Day 8 - Shell Scripting for DevOps

in shell script we have to mention the details like Author, date, commnet and version. for best practices. which is called Meta data. should be on top of the shell script.

```
#!/bin/bash

##########################
# Author: Abhishek
# Date: 01/12/2022
#
# This script outputs the node health
#
# Version: v1
##########################
```

df -h -> disk space

free -g -> print memory

nproc -> print resources

nodeHealth.sh is used to check the system health

normal nodeHealth.sh file

```
##############################
#  Author : Hari Dama
#  Date   : 08/10/24
#
#  This script outputs the node health
#
#  version : V1
##############################

df -h

free -g

nproc
```

```
hari@Hari:~$ vim nodeHealth.sh
hari@Hari:~$ chmod 777 nodeHealth.sh
hari@Hari:~$ ./nodeHealth.sh
Filesystem      Size  Used Avail Use% Mounted on
none            1.9G     0  1.9G   0% /usr/lib/modules/5.15.153.1-microsoft-standard-WSL2
none            1.9G  4.0K  1.9G   1% /mnt/wsl
drivers         162G  152G   11G  94% /usr/lib/wsl/drivers
/dev/sdc       1007G  2.1G  954G   1% /
none            1.9G   80K  1.9G   1% /mnt/wslg
none            1.9G     0  1.9G   0% /usr/lib/wsl/lib
rootfs          1.8G  2.2M  1.8G   1% /init
none            1.9G  856K  1.9G   1% /run
none            1.9G     0  1.9G   0% /run/lock
none            1.9G     0  1.9G   0% /run/shm
tmpfs           4.0M     0  4.0M   0% /sys/fs/cgroup
none            1.9G   76K  1.9G   1% /mnt/wslg/versions.txt
none            1.9G   76K  1.9G   1% /mnt/wslg/doc
C:\             162G  152G   11G  94% /mnt/c
D:\              98G   84G   15G  86% /mnt/d
E:\             194G  163G   32G  84% /mnt/e
snapfuse         75M   75M     0 100% /snap/core22/1621
snapfuse        128K  128K     0 100% /snap/bare/5
snapfuse         74M   74M     0 100% /snap/core22/864
snapfuse         92M   92M     0 100% /snap/gtk-common-themes/1535
snapfuse         39M   39M     0 100% /snap/snapd/21759
snapfuse        131M  131M     0 100% /snap/ubuntu-desktop-installer/1284
snapfuse        132M  132M     0 100% /snap/ubuntu-desktop-installer/1286
snapfuse         45M   45M     0 100% /snap/snapd/22991
               total        used        free      shared  buff/cache   available
Mem:               3           0           2           0           0           2
Swap:              1           0           1
16
```

detailed nodeHealth.sh file with echo commands

```
##############################
#  Author : Hari Dama
#  Date   : 08/10/24
#
#  This script outputs the node health
#
#  version : V2
##############################

   #detailed nodeHealth.sh file with echo commands

echo "Print the disk space"
df -h




echo "Print the memory"
free -g


echo "Print the CPU"
nproc
```

```
hari@Hari:~$ ./nodeHealth.sh
Print the disk space
Filesystem      Size  Used Avail Use% Mounted on
none            1.9G     0  1.9G   0% /usr/lib/modules/5.15.153.1-microsoft-standard-WSL2
none            1.9G  4.0K  1.9G   1% /mnt/wsl
drivers         162G  152G   11G  94% /usr/lib/wsl/drivers
/dev/sdc       1007G  2.1G  954G   1% /
none            1.9G   80K  1.9G   1% /mnt/wslg
none            1.9G     0  1.9G   0% /usr/lib/wsl/lib
rootfs          1.8G  2.2M  1.8G   1% /init
none            1.9G  856K  1.9G   1% /run
none            1.9G     0  1.9G   0% /run/lock
none            1.9G     0  1.9G   0% /run/shm
tmpfs           4.0M     0  4.0M   0% /sys/fs/cgroup
none            1.9G   76K  1.9G   1% /mnt/wslg/versions.txt
none            1.9G   76K  1.9G   1% /mnt/wslg/doc
C:\             162G  152G   11G  94% /mnt/c
D:\              98G   84G   15G  86% /mnt/d
E:\             194G  163G   32G  84% /mnt/e
snapfuse         75M   75M     0 100% /snap/core22/1621
snapfuse        128K  128K     0 100% /snap/bare/5
snapfuse         74M   74M     0 100% /snap/core22/864
snapfuse         92M   92M     0 100% /snap/gtk-common-themes/1535
snapfuse         39M   39M     0 100% /snap/snapd/21759
snapfuse        131M  131M     0 100% /snap/ubuntu-desktop-installer/1284
snapfuse        132M  132M     0 100% /snap/ubuntu-desktop-installer/1286
snapfuse         45M   45M     0 100% /snap/snapd/22991
Print the memory
               total        used        free      shared  buff/cache   available
Mem:               3           0           2           0           0           2
Swap:              1           0           1
Print the CPU
16
```

Use command : set -x

which is used to debug mode. used to hide command to th user.

in my system, currently i am using youtube to watch video, notepad to take notes and WSL Ubuntu to execute shell commands.

so, i am processing three processes other than system processes.

but in VM of an ORG, several processes are executing.

example : if we are working on java application at amazon, if you deployed 200 micro servers.

how can one find what are the processes are running. in windows, by using graphical interface we can see what are happening. how in linux VM.

