OS EXPERIMENT 2

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Roll No: 02

AIM : To study the shell scripting language
A display OS version release number kernel version
B display top 10 processors in descending order
C display processes with highest memory usage
D display c+

THEORY :
A]i) uname - r{username}
To show the OS version, release no. OS release version
ii) uname - v
Shows Kernel version (last when launched)
iii) uname - a
Shows all the details including OS used, PC and other details.
us - c + u - r → us - a

B] i) ps-aux (i) sort : nk +41 tail
Sorts 10 processes in descending order. It shows logged in users,
modes of memory & storage.
OR
ii) ps-aux | tail
Same as above
OR
iii) ps-aux | sort -nl+4 | tail - n15 (shows top 15 processes)
same with 15

C]i) sudo apt install htop
shows date of processes with highest memory
ii) ps - eo pid, ppid, cmd, % mem, % cpu –sort =-% mem | head
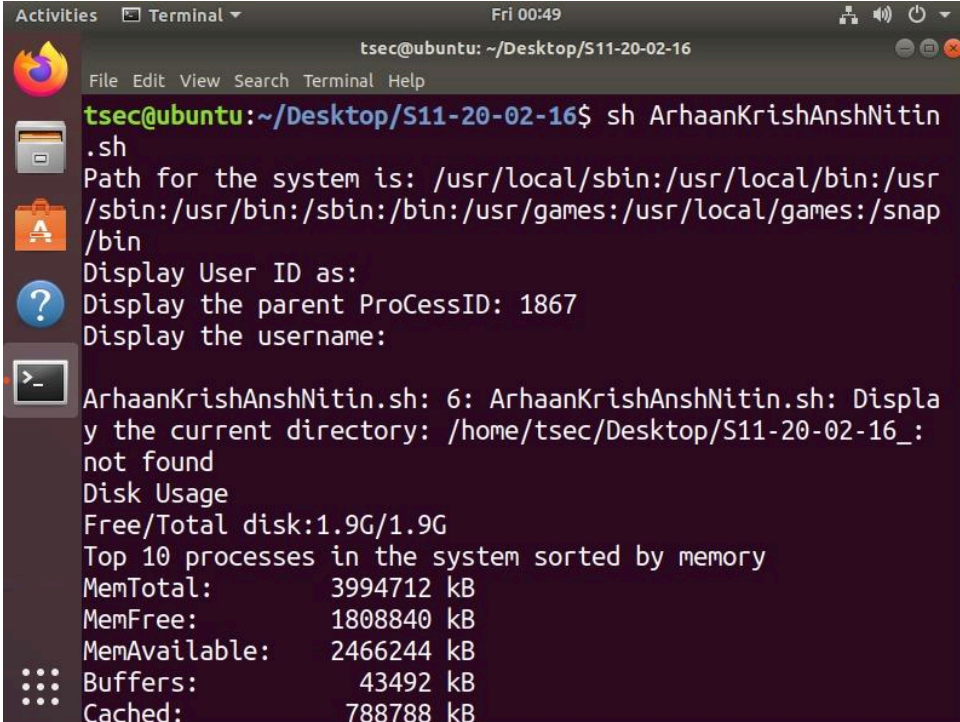same as above same as above

D]i) ps-p$$
Shows process ID and current shell

ii) echo display home directory
echo $ home
To display home directory

OUTPUT:

tsec@ubuntu: ~/Desktop/S11-20-02-16

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```
Free/Total disk:1.9G/1.9G
Top 10 processes in the system sorted by memory
MemTotal:          3994712 kB
MemFree:           1808840 kB
MemAvailable:      2466244 kB
Buffers:             43492 kB
Cached:             788788 kB
SwapCached:              0 kB
Active:            1255988 kB
Inactive:           402168 kB
Active(anon):       819716 kB
Inactive(anon):      11712 kB
Active(file):       436272 kB
Inactive(file):     390456 kB
Unevictable:            16 kB
Mlocked:                16 kB
SwapTotal:          969960 kB
SwapFree:           969960 kB
Dirty:                  80 kB
Writeback:               0 kB
AnonPages:          825840 kB
```

