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DATE:18.08.25 ROLL NO.:241901089

EXERCISE 1

BASIC LINUX AND WINDOWS COMMAND

AIM:

To introduce and practice essential networking commands in Linux and Windows operating systems for configuring, monitoring, and troubleshooting network connections. This exercise aims to build fundamental skills required for diagnosing and managing network environments using command-line tools.

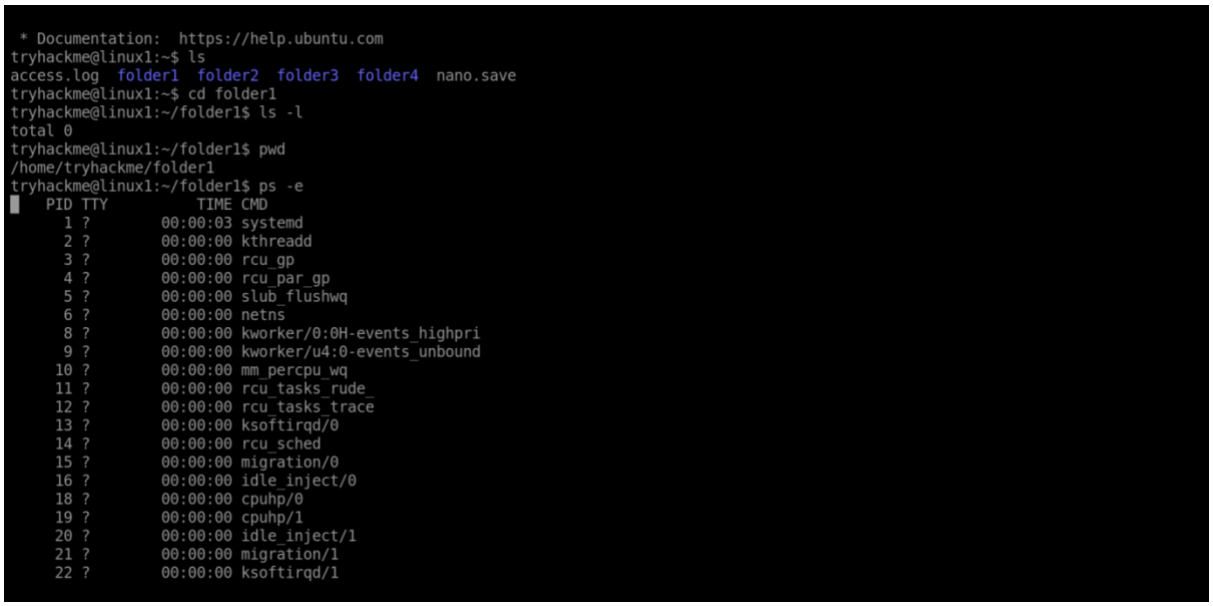
LINUX COMMAND:

1. ls – list directory
   Synopsis: ls [option]… [File]…
   Description: Display files and directories in the current working directory. By default, entries are sorted alphabetically.
2. touch – change file / create empty file
   Synopsis: touch [option]… [File]…
   Description: Shows detailed information for each file, including permissions, owner, size, and time.
3. cat – concatenate and display file contents
   Synopsis: cat [option]… [file]
   Description: Prints the contents of one or more files to standard output. Useful for viewing or combining files.
4. ls -l – long listing format
   Synopsis: ls -l
   Description: Shows detailed information for each file, including permissions, owner, and size.
5. chmod – change file permissions
   Synopsis: chmod [option]… mode file
   Description: Changes the permission bits of files. You can use numeric or symbolic notation.
6. mkdir – make directories
   Synopsis: mkdir [option]… Directory
   Description: Creates a new directory. Use -p to create parent directories as needed.
7. ls -a – list all files including hidden
   Synopsis: ls -a
   Description: Lists all files, including hidden ones, inside the open directory.
8. nano – text editor
   Synopsis: nano [file]
   Description: Launches a user-friendly text editor in the terminal to edit files.

