<div align="center">

Assignment 4
Linux File Scripts

</div>

1) Write a shell script to print the following system information

Currently logged users	-- w or who
Your shell directory	-- echo $SHELL ,
Home directory	-- echo $HOME
OS name & version	-- lsb_release -a
Current working directory -- pwd	
Number of users logged in	-- /var/log/wtmp, /var/run/utmp, users , w, /etc/passwd
Show all available shells in your system	-- /etc/shells
Hard disk information	-- lsblk lsblk /dev/sda
CPU information	-- cat /proc/cpuinfo, lscpu, sudo lshw -C CPU, hwinfo --cpu
Memory information	-- cat /proc/meminfo
Currently running process	-- ps -u [username], ps -e or ps -A , ps -T, top,htop,

```
2283 pts/0    00:00:00 ps
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ cat ./sys_info.sh
#!/bin/bash
# Write a shell script to print the following sytem information
#        Currently logged users              -- w or who
#        Your shell directory                -- echo $SHELL ,
#        Home directory                      -- echo $HOME
#        OS name & version                   -- lsb_release -a
#        Current working directory           -- pwd
#        Number of users logged in           -- /var/log/wtmp, /var/run/utmp, users , w, /etc/passwd
#        Show all available shells in your system --- /etc/shells
#        Hard disk information               -- lsblk  lsblk /dev/sda
#        CPU information                     -- cat /proc/cpuinfo,  lscpu, sudo lshw -C CPU, hwinfo --cpu
#        Memory information                  -- cat /proc/meminfo
#        Currently running process           -- ps -u [username], ps -e or ps -A , ps -T, top,htop

who
echo $SHELL
echo $HOME
lsb_release -a
pwd
cat /etc/passwd
cat /etc/shells
lsblk /dev/sda
cat /proc/cpuinfo
cat /proc/meminfo
ps -A
bhushan@ubuntu:~/MyScripting/Basic/Assignments$
tions
```

Currently logged users	-- w or who
Your shell directory	-- echo $SHELL ,
Home directory	-- echo $HOME
OS name & version	-- lsb_release -a
Current working directory	-- pwd

```
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ ./sys_info.sh
bhushan  :0           2023-02-16 22:06 (:0)
/bin/bash
/home/bhushan
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 20.04.5 LTS
Release:       20.04
Codename:      focal
/home/bhushan/MyScripting/Basic/Assignments
```

Number of users logged in   -- /var/log/wtmp, /var/run/utmp, users , w, /etc/passwd

```
/home/bhushan/MyScripting/Basic/Assignments
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106::/nonexistent:/usr/sbin/nologin
syslog:x:104:110::/home/syslog:/usr/sbin/nologin
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:114::/run/uuidd:/usr/sbin/nologin
tcpdump:x:108:115::/nonexistent:/usr/sbin/nologin
avahi-autoipd:x:109:116:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:110:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
rtkit:x:111:117:RealtimeKit,,,:/proc:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
cups-pk-helper:x:113:120:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:x:114:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
avahi:x:115:121:Avahi mDNS daemon,,,:/var/run/avahi-daemon:/usr/sbin/nologin
kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/:/usr/sbin/nologin
saned:x:117:123::/var/lib/saned:/usr/sbin/nologin
nm-openvpn:x:118:124:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
whoopsie:x:120:125::/nonexistent:/bin/false
colord:x:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup/:/bin/false
```

```
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup/:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
sssd:x:126:131:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
bhushan:x:1000:1000:bhushan,,,:/home/bhushan:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
empsys:x:128:65534::/home/empsys:/usr/sbin/nologin
devops:x:1001:1001:,,,:/home/devops:/bin/bash
angular:x:1002:1003:,,,:/home/angular:/bin/bash
```

Show all available shells in your system -- /etc/shells

```
/bin/sh
/bin/bash
/usr/bin/bash
/bin/rbash
/usr/bin/rbash
/bin/dash
/usr/bin/dash
```

Hard disk information   -- lsblk lsblk /dev/sda

```
NAME    MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sda       8:0    0   20G  0 disk
 ─sda1    8:1    0  512M  0 part /boot/efi
 ─sda2    8:2    0    1K  0 part
 ─sda5    8:5    0 19.5G  0 part /
```