```
AnonPages:          825840 kB
Mapped:             245500 kB
Shmem:               13088 kB
KReclaimable:        71072 kB
Slab:               152976 kB
SReclaimable:        71072 kB
SUnreclaim:          81904 kB
KernelStack:         12572 kB
PageTables:          41412 kB
NFS_Unstable:            0 kB
Bounce:                  0 kB
WritebackTmp:            0 kB
CommitLimit:       2967316 kB
Committed_AS:      4774804 kB
VmallocTotal:   34359738367 kB
VmallocUsed:         27748 kB
VmallocChunk:            0 kB
Percpu:              50688 kB
```

```
HardwareCorrupted:       0 kB
AnonHugePages:           0 kB
ShmemHugePages:          0 kB
ShmemPmdMapped:          0 kB
FileHugePages:           0 kB
FilePmdMapped:           0 kB
CmaTotal:                0 kB
CmaFree:                 0 kB
HugePages_Total:         0
HugePages_Free:          0
HugePages_Rsvd:          0
HugePages_Surp:          0
Hugepagesize:         2048 kB
Hugetlb:                 0 kB
DirectMap4k:        214848 kB
DirectMap2M:       3979264 kB
DirectMap1G:       2097152 kB
```

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```
The OS version is:
NAME="Ubuntu"
VERSION="18.04.6 LTS (Bionic Beaver)"
ID=ubuntu
ID_LIKE=debian
PRETTY_NAME="Ubuntu 18.04.6 LTS"
VERSION_ID="18.04"
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-
policies/privacy-policy"
VERSION_CODENAME=bionic
UBUNTU_CODENAME=bionic
The Kernel version is:
Linux version 5.4.0-150-generic (buildd@bos03-amd64-012) (g
cc version 7.5.0 (Ubuntu 7.5.0-3ubuntu1~18.04)) #167~18.04.
1-Ubuntu SMP Wed May 24 00:51:42 UTC 2023
tsec@ubuntu:~/Desktop/S11-20-02-16$
```

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tsec@ubuntu: ~/Desktop/S11-20-02-16

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```
tsec@ubuntu:~/Desktop/S11-20-02-16$ uname -r
5.4.0-150-generic
tsec@ubuntu:~/Desktop/S11-20-02-16$ clear

