Linux Programming Assignment:6

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1.Which **command** is used **to list the contents of a directory**? Justify with proper example.

- ls command

- Examples :

paul@debian8:~$ lsallfiles.txt dmesg.txt services stuff summer.txt

2.Write the **command to create a new directory named 123test_dir.**

- mkdir 123test_dir

3. What is the purpose of the **sed** command? Justify with proper example.

- **sed** command: Stream editor for filtering and transforming text

-Example:

#Replace text

paul@debian5:~/pipes$ echo level5 | sed 's/5/42/' level42

paul@debian5:~/pipes$ echo level5 | sed 's/level/jump/' jump5

4. Which **distinct command** is used to display one-line descriptions of any commands?

- whatis command

5.Write the command to **create** an empty file named "**notes.txt**".

- touch notes.txt

6. Differentiate between **grep** and **awk** commands with an example.

grep:

- Global Regular Expression Print.
- Primarily for looking up text which matches a pattern.
- Simply prints the lines with the pattern.

Example:

paul@RHEL4b pipes]$ cat tennis.txtAmelie Mauresmo, FraKim Clijsters, BELJustine Henin, BelSerena Williams, usaVenus Williams, USA# Basic search paul@RHEL4b pipes]$ grep Williams tennis.txt Serena

Williams, usa

Venus Williams, USA

awk:

- A language for scanning and processing patterns.
- Can search like grep, but also manipulate text, extract fields, and take actions/calculations.
- Far more powerful for structured data such as CSV or logs.

Example: CSV file employees.csv:

John,Developer,5000

Jane,Manager,7000

Bob,Developer,5500

Alice,Designer,4500

To calculate average salary by department:

awk -F',' '{dept[$2]+=$3; count[$2]++} END {for (d in dept) print d, dept[d]/count[d]}' employees.csv

7. Write the command to give **read, write, and execute permission** to the owner of a file script.sh.

-chmod u+rwx script.sh

Or

chmod 700 script.sh

8. How is **chown** different from **chgrp**? Give one example for each.

1. Purpose chown: Is used to change the owner of a file or directory.

   Syntax: chown new_owner filename

   Example: sudo chown manasa report.txt

2. chgrp: Will only change the group ownership of a file or directory.

   Syntax: chgrp new_group filename

   Example: sudo chgrp students report.txt

9. A user complains that they **cannot execute a file** even though it exists in their directory. How would you troubleshoot this using **ls -l, chmod, and whoami**?

- Step 1: Check current user

whoami

Step 2: Check file permissions

ls -l filename

Output displays permissions in format: -rwxr-xr--

- Position 1: File type
- Positions 2-4: User owner permissions (rwx)
- Positions 5-7: Group owner permissions (r-x)
- Positions 8-10: Others permissions (r--)

Step 3: Add execute permission (Page 313)

chmod u+x filename# ORchmod +x filename **Full Troubleshooting Process:**

1. Self-identificationpaul@debian8:~$ whoamipaul# 2. Permissions check on filepaul@debian8:~$ ls -l script.sh-rw-r--r-- 1 paul paul 0 Oct 15 10:30 script.sh# Observe: no 'x' (execute) permission for anyone# 3. Execute permission added for user ownerpaul@debian8:~$ chmod u+x script.sh# 4. Change confirmedpaul@debian8:~$ ls -l script.sh-rwxr--r-- 1 paul paul 0 Oct 15 10:30 script.sh# Now includes 'x' for user owner# 5. File executionpaul@debian8:~$ ./script.sh"You have to explicitly do a chmod +x to make a file executable."

10. Design a command pipeline to: **find all .log files modified in the last 2 days** in/var/log, display them on screen, and **save the results into a file recent_logs.txt** using **tee command**.

- Commands involved:

- find
- tee

find command

Find files newer than a referencefind. -newer file42.txt# Find files of specific typefind. -type f -name "*.conf"

tee command

"The tee filter puts stdin on stdout and also into a file."

[paul@RHEL4b pipes]$ tac count.txt | tee temp.txt | tacContent of count.txt appears hereonetwothreefourfive**Solution for the given problem:**```bashfind /var/log -name "*.log" -type f -mtime -2 | tee recent_logs.txt

Explanation:

- find /var/log: Search in /var/log directory
- -name "*.log": Find files ending with .log
- -type f: Only regular files
- -mtime -2: Modified in last 2 days
- | tee recent_logs.txt: Display on screen AND save to file