CPU information   -- cat /proc/cpuinfo, lscpu, sudo lshw -C CPU, hwinfo --cpu

```
processor       : 0
vendor_id       : AuthenticAMD
cpu family      : 23
model           : 17
model name      : AMD Ryzen 3 2200U with Radeon Vega Mobile Gfx
stepping        : 0
cpu MHz         : 2495.297
cache size      : 512 KB
physical id     : 0
siblings        : 1
core id         : 0
cpu cores       : 1
apicid          : 0
initial apicid  : 0
fpu             : yes
fpu_exception   : yes
cpuid level     : 13
wp              : yes
flags           : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm constant_tsc rep_goo
d nopl tsc_reliable nonstop_tsc cpuid extd_apicid tsc_known_freq pni pclmulqdq ssse3 fma cx16 sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand hypervisor lahf_lm extapic
cr8_legacy abm sse4a misalignsse 3dnowprefetch osvw topoext ssbd ibpb vmmcall fsgsbase bmi1 avx2 smep bmi2 rdseed adx smap clflushopt sha_ni xsaveopt xsavec xgetbv1 xsaves clzero ar
at overflow_recov succor
bugs            : fxsave_leak sysret_ss_attrs null_seg spectre_v1 spectre_v2 spec_store_bypass retbleed
bogomips        : 4990.59
TLB size        : 2560 4K pages
clflush size    : 64
cache_alignment : 64
address sizes   : 45 bits physical, 48 bits virtual
power management:

processor       : 1
vendor_id       : AuthenticAMD
cpu family      : 23
model           : 17
model name      : AMD Ryzen 3 2200U with Radeon Vega Mobile Gfx
stepping        : 0
cpu MHz         : 2495.297
cache size      : 512 KB
physical id     : 2
siblings        : 1
core id         : 0
cpu cores       : 1
```

```
core id         : 0
cpu cores       : 1
apicid          : 2
initial apicid  : 2
fpu             : yes
fpu_exception   : yes
cpuid level     : 13
wp              : yes
flags           : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm constant_tsc rep_goo
d nopl tsc_reliable nonstop_tsc cpuid extd_apicid tsc_known_freq pni pclmulqdq ssse3 fma cx16 sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand hypervisor lahf_lm extapic
cr8_legacy abm sse4a misalignsse 3dnowprefetch osvw topoext ssbd ibpb vmmcall fsgsbase bmi1 avx2 smep bmi2 rdseed adx smap clflushopt sha_ni xsaveopt xsavec xgetbv1 xsaves clzero ar
at overflow_recov succor
bugs            : fxsave_leak sysret_ss_attrs null_seg spectre_v1 spectre_v2 spec_store_bypass retbleed
bogomips        : 4990.59
TLB size        : 2560 4K pages
clflush size    : 64
cache_alignment : 64
address sizes   : 45 bits physical, 48 bits virtual
power management:
```

Memory information   -- cat /proc/meminfo

```
MemTotal:        1988268 kB
MemFree:          176748 kB
MemAvailable:     870600 kB
Buffers:           40956 kB
Cached:           746644 kB
SwapCached:            0 kB
Active:           370284 kB
Inactive:         924996 kB
Active(anon):       1504 kB
Inactive(anon):   501648 kB
Active(file):     368780 kB
Inactive(file):   423348 kB
Unevictable:           0 kB
Mlocked:               0 kB
SwapTotal:        945416 kB
SwapFree:         945416 kB
Dirty:               380 kB
Writeback:             0 kB
AnonPages:        507788 kB
Mapped:           241024 kB
Shmem:              1856 kB
KReclaimable:      66024 kB
Slab:             142476 kB
SReclaimable:      66024 kB
SUnreclaim:        76452 kB
KernelStack:        9944 kB
PageTables:        12536 kB
NFS_Unstable:          0 kB
Bounce:                0 kB
WritebackTmp:          0 kB
CommitLimit:     1939548 kB
Committed_AS:    3162396 kB
VmallocTotal:   34359738367 kB
VmallocUsed:       58564 kB
VmallocChunk:          0 kB
Percpu:           112128 kB
```

```
Percpu:              112128 kB
HardwareCorrupted:       0 kB
AnonHugePages:           0 kB
ShmemHugePages:          0 kB
ShmemPmdMapped:          0 kB
FileHugePages:           0 kB
FilePmdMapped:           0 kB
HugePages_Total:         0
HugePages_Free:          0
HugePages_Rsvd:          0
HugePages_Surp:          0
Hugepagesize:         2048 kB
Hugetlb:                 0 kB
DirectMap4k:        216960 kB
DirectMap2M:       1880064 kB
DirectMap1G:             0 kB
```