tsec@ubuntu:~/Desktop/S11-20-02-16$ uname -r
5.4.0-150-generic
tsec@ubuntu:~/Desktop/S11-20-02-16$ uname -v
#167~18.04.1-Ubuntu SMP Wed May 24 00:51:42 UTC 2023
tsec@ubuntu:~/Desktop/S11-20-02-16$ uname -a
Linux ubuntu 5.4.0-150-generic #167~18.04.1-Ubuntu SMP Wed May 24 00:51:42 UTC 2023 x86_64 x86_64 x86_64 GNU/Linux
tsec@ubuntu:~/Desktop/S11-20-02-16$ ps-aux | tail
ps-aux: command not found
tsec@ubuntu:~/Desktop/S11-20-02-16$ ps -aux | tail
tsec      1889  0.0  0.6 586896 25060 tty2     Sl+  00:38   0:00 update-notifier
root      1907  0.0  0.6 567956 25244 ?        Ssl  00:38   0:00 /usr/lib/fwupd/fwupd
tsec      2048  0.0  0.2 441968  9188 ?        Ssl  00:41   0:00 /usr/libexec/xdg-desktop-portal
tsec      2052  0.0  0.1 488288  5748 ?        Ssl  00:41   0:00 /usr/libexec/xdg-document-portal
tsec      2062  0.0  0.4 555956 19124 ?        Ssl  00:41   0:00 /usr/libexec/xdg-desktop-portal-gtk
root      2345  0.0  0.0      0     0 ?        I    00:41   0:00 [kworker/1:9-eve]
root      2960  0.0  0.0      0     0 ?        I    00:49   0:00 [kworker/0:0-cgr]
root      2961  0.0  0.0      0     0 ?        I    00:50   0:00 [kworker/u256:0-]
tsec      2985  0.0  0.0  39672  3712 pts/0    R+   00:52   0:00 ps -aux
tsec      2986  0.0  0.0   7516   876 pts/0    S+   00:52   0:00 tail
tsec@ubuntu:~/Desktop/S11-20-02-16$ ps -aux | tail -n20
tsec      1758  0.0  0.1 361140  7736 ?        Sl   00:37   0:00 /usr/lib/gvfs/gvfsd-trash --spawner :1.13 /org/gtk/gvfs/exec
_spaw/0
tsec      1774  0.0  0.1 197784  6448 tty2     Sl   00:37   0:00 /usr/lib/ibus/ibus-engine-simple
tsec      1783  0.0  1.5 1129000 63072 ?       Sl   00:37   0:00 /usr/lib/evolution/evolution-calendar-factory-subprocess --f
actory all --bus-name org.gnome.evolution.dataserver.Subprocess.Backend.Calendarx1753x2 --own-path /org/gnome/evolution/datase
rver/Subprocess/Backend/Calendar/1753/2
tsec      1788  0.0  0.1 187908  5220 ?        Sl   00:37   0:00 /usr/lib/dconf/dconf-service
tsec      1800  0.0  0.6 725584 24164 ?        Ssl  00:37   0:00 /usr/lib/evolution/evolution-addressbook-factory
```

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```
actory all --bus-name org.gnome.evolution.dataserver.Subprocess.Backend.Calendarx1753x2 --own-path /org/gnome/evolution/datase
rver/Subprocess/Backend/Calendar/1753/2
tsec      1788  0.0  0.1 187908  5220 ?        Sl   00:37   0:00 /usr/lib/dconf/dconf-service
tsec      1800  0.0  0.6 725584 24164 ?        Ssl  00:37   0:00 /usr/lib/evolution/evolution-addressbook-factory
tsec      1813  0.0  0.6 1075624 26400 ?       Sl   00:37   0:00 /usr/lib/evolution/evolution-addressbook-factory-subprocess
--factory all --bus-name org.gnome.evolution.dataserver.Subprocess.Backend.AddressBookx1800x2 --own-path /org/gnome/evolution/
dataserver/Subprocess/Backend/AddressBook/1800/2
tsec      1831  0.0  0.1 197368  5976 ?        Ssl  00:37   0:00 /usr/lib/gvfs/gvfsd-metadata
tsec      1857  0.3  0.9 793952 36740 ?        Ssl  00:38   0:03 /usr/lib/gnome-terminal/gnome-terminal-server
tsec      1867  0.0  0.1  22584  5156 pts/0    Ss   00:38   0:00 bash
tsec      1887  0.1  3.0 1327536 121656 tty2   SLl+ 00:38   0:01 /usr/bin/gnome-software --gapplication-service
tsec      1889  0.0  0.6 586896 25060 tty2     Sl+  00:38   0:00 update-notifier
root      1907  0.0  0.6 567956 25244 ?        Ssl  00:38   0:00 /usr/lib/fwupd/fwupd
tsec      2048  0.0  0.2 441968  9188 ?        Ssl  00:41   0:00 /usr/libexec/xdg-desktop-portal
tsec      2052  0.0  0.1 488288  5748 ?        Ssl  00:41   0:00 /usr/libexec/xdg-document-portal
tsec      2062  0.0  0.4 555956 19124 ?        Ssl  00:41   0:00 /usr/libexec/xdg-desktop-portal-gtk
root      2345  0.0  0.0      0     0 ?        I    00:41   0:00 [kworker/1:9-eve]
root      2960  0.0  0.0      0     0 ?        I    00:49   0:00 [kworker/0:0-mm_]
root      2961  0.0  0.0      0     0 ?        I    00:50   0:00 [kworker/u256:0-]
tsec      2989  0.0  0.0  39672  3692 pts/0    R+   00:52   0:00 ps -aux
tsec      2990  0.0  0.0   7516   828 pts/0    S+   00:52   0:00 tail -n20
```

```
tsec@ubuntu:~/Desktop/S11-20-02-16$ ps -eo pid,ppid,cmd,%mem,%cpu --sort=-%mem|head
  PID  PPID CMD                         %MEM %CPU
 1522  1401 /usr/bin/gnome-shell         4.5  1.9
 1084  1036 /usr/bin/gnome-shell         3.5  0.1
 1887  1401 /usr/bin/gnome-software --g  3.0  0.1
 1746  1401 nautilus-desktop             2.4  0.1
 1392  1390 /usr/lib/xorg/Xorg vt2 -dis  2.1  1.2
 1753  1367 /usr/lib/evolution/evolutio  1.6  0.0
 1783  1753 /usr/lib/evolution/evolutio  1.5  0.0
 1193  1084 /usr/bin/Xwayland :1024 -ro  1.3  0.0
 1276  1036 /usr/lib/gnome-settings-dae  1.2  0.0
tsec@ubuntu:~/Desktop/S11-20-02-16$
```

CONCLUSION : Thus we have successfully studied and implemented shell scripting.