DevOps { PW Assignment }

Linux Assignment Questions and Answer

1. **What is Linux?**

   Ans: - Linux is an open-source, Unix-like operating system kernel that serves as the foundation for various operating systems (called distributions or distros) like Ubuntu, CentOS, and Debian.

2. **What is the difference between Hard Link & Soft Link?**

   Ans : -

Hard Link	Soft Link
I. Files that are hard linked take the same inode number.	II. Files that are soft linked take a different inode number.
III. Hard links are not allowed for directories.	IV. Soft links can be used for linking directories.
V. It cannot be used across file systems.	VI. It can be used across file systems.
VII. Hard links are comparatively faster.	VIII. Soft links are comparatively slower.

3. **What is a Kernel in Linux?**

   Ans: -The kernel is the core component of the Linux operating system that manages hardware resources, process scheduling, memory, and device drivers. It acts as a bridge between the hardware and user applications.

4. **How Do You Create a User Account?**

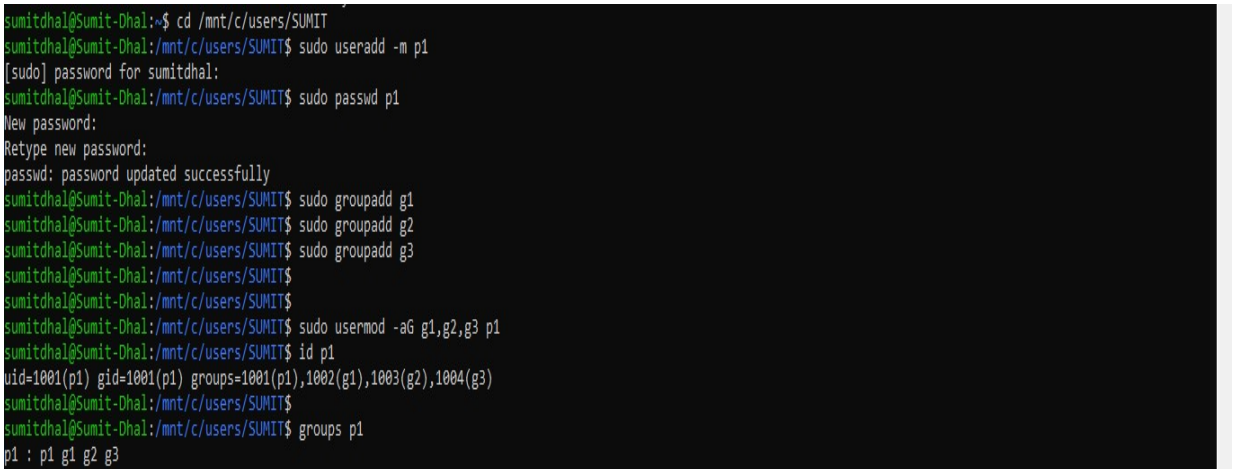
   Ans:- To create a user in Linux, use the useradd command: sudo useradd -m username (The -m flag creates a home directory for the user). sudo passwd username

5. **What is the 'grep' Command Used for in Linux?**

   Ans:- The grep command is used for searching text patterns in files. It is just like using filter in a text file.

6. **Step1: Create user p1 Step2: He should be part of 3 groups g1,g2,g3. Step3: whenever he creates a file automatically in the group section of file grp g1 should come.**

   Ans : -



7. **Step1: Create directory /tmp/bg as root user and create files inside it. Step2: "abhi" should be the owner of the directory. He should be able to create files and delete files inside the directory and also he should be able to add content to all files inside the directory.**

Ans:-

```
sumitdhal@Sumit-Dhal:/mnt/c/users/SUMIT$
sumitdhal@Sumit-Dhal:/mnt/c/users/SUMIT$ sudo mkdir /tmp/bg
sumitdhal@Sumit-Dhal:/mnt/c/users/SUMIT$ ls -ld /tmp/bg
drwxr-xr-x 2 root root 4096 Mar 21 23:07 /tmp/bg
sumitdhal@Sumit-Dhal:/mnt/c/users/SUMIT$
sumitdhal@Sumit-Dhal:/mnt/c/users/SUMIT$ sudo useradd -m abhi
sumitdhal@Sumit-Dhal:/mnt/c/users/SUMIT$ sudo passwd abhi
New password:
Retype new password:
passwd: password updated successfully
sumitdhal@Sumit-Dhal:/mnt/c/users/SUMIT$ ls -ld /tmp/bg
drwxr-xr-x 2 root root 4096 Mar 21 23:07 /tmp/bg
sumitdhal@Sumit-Dhal:/mnt/c/users/SUMIT$
sumitdhal@Sumit-Dhal:/mnt/c/users/SUMIT$
```

