

LINUX MODULE 2 ASSESSMENT SOLUTIONS

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Overview

This module demonstrates the execution of various Linux-based technical tasks that involve file management, text processing, log filtering, process management, and networking tools. Each task is solved using Linux commands and tools. Below, the tasks are explained along with the concepts and commands used.

Tasks and Technical Concepts

Task 1: List Files Larger Than 1 MB

- find Command: Used to search for files based on conditions like size, type, and name.
- Redirection (>): Redirects command output to a file.

Command:

find . -type f -size +1M > Task1_LargeFiles.txt

Task 2: Replace "localhost" with "127.0.0.1"

- sed: A stream editor for text manipulation.
- String Replacement: s/pattern/replacement/g replaces all occurrences of a pattern.

Command:

sed 's/localhost/127.0.0.1/g' config.txt > Task2_UpdatedConfig.txt

Task 3: Filter Logs

- grep: Searches for patterns in text.
- Piping (|): Passes the output of one command as input to another.
- Negated Search (-v): Excludes lines matching a pattern.

Command:

grep "ERROR" log.txt | grep -v "DEBUG" > Task3_FilteredLog.txt

Task 4: Identify and Terminate the Process with Highest Memory Usage

- ps Command: Displays process details.
- Sorting: Use --sort=-%mem to sort by memory usage.
- awk: Extracts specific columns of data.

- kill: Terminates a process by its PID.

Command:

PID=\$(ps -eo pid,%mem --sort=-%mem | awk 'NR==2 {print \$1}')

kill \$PID

Task 5: List and Sort Gateways

- ip route: Displays routing table information.
- awk: Filters and formats output.
- sort: Sorts data in alphabetical or numerical order.

Command:

ip route | grep via | awk '{print \$3}' | sort > Task5_SortedGateways.txt

OUTPUTS:

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sakthi-kumar-s@sakthi-kumar-s-VirtualBox: ~/Sakthikumar/Linux_Assessment/Module2
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ find . -type f -size +1M > large_files.txt
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ echo "localhost example configuration" > config.txt
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ sed 's/localhost/127.0.0.1/g' config.txt > updated_config.txt
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ cat updated_config.txt
127.0.0.1 example configuration
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ cat <<EOL > log.txt
DEBUG: Starting the application initialization.
ERROR: Unable to connect to the database.
INFO: User 'admin' logged in successfully.
DEBUG: Fetching configuration settings from the server.
ERROR: DEBUG - Configuration settings could not be applied.
INFO: Scheduled job 'backup' completed successfully.
DEBUG: Connection to server timed out. Retrying...
ERROR: Failed to fetch data from API endpoint '/users'.
INFO: Maintenance mode activated.
ERROR: DEBUG - Query execution failed due to a syntax error.
DEBUG: Reloading application modules.
ERROR: Missing required parameter in the request.
INFO: Shutting down the system gracefully.
DEBUG: Closing unused network connections.
ERROR: DEBUG - Unexpected server response received.
EOL
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ grep "ERROR" log.txt | grep -v "DEBUG" > filtered_log.txt
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ cat filtered_log.txt
ERROR: Unable to connect to the database.
ERROR: Failed to fetch data from API endpoint '/users'.
ERROR: Missing required parameter in the request.
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ ps -eo pid,comm,%mem --sort=-%mem | head -2
  PID COMMAND                %MEM
  3030 Isolated Web Co 13.0
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ kill -9 3030
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ ip route | grep via | awk '{print $3}' | sort > sorted_gateways.txt
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ cat sorted_gateways.txt
10.0.2.2
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(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ ps -eo pid,comm,%mem --sort=-%mem | head -2
  PID COMMAND                %MEM
  9141 Isolated Web Co 14.8
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ kill -9 9141
(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ ps aux
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(base) sakthi-kumar-s@sakthi-kumar-s-VirtualBox:~$ ps aux > Task4_PID_process.txt
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