

Linux Module 2 Assessment

S Vimal

1) Use the appropriate command to list all files larger than 1 MB in the current directory and save the output to a file.

```
vimal@vimal-VirtualBox:/$ ls
bin          boot      dev      home     lib64          lost+found  mnt      proc    run      sbin.usr-is-merged  srv      sys      usr
bin.usr-is-merged  cdrom    etc      lib      lib.usr-is-merged  media      opt      root    sbin     snap              swap.img  tmp      var
vimal@vimal-VirtualBox:/$ ls -lh proc | awk -v size=1 '$5 > size' > home/vimal/Documents/large_proc.txt
vimal@vimal-VirtualBox:/$ cat home/vimal/Documents/large_proc.txt
-r--r--r-- 1 root          root          105 Feb  1 15:46 cmdline
-r----- 1 root          root          128T Feb  1 15:46 kcore
lrwxrwxrwx 1 root          root          11 Feb  1 15:46 mounts -> self/mounts
lrwxrwxrwx 1 root          root           8 Feb  1 15:46 net -> self/net
vimal@vimal-VirtualBox:/$
```

// searched for files from proc for size > 1MB and saved the output to file in documents folder

2) Replace all occurrences of "localhost" with "127.0.0.1" in a configuration file named config.txt, and save the updated file as updated_config.txt.

```
vimal@vimal-VirtualBox:~/Documents$ cat config.txt
server=localhost
db_host=localhost
api_url=http://localhost:8080
vimal@vimal-VirtualBox:~/Documents$ sed 's/localhost/127.0.0.1/' config.txt > updated_config.txt
vimal@vimal-VirtualBox:~/Documents$ cat updated_config.txt
server=127.0.0.1
db_host=127.0.0.1
api_url=http://127.0.0.1:8080
vimal@vimal-VirtualBox:~/Documents$
```

// created a config text file and replaced the "localhost" pattern to "127.0.0.1"

3) Use the appropriate command to search for lines containing the word "ERROR" in a log file but exclude lines containing "DEBUG". Save the results to a file named filtered_log.txt.

```
vimal@vimal-VirtualBox:~/Documents$ cat 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.
vimal@vimal-VirtualBox:~/Documents$ grep "ERROR" log.txt | grep -v "DEBUG" > filtered_log.txt
vimal@vimal-VirtualBox:~/Documents$ 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.
vimal@vimal-VirtualBox:~/Documents$
```

//created a log file and found out those lines that has the text “ERROR” in them but not “DEBUG”

4) Write a code to identify the process with the highest memory usage and then terminate it.

//used top command for seeing the process with higher memory usage-
here firefox occupies more memory

```
vimal@vimal-VirtualBox:/$ top -n 1

top - 17:58:42 up 2:11, 1 user, load average: 2.59, 1.28, 1.03
Tasks: 252 total, 2 running, 249 sleeping, 0 stopped, 1 zombie
%Cpu(s): 11.1 us, 25.9 sy, 0.0 ni, 59.3 id, 0.0 wa, 0.0 hi, 3.7 si, 0.0 st
MiB Mem : 7941.4 total, 1320.8 free, 2519.0 used, 4144.8 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 5422.4 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR S  %CPU  %MEM    TIME+  COMMAND
 3606 vimal     20   0 4900820 459576 165576 S   63.6    5.7   12:17.12 gnome-shell
 5124 vimal     20   0 3905904 721892 236048 S   45.5    8.9   15:45.06 firefox
 7746 vimal     20   0  10.9g 427752 108128 S   27.3    5.3    0:28.59 Isolated Web Co
13940 vimal     20   0 2580636 87404  69632 S   27.3    1.1    0:00.44 Isolated Web Co
    1 root      20   0   23252  14076   9468 S    0.0    0.2    0:03.92 systemd
    2 root      20   0        0        0      0 S    0.0    0.0    0:00.07 kthreadd
    3 root      20   0        0        0      0 S    0.0    0.0    0:00.00 pool_workqueue_release
    4 root        0 -20        0        0      0 I    0.0    0.0    0:00.00 kworker/R-rcu_g
    5 root        0 -20        0        0      0 I    0.0    0.0    0:00.00 kworker/R-rcu_p
    6 root        0 -20        0        0      0 I    0.0    0.0    0:00.00 kworker/R-slub_
    7 root        0 -20        0        0      0 I    0.0    0.0    0:00.00 kworker/R-netns
   12 root        0 -20        0        0      0 I    0.0    0.0    0:00.00 kworker/R-mm_pe
   13 root      20   0        0        0      0 I    0.0    0.0    0:00.00 rcu_tasks_kthread
   14 root      20   0        0        0      0 I    0.0    0.0    0:00.00 rcu_tasks_rude_kthread
   15 root      20   0        0        0      0 I    0.0    0.0    0:00.00 rcu_tasks_trace_kthread
```

// after using the appropriate command the firefox process is killed

```
vimal@vimal-VirtualBox:/$ kill -9 $(top -b -n 1 -o +%MEM | awk 'NR>7 {print $1; exit}')
```

```
vimal@vimal-VirtualBox:/$ top -n 1
```

top - 18:02:17 up 2:15, 1 user, load average: 0.52, 1.01, 0.99
Tasks: 226 total, 1 running, 224 sleeping, 0 stopped, 1 zombie
%Cpu(s): 2.2 us, 6.5 sy, 0.0 ni, 91.3 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 7941.4 total, 2634.5 free, 1522.0 used, 4124.6 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 6419.4 avail Mem

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
3606	vimal	20	0	4879788	440608	146756	S	41.7	5.4	12:29.85	gnome-shell
12837	root	20	0	0	0	0	I	8.3	0.0	0:02.59	kworker/u8:3-flush-8:0
15182	vimal	20	0	23188	5632	3456	R	8.3	0.1	0:00.03	top
1	root	20	0	23252	14076	9468	S	0.0	0.2	0:03.99	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.07	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:00.00	pool_workqueue_release
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-rcu_g
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-rcu_p
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-slub_
7	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-netns
12	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-mm_pe
13	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_kthread
14	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_rude_kthread
15	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_trace_kthread

5) Use the networking tool command and print all the gateway available in a sorted manner

```
vimal@vimal-VirtualBox:/$ traceroute -m 5 www.google.com | awk 'NR>1 {print $2}' | sort
```

```
*
*
*
*
10.0.2.2
```