Currently running process   -- ps -u [username], ps -e or ps -A , ps -T, top,htop,

```
PID TTY          TIME CMD
  1 ?        00:00:03 systemd
  2 ?        00:00:00 kthreadd
  3 ?        00:00:00 rcu_gp
  4 ?        00:00:00 rcu_par_gp
  5 ?        00:00:00 slub_flushwq
  6 ?        00:00:00 netns
  8 ?        00:00:00 kworker/0:0H-events_highpri
 10 ?        00:00:00 mm_percpu_wq
 11 ?        00:00:00 rcu_tasks_rude_
 12 ?        00:00:00 rcu_tasks_trace
 13 ?        00:00:00 ksoftirqd/0
 14 ?        00:00:00 rcu_sched
 15 ?        00:00:00 migration/0
 16 ?        00:00:00 idle_inject/0
 18 ?        00:00:00 cpuhp/0
 19 ?        00:00:00 cpuhp/1
 20 ?        00:00:00 idle_inject/1
 21 ?        00:00:00 migration/1
 22 ?        00:00:00 ksoftirqd/1
 23 ?        00:00:00 kworker/1:0-events
 24 ?        00:00:00 kworker/1:0H-events_highpri
 25 ?        00:00:00 kdevtmpfs
 26 ?        00:00:00 inet_frag_wq
 27 ?        00:00:00 kauditd
 29 ?        00:00:00 khungtaskd
 30 ?        00:00:00 oom_reaper
 31 ?        00:00:00 writeback
 32 ?        00:00:00 kcompactd0
 33 ?        00:00:00 ksmd
 34 ?        00:00:00 khugepaged
```

```
 34 ?        00:00:00 khugepaged
 81 ?        00:00:00 kintegrityd
 82 ?        00:00:00 kblockd
 83 ?        00:00:00 blkcg_punt_bio
 84 ?        00:00:00 tpm_dev_wq
 85 ?        00:00:00 ata_sff
 86 ?        00:00:00 md
 87 ?        00:00:00 edac-poller
 88 ?        00:00:00 devfreq_wq
 89 ?        00:00:00 watchdogd
 91 ?        00:00:00 kworker/0:1H-kblockd
 93 ?        00:00:00 kswapd0
 94 ?        00:00:00 ecryptfs-kthrea
 96 ?        00:00:00 kthrotld
 97 ?        00:00:00 irq/24-pciehp
 98 ?        00:00:00 irq/25-pciehp
 99 ?        00:00:00 irq/26-pciehp
100 ?        00:00:00 irq/27-pciehp
101 ?        00:00:00 irq/28-pciehp
102 ?        00:00:00 irq/29-pciehp
103 ?        00:00:00 irq/30-pciehp
104 ?        00:00:00 irq/31-pciehp
105 ?        00:00:00 irq/32-pciehp
106 ?        00:00:00 irq/33-pciehp
107 ?        00:00:00 irq/34-pciehp
108 ?        00:00:00 irq/35-pciehp
109 ?        00:00:00 irq/36-pciehp
110 ?        00:00:00 irq/37-pciehp
111 ?        00:00:00 irq/38-pciehp
112 ?        00:00:00 irq/39-pciehp
113 ?        00:00:00 irq/40-pciehp
114 ?        00:00:00 irq/41-pciehp
115 ?        00:00:00 irq/42-pciehp
116 ?        00:00:00 irq/43-pciehp
117 ?        00:00:00 irq/44-pciehp
118 ?        00:00:00 irq/45-pciehp
119 ?        00:00:00 irq/46-pciehp
120 ?        00:00:00 irq/47-pciehp
121 ?        00:00:00 irq/48-pciehp
122 ?        00:00:00 irq/49-pciehp
123 ?        00:00:00 irq/50-pciehp
124 ?        00:00:00 irq/51-pciehp
125 ?        00:00:00 irq/52-pciehp
```

```
1612 ?        00:00:00 at-spi2-registr
1616 ?        00:00:00 xdg-permission-
1620 ?        00:00:00 gnome-shell-cal
1629 ?        00:00:00 evolution-sourc
1637 ?        00:00:00 evolution-calen
1646 ?        00:00:00 dconf-service
1648 ?        00:00:00 evolution-addre
1667 ?        00:00:00 gjs
1675 ?        00:00:00 gvfsd-trash
1680 ?        00:00:00 gsd-a11y-settin
1681 ?        00:00:00 gsd-color
1684 ?        00:00:00 gsd-datetime
1685 ?        00:00:00 gsd-housekeepin
1693 ?        00:00:00 gsd-keyboard
1694 ?        00:00:00 gsd-media-keys
1697 ?        00:00:00 gsd-power
1700 ?        00:00:00 gsd-disk-utilit
1701 ?        00:00:00 gsd-print-notif
1703 ?        00:00:00 gsd-rfkill
1706 ?        00:00:00 gsd-screensaver
1715 ?        00:00:00 gsd-sharing
1725 ?        00:00:00 gsd-smartcard
1726 ?        00:00:00 evolution-alarm
1735 ?        00:00:00 gsd-sound
1741 ?        00:00:00 gsd-usb-protect
1744 ?        00:00:00 gsd-wacom
1747 ?        00:00:13 vmtoolsd
1748 ?        00:00:00 gsd-wwan
1751 ?        00:00:00 gsd-xsettings
1774 ?        00:00:00 gsd-printer
1795 ?        00:00:00 ibus-engine-sim
1875 ?        00:00:05 gnome-terminal-
1883 pts/0    00:00:00 bash
1906 ?        00:00:00 gvfsd-metadata
1909 ?        00:00:00 update-notifier
1999 ?        00:00:03 kworker/1:1-events
2141 ?        00:00:03 snapd
2266 ?        00:00:06 kworker/0:0-events
2293 ?        00:00:00 kworker/u256:0-events_unbound
2301 ?        00:00:00 kworker/0:1-events
2335 ?        00:00:00 tracker-store
2341 pts/0    00:00:00 sys_info.sh
2350 pts/0    00:00:00 ps
```