8. **You suspect that a particular process is consuming excessive CPU resources on your Linux server. How would you identify and terminate this process?**

Ans:- Using 'top' command

Next Command - `ps -eo pid,ppid,user,%cpu,%mem,cmd --sort=-%cpu | head -10`

Next - `sudo kill PID_NUMBER`

```
sumitdhal@Sumit-Dhal:/mnt/c/users/SUMIT$ top
top - 23:22:12 up 53 min,  1 user,  load average: 0.00, 0.06, 0.05
Tasks:  39 total,   1 running,  38 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.0 us,  0.0 sy,  0.0 ni,100.0 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   1870.6 total,   1079.3 free,    520.8 used,    270.4 buff/cache
MiB Swap:   1024.0 total,   1024.0 free,      0.0 used.   1244.7 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
      1 root      20   0  170332  13372   8472 S   0.0   0.7   0:08.35 systemd
      2 root      20   0    2776   1920   1796 S   0.0   0.1   0:00.03 init-systemd(Ub
      8 root      20   0    2788    140    132 S   0.0   0.0   0:00.01 init
     68 root      19  -1   52120  15060  13996 S   0.0   0.8   0:00.74 systemd-journal
     92 root      20   0   22452   6912   3936 S   0.0   0.4   0:01.22 systemd-udevd
     97 systemd+  20   0   19088   7800   6912 S   0.0   0.4   0:00.91 systemd-network
    265 root      20   0  151124    212     32 S   0.0   0.0   0:00.04 snapfuse
    271 root      20   0  151124   2256     44 S   0.0   0.1   0:00.02 snapfuse
    273 root      20   0  372456   6652    456 S   0.0   0.3   0:00.56 snapfuse
    280 root      20   0  151124    228     48 S   0.0   0.0   0:00.02 snapfuse
    284 root      20   0  225124    740    468 S   0.0   0.0   0:00.05 snapfuse
    285 root      20   0  520192  14948    516 S   0.0   0.8   0:05.65 snapfuse
    296 systemd+  20   0   25588  13008   8072 S   0.0   0.7   0:00.36 systemd-resolve
    299 root      20   0  237336   7272   6436 S   0.0   0.4   0:00.32 accounts-daemon
    300 message+  20   0    7644   4864   3976 S   0.0   0.3   0:14.27 dbus-daemon
    303 root      20   0   29872  18284  10076 S   0.0   1.0   0:00.54 networkd-dispat
    304 root      20   0  232740   6800   6108 S   0.0   0.4   0:00.44 polkitd
```

```
sumitdhal@Sumit-Dhal:/mnt/c/users/SUMIT$ ps -eo pid,ppid,user,%cpu,%mem,cmd --sort=-%cpu | head -10
    PID    PPID USER     %CPU %MEM CMD
    310       1 prometh+  1.7  1.5 /usr/bin/prometheus-node-exporter
    312       1 prometh+  0.6  4.4 /usr/bin/prometheus
    300       1 message+  0.4  0.2 /usr/bin/dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation --syslog-only
      1       0 root      0.2  0.6 /sbin/init
    285       1 root      0.1  0.7 snapfuse /var/lib/snapd/snaps/snapd_23771.snap /snap/snapd/23771 -o ro,nodev,allow_other,suid
    413       1 grafana   0.1  3.5 /usr/sbin/grafana-server --config=/etc/grafana/grafana.ini --pidfile=/var/run/grafana/grafana-server.pid --packaging=deb cfg:default.
paths.logs=/var/log/grafana cfg:default.paths.data=/var/lib/grafana cfg:default.paths.plugins=/var/lib/grafana/plugins cfg:default.paths.provisioning=/etc/grafana/provi
sioning
      2       1 root      0.0  0.1 /init
      8       2 root      0.0  0.0 plan9 --control-socket 7 --log-level 4 --server-fd 8 --pipe-fd 10 --log-truncate
     68       1 root      0.0  0.7 /lib/systemd/systemd-journald
```