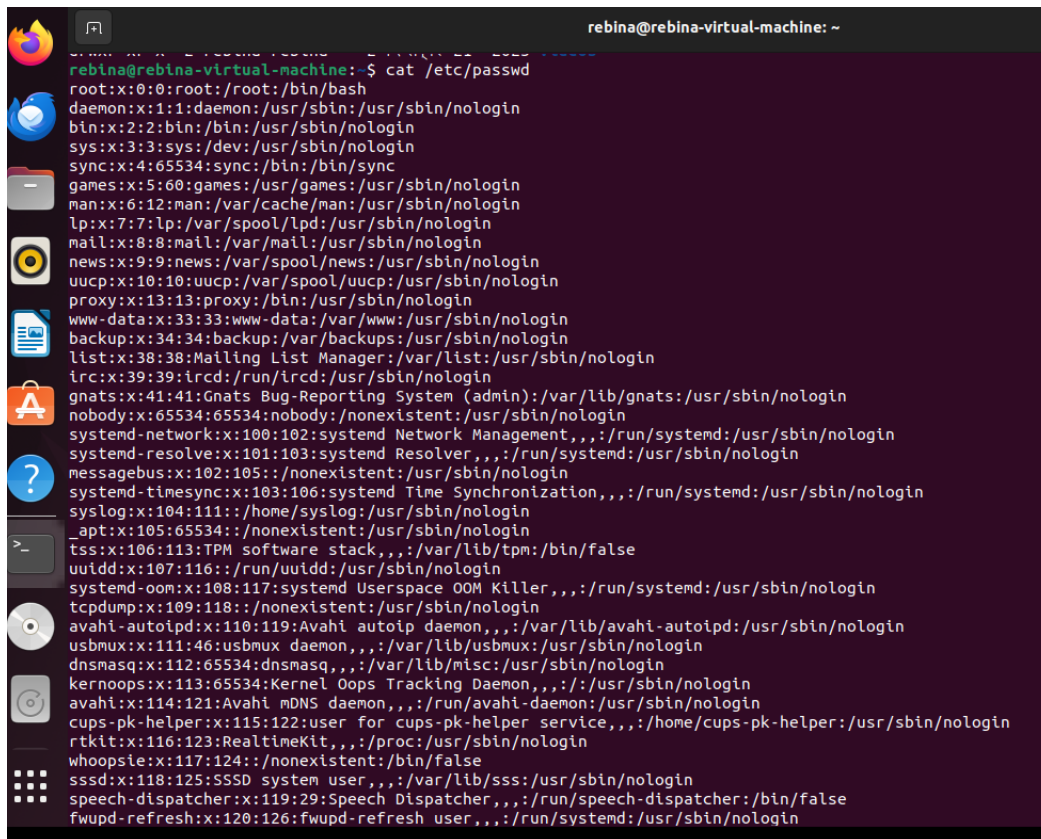
`ls -a -l`: It lists all files with detailed information, including permissions, ownership, size, modification time, etc

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

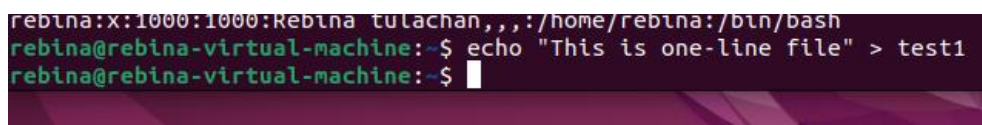


```
rebina@rebina-virtual-machine: ~  
rebina@rebina-virtual-machine:~$ cat /etc/passwd  
root:x:0:0:root:/root:/bin/bash  
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin  
bin:x:2:2:bin:/bin:/usr/sbin/nologin  
sys:x:3:3:sys:/dev:/usr/sbin/nologin  
sync:x:4:65534:sync:/bin:/bin/sync  
games:x:5:60:games:/usr/games:/usr/sbin/nologin  
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

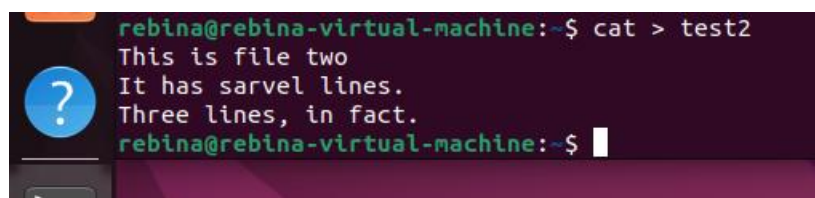
`echo "This is a one-line file" > test1`: It creates a new file named `test1` and writes the specified text to it.



```
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*, s.l.: s.n.

rusling, D. A., 1999. *The Linux Kernel*, s.l.: s.n.