2) Write a script to rename a dir with a given name

a) Rename directory name using mv command

```
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ vi renamedir.sh
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ cat renamedir.sh
#!/bin/bash
# Write a script to rename a dir with a given name [Given Album]
echo "Directory path is /home/bhushan/Hardsoft"
ls /home/bhushan/Hardsoft

mv /home/bhushan/Hardsoft /home/bhushan/Album

echo
echo "Directory path is /home/bhushan/Album"
ls /home/bhushan/Album
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ vi renamedir.sh
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ ./renamedir.sh
Directory path is /home/bhushan/Hardsoft
demo  file1.txt  file2.txt  file3.txt  file4.txt  file5.txt

Directory path is /home/bhushan/Album
demo  file1.txt  file2.txt  file3.txt  file4.txt  file5.txt
bhushan@ubuntu:~/MyScripting/Basic/Assignments$
```

b) Rename directory name using find command.

```
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ vi renamedir1.sh
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ chmod u+x renamedir1.sh
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ cat renamedir1.sh
#!/bin/bash
# Write a script to rename a dir with a given name

echo "Trying to rename the directory name using find command!"
echo "Directory path is /home/bhushan/Hardsoft:"
ls /home/bhushan/Hardsoft
echo

find . -depth -type d -name Hardsoft -execdir mv {} Album \;

echo "After Rename the Hardsoft Directory as Album:"
ls /home/bhushan
echo
echo "Directory path is /home/bhushan/Album:"
ls /home/bhushan/Album

bhushan@ubuntu:~/MyScripting/Basic/Assignments$ ./renamedir1.sh
Trying to rename the directory name using find command!
Directory path is /home/bhushan/Hardsoft:
demo  file1.txt  file2.txt  file3.txt  file4.txt  file5.txt

After Rename the Hardsoft Directory as Album:
demo  Desktop  Documents  Downloads  fill.sh  First  Hardsoft  Music  MyScripting  Pictures  Public  Second  snap  Templates  terrform-practice  Third  tt.sh  Videos

Directory path is /home/bhushan/Album:
ls: cannot access '/home/bhushan/Album': No such file or directory
bhushan@ubuntu:~/MyScripting/Basic/Assignments$
```

3) Given album and dir create a script to name files properly by inserting index numbers

```
bhushan@ubuntu:~/MyScripting/Basic/Album$ ls
1.png  2.png  3.png  4.png  5.png  6.png  prac_file_name.sh
bhushan@ubuntu:~/MyScripting/Basic/Album$ vi prac_file_name.sh
bhushan@ubuntu:~/MyScripting/Basic/Album$ cat prac_file_name.sh
#!/bin/bash
N=1
for X in *.png
do
  mv $X day_out_$N.jpg
  N=$(($N+1))
done
bhushan@ubuntu:~/MyScripting/Basic/Album$ ./prac_file_name.sh
bhushan@ubuntu:~/MyScripting/Basic/Album$ ls
day_out_1.jpg  day_out_3.jpg  day_out_5.jpg  prac_file_name.sh
day_out_2.jpg  day_out_4.jpg  day_out_6.jpg
bhushan@ubuntu:~/MyScripting/Basic/Album$ 
```

Script to change the file extension from the current directory using accepting argument.

```
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ ls
change_file.sh  file2.html  file4.html     renamedir.sh
file1.html      file3.html  renamedir1.sh  sys_info.sh
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ chmod u+x change_file.sh
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ ./change_file.sh html txt
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ ls
change_file.sh  file2.txt  file4.txt     renamedir.sh
file1.txt       file3.txt  renamedir1.sh  sys_info.sh
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ cat change_file.sh
#!/bin/bash

for f in *$1; do
    mv -- "$f" "${f%.$1}.$2"
done
bhushan@ubuntu:~/MyScripting/Basic/Assignments$ 
```