for that we gonna use : ps -ef
where, ps stand for processes
-ef stands for entire deatils of the process in full format

we can even use only PS command, it doesnt include backgrounf processes.

```
hari@Hari:~$ ps
    PID TTY          TIME CMD
    346 pts/0    00:00:00 bash
  16708 pts/0    00:00:00 ps
hari@Hari:~$ ps -ef
UID          PID    PPID  C STIME TTY          TIME CMD
root           1       0  0 Oct08 ?        00:00:29 /sbin/init
root           2       1  0 Oct08 ?        00:00:00 /init
root           8       2  0 Oct08 ?        00:00:00 plan9 --control-socket 6 --log-level 4 --server-fd
root          40       1  0 Oct08 ?        00:00:00 /lib/systemd/systemd-journald
root          61       1  0 Oct08 ?        00:00:00 /lib/systemd/systemd-udevd
root          69       1  0 Oct08 ?        00:00:00 snapfuse /var/lib/snapd/snaps/core22_1621.snap /sna
root          70       1  0 Oct08 ?        00:00:00 snapfuse /var/lib/snapd/snaps/bare_5.snap /snap/bar
root          78       1  0 Oct08 ?        00:00:00 snapfuse /var/lib/snapd/snaps/core22_864.snap /snap
root          86       1  0 Oct08 ?        00:00:00 snapfuse /var/lib/snapd/snaps/gtk-common-themes_153
root          99       1  0 Oct08 ?        00:00:00 snapfuse /var/lib/snapd/snaps/snapd_21759.snap /sna
root         110       1  0 Oct08 ?        00:00:00 snapfuse /var/lib/snapd/snaps/ubuntu-desktop-instal
root         119       1  0 Oct08 ?        00:00:01 snapfuse /var/lib/snapd/snaps/ubuntu-desktop-instal
systemd+     151       1  0 Oct08 ?        00:00:00 /lib/systemd/systemd-resolved
root         191       1  0 Oct08 ?        00:00:00 /usr/sbin/cron -f -P
message+     193       1  0 Oct08 ?        00:00:00 @dbus-daemon --system --address=systemd: --nofork -
root         197       1  0 Oct08 ?        00:00:00 /usr/bin/python3 /usr/bin/networkd-dispatcher --run
syslog       198       1  0 Oct08 ?        00:00:00 /usr/sbin/rsyslogd -n -iNONE
root         201       1  0 Oct08 ?        00:00:00 /lib/systemd/systemd-logind
root         239       1  0 Oct08 ?        00:00:00 /bin/bash /snap/ubuntu-desktop-installer/1286/bin/s
root         258       1  0 Oct08 hvc0     00:00:00 /sbin/agetty -o -p -- \u --noclear --keep-baud cons
root         261       1  0 Oct08 ?        00:00:00 /usr/bin/python3 /usr/share/unattended-upgrades/una
root         268       1  0 Oct08 tty1     00:00:00 /sbin/agetty -o -p -- \u --noclear tty1 linux
root         297     239  0 Oct08 ?        00:00:05 /snap/ubuntu-desktop-installer/1286/usr/bin/python3
root         344       2  0 Oct08 ?        00:00:00 /init
root         345     344  0 Oct08 ?        00:00:00 /init
hari         346     345  0 Oct08 pts/0    00:00:00 -bash
root         347       2  0 Oct08 pts/1    00:00:00 /bin/login -f
hari         382       1  0 Oct08 ?        00:00:00 /lib/systemd/systemd --user
hari         383     382  0 Oct08 ?        00:00:00 (sd-pam)
hari         388     347  0 Oct08 pts/1    00:00:00 -bash
root         401     297  0 Oct08 ?        00:00:16 python3 /snap/ubuntu-desktop-installer/1286/usr/bin
root        1857       1  0 Oct08 ?        00:00:00 snapfuse /var/lib/snapd/snaps/snapd_22991.snap /sna
root        1875       1  0 Oct08 ?        00:00:00 /usr/lib/snapd/snapd
hari       16734     346  0 00:16 pts/0    00:00:00 ps -ef
hari@Hari:~$ S
```

to get the process ID of a perticular process , we use grep command - it fetches only the requested commands
we want to know the ID for python process (python is default in every VM)

Command : ps -ef | grep "python3"

Pipe - | parameter sends the output of the first command to the second command.

```
hari@Hari:~$ ps -ef | grep "python3"
root         197       1  0 Oct08 ?        00:00:00 /usr/bin/python3 /usr/bin/networkd-dispatcher --run
root         261       1  0 Oct08 ?        00:00:00 /usr/bin/python3 /usr/share/unattended-upgrades/una
root         297     239  0 Oct08 ?        00:00:05 /snap/ubuntu-desktop-installer/1286/usr/bin/python3
 --storage-version=2 --postinst-hooks-dir=/snap/ubuntu-desktop-installer/1286/etc/subiquity/postinst.d
root         401     297  0 Oct08 ?        00:00:17 python3 /snap/ubuntu-desktop-installer/1286/usr/bin
hari       18189     346  0 00:22 pts/0    00:00:00 grep --color=auto python3
hari@Hari:~$ ps -ef | grep "python3"
root         197       1  0 Oct08 ?        00:00:00 /usr/bin/python3 /usr/bin/networkd-dispatcher --run
root         261       1  0 Oct08 ?        00:00:00 /usr/bin/python3 /usr/share/unattended-upgrades/una
root         297     239  0 Oct08 ?        00:00:05 /snap/ubuntu-desktop-installer/1286/usr/bin/python3
 --storage-version=2 --postinst-hooks-dir=/snap/ubuntu-desktop-installer/1286/etc/subiquity/postinst.d
root         401     297  0 Oct08 ?        00:00:18 python3 /snap/ubuntu-desktop-installer/1286/usr/bin
hari       18536     346  0 00:24 pts/0    00:00:00 grep --color=auto python3
hari@Hari:~$
```

if you to kill / end the process, we need process ID of the respective task.

Time Stamp :: 19:07 - To be continued