9. rm – remove files
   Synopsis: rm [option]… File…
   Description: Deletes files or directories. Use -r for recursive removal, -f to force without prompt.
10. rmdir – remove empty directories
    Synopsis: rmdir (directory)
    Description: Deletes a directory only if it is empty.
11. ps -e – list all running processes
    Synopsis: ps -e
    Description: Shows currently running processes in the system.
12. grep – search for text patterns inside files or output
    Synopsis: grep "word" file.txt
    Description: Filters process list to show only those matching the given name or keyword.
13. echo – display text, variables or messages
    Synopsis: echo [string]
    Description: Prints the given text to the terminal. Often used in scripting.
14. top – real-time process viewer
    Synopsis: top
    Description: Displays a dynamic list of running processes along with CPU and memory usage.
15. free – display memory message
    Synopsis: free [option]
    Description: Shows the amount of free and used memory in the system. Use -h for human-readable output.
16. vmstat – report system performance
    Synopsis: vmstat [delay] [count]
    Description: Displays memory, CPU, I/O, system performance statistics.
17. traceroute – tracks the path
    Synopsis: traceroute [IP address/hostname]
    Description: Identifies the path taken by packets to reach a network host.
18. ping – test network connectivity
    Synopsis: ping [destination]
    Description: Sends ICMP echo requests to a network host to check if it's reachable.
19. ifconfig – view network interfaces
    Synopsis: ifconfig
    Description: Displays or configures network interface parameters (now largely replaced by ip addr).
20. vi – text editor
    Synopsis: vi [file]
    Description: Opens the vi editor to create or modify files; offers powerful editing features.

21. cd – change directory
    Synopsis: cd [directory]
    Description: Changes the current working directory.
22. pwd – print working directory
    Synopsis: pwd
    Description: Shows current location.

OUTPUT:

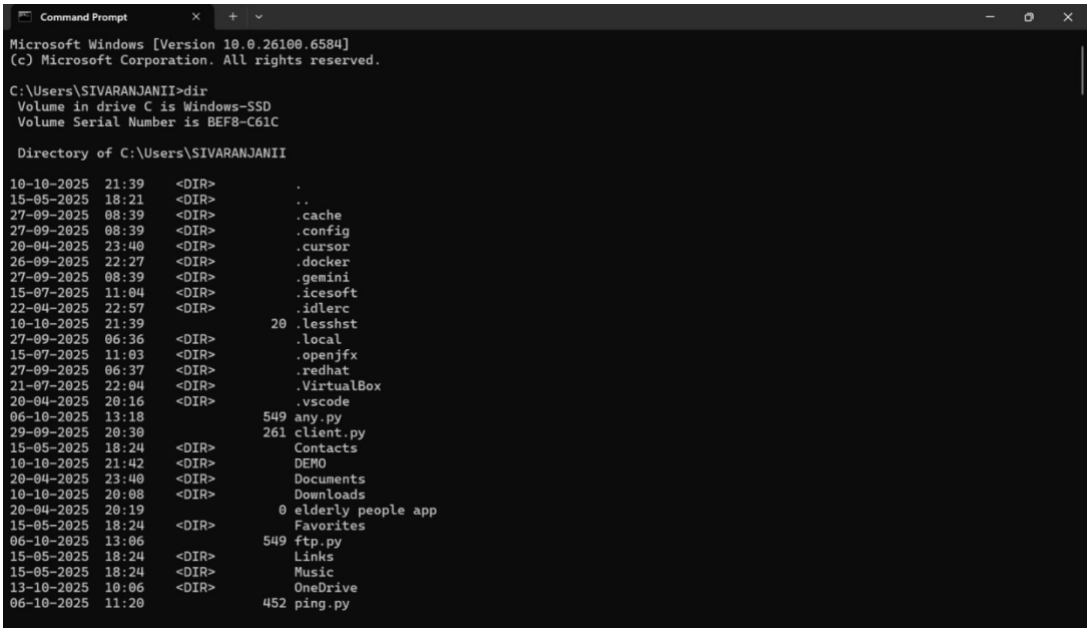


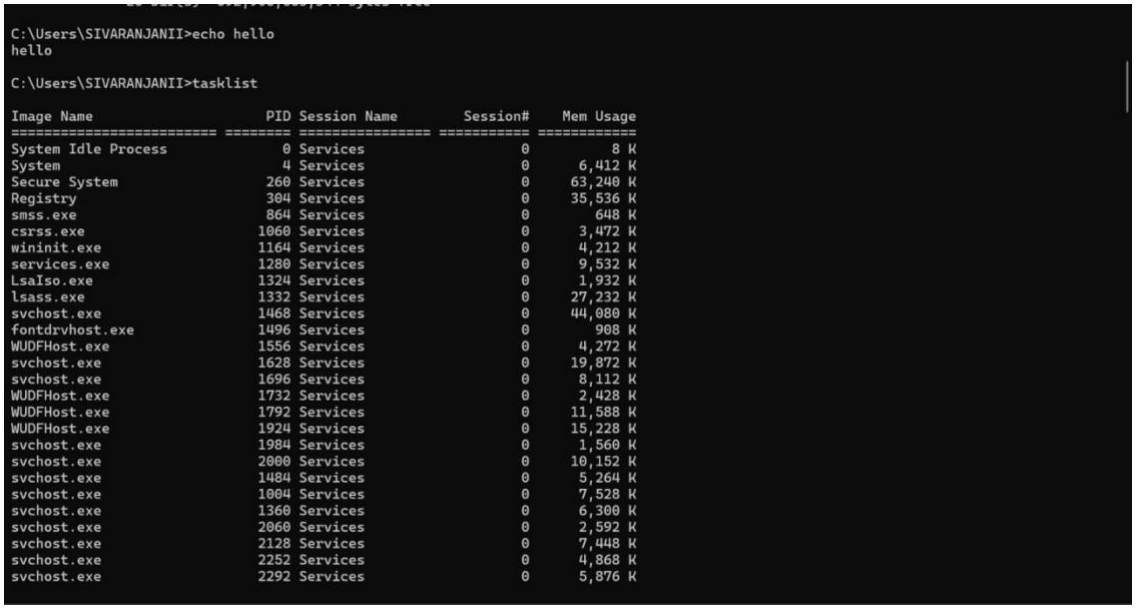
WINDOWS COMMAND:

1. dir - Equivalent of ls
   Synopsis: dir [path] [[options]]
   Description: List all files and directories.
2. cd - Change directory
   Synopsis: cd [path]
   Description: Changes the current working directory.
3. cls - Clear screen
   Synopsis: cls
   Description: Removes all text.
4. echo - Prints
   Synopsis: echo [message]
   Description: Displays messages, useful in batch scripts.
5. dir -a (like ls -a)
   Synopsis: dir -a [path]
   Description: Lists files and directories.
6. mkdir - make directory
   Synopsis: mkdir [drive:] [path] foldername
   Description: Create a new directory in a specified path.

7. del - delete file (remdir)
   Synopsis: del file.txt
   Description: Delete files or directories from the file system.
8. tasklist - display all currently running process
   Synopsis: tasklist [options]
   Description: Lists process name, PID (Process ID), session name/ID, and memory usage.
9. find - search for a specific string of text within files
   Synopsis: find "string" [filename]
   Description: Looks for the given "string" inside the specified file.
10. systeminfo - detailed system configuration information
    Synopsis: systeminfo
    Description: Often used for system audits and troubleshooting.
11. typeperf - display or log performance counter data
    Synopsis: typeperf [counter...] [options]
    Description: Can display output in the console or save it to a log file (CSV, TSV, binary).
12. tracert - Trace the path packets take to reach
    Synopsis: tracert [options] <hostname or IP>
    Description: Displays each router packets travel through until reaching the destination.
13. ping - network connectivity
    Synopsis: ping [option] <hostname or IP>
    Description: Displays packet loss, response time, and TTL (Time to Live).
14. ipconfig - displays and manages IP address
    Synopsis: ipconfig [options]
    Description: Shows current network adapter configuration.

OUTPUT:

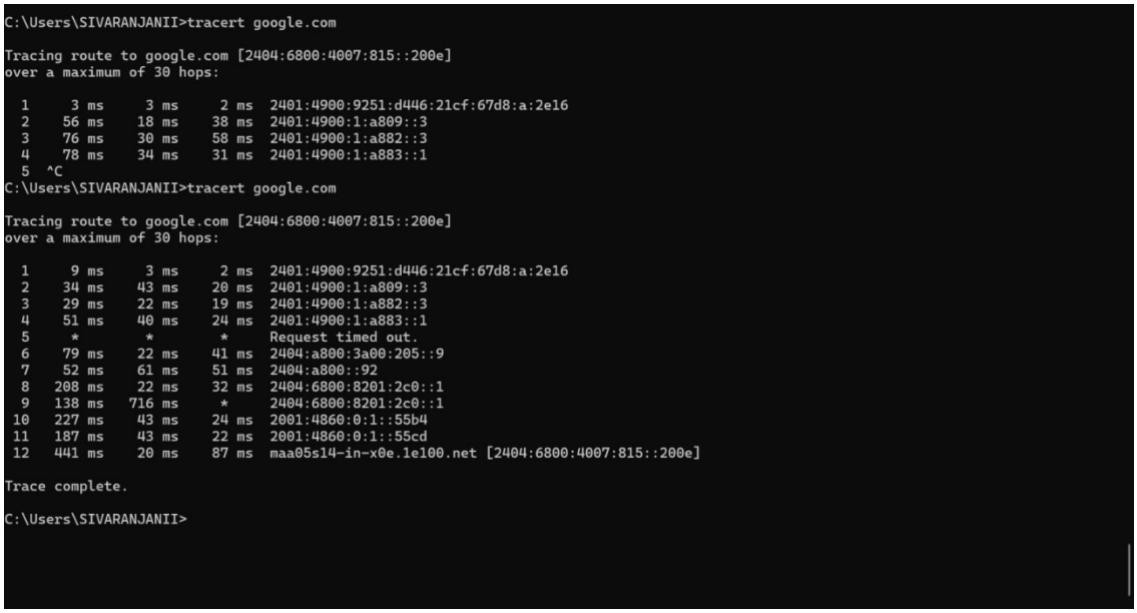




```
C:\Users\SIVARANJANII>echo hello
hello

C:\Users\SIVARANJANII>tasklist

Image Name                     PID Session Name        Session#    Mem Usage
========================= ======== ================ =========== ============
System Idle Process              0 Services                   0          8 K
System                           4 Services                   0      6,412 K
Secure System                  260 Services                   0     63,240 K
Registry                       304 Services                   0     35,536 K
smss.exe                       864 Services                   0        648 K
csrss.exe                     1060 Services                   0      3,472 K
wininit.exe                   1164 Services                   0      4,212 K
services.exe                  1280 Services                   0      9,532 K
LsaIso.exe                    1324 Services                   0      1,932 K
lsass.exe                     1332 Services                   0     27,232 K
svchost.exe                   1468 Services                   0     44,080 K
fontdrvhost.exe               1496 Services                   0        908 K
WUDFHost.exe                  1556 Services                   0      4,272 K
svchost.exe                   1628 Services                   0     19,872 K
svchost.exe                   1696 Services                   0      8,112 K
WUDFHost.exe                  1732 Services                   0      2,428 K
WUDFHost.exe                  1792 Services                   0     11,588 K
WUDFHost.exe                  1924 Services                   0     15,228 K
svchost.exe                   1984 Services                   0      1,560 K
svchost.exe                   2000 Services                   0     10,152 K
svchost.exe                   1484 Services                   0      5,264 K
svchost.exe                   1004 Services                   0      7,528 K
svchost.exe                   1360 Services                   0      6,300 K
svchost.exe                   2060 Services                   0      2,592 K
svchost.exe                   2128 Services                   0      7,448 K
svchost.exe                   2252 Services                   0      4,868 K
svchost.exe                   2292 Services                   0      5,876 K
```



```
C:\Users\SIVARANJANII>tracert google.com

Tracing route to google.com [2404:6800:4007:815::200e]
over a maximum of 30 hops:

  1     3 ms     3 ms     2 ms  2401:4900:9251:d446:21cf:67d8:a:2e16
  2    56 ms    18 ms    38 ms  2401:4900:1:a809::3
  3    76 ms    30 ms    58 ms  2401:4900:1:a882::3
  4    78 ms    34 ms    31 ms  2401:4900:1:a883::1
  5  ^C
C:\Users\SIVARANJANII>tracert google.com

Tracing route to google.com [2404:6800:4007:815::200e]
over a maximum of 30 hops:

  1     9 ms     3 ms     2 ms  2401:4900:9251:d446:21cf:67d8:a:2e16
  2    34 ms    43 ms    20 ms  2401:4900:1:a809::3
  3    29 ms    22 ms    19 ms  2401:4900:1:a882::3
  4    51 ms    40 ms    24 ms  2401:4900:1:a883::1
  5     *        *        *     Request timed out.
  6    79 ms    22 ms    41 ms  2404:a800:3a00:205::9
  7    52 ms    61 ms    51 ms  2404:a800::92
  8   208 ms    22 ms    32 ms  2404:6800:8201:2c0::1
  9   138 ms   716 ms     *     2404:6800:8201:2c0::1
 10   227 ms    43 ms    24 ms  2001:4860:0:1::55b4
 11   187 ms    43 ms    22 ms  2001:4860:0:1::55cd
 12   441 ms    20 ms    87 ms  maa05s14-in-x0e.1e100.net [2404:6800:4007:815::200e]

Trace complete.

C:\Users\SIVARANJANII>
```

RESULT:

All listed basic Linux and Windows networking commands were executed and tested successfully in their respective terminal environments. The commands produced the expected outputs, allowing for efficient directory navigation, file management, system monitoring, and network troubleshooting. This experiment verified the practical functioning and usefulness of each command for real-world administrative and technical tasks.