

Shell Scripting main assignment

1. Create the startup script for an application start and stop

```
Activities Terminal Apr 20 13:14 hitendra@hitendra-VM: ~/Hitendra
hitendra@hitendra-VM:~/Hitendra$ which firefox
/snap/bin/firefox
hitendra@hitendra-VM:~/Hitendra$
```

```
Activities Terminal Apr 20 13:43 hitendra@hitendra-VM: ~/Hitendra
GNU nano 6.2 myapp.sh *
#!/bin/bash
APP_NAME="firefox"
PID_FILE="/tmp/firefox.pid"

start() {
    if [ -f $PID_FILE ]; then
        echo "Error: $APP_NAME is already running (PID: $(cat $PID_FILE))"
        exit 1
    fi

    $APP_NAME &
    echo $! > $PID_FILE
    echo "Started $APP_NAME (PID: $(cat $PID_FILE))"
}

stop() {
    if [ ! -f $PID_FILE ]; then
        echo "Error: $APP_NAME is not running"
        exit 1
    fi

    kill $(cat $PID_FILE)
    rm $PID_FILE
    echo "Stopped $APP_NAME"
}

case "$1" in
    start)
        start
        ;;
    stop)
        stop
        ;;
    restart)
        stop
        start
        ;;
    *)
        echo "Usage: $0 {start|stop|restart}"
        exit 1
        ;;
esac
exit 0
```

```
Activities Terminal Apr 20 13:46 hitendra@hitendra-VM: ~/Hitendra
hitendra@hitendra-VM:~/Hitendra$ ./myapp.sh start
Started firefox (PID: 7020)
hitendra@hitendra-VM:~/Hitendra$ Gtk-Message: 13:46:27.953: Not loading module "atk-bridge": The functionality is provided by GTK natively. Please try to not load it.
```

```
Activities Terminal Apr 20 13:47 hitendra@hitendra-VM: ~/Hitendra
hitendra@hitendra-VM:~/Hitendra$ ./myapp.sh stop
Stopped firefox
hitendra@hitendra-VM:~/Hitendra$ Exiting due to channel error.
Exiting due to channel error.
Exiting due to channel error.
Exiting due to channel error.
```

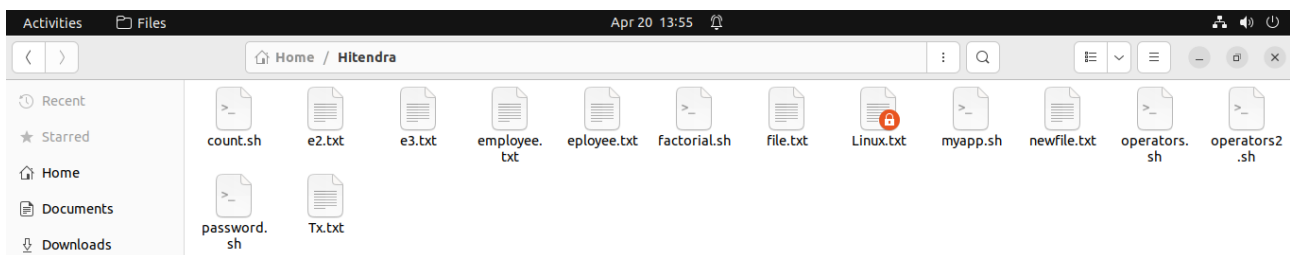
2. Write a shell script that consists of a function that displays the number of files in the present working directory. Name this function "file_count" and call it in your script. If you use variable in your function, remember to make it a local variable.

```
Activities Terminal Apr 20 13:55 hitendra@hitendra-VM: ~/Hitendra
GNU nano 6.2 count.sh
#!/bin/bash

file_count() {
    local count=$(ls -l | wc -l)
    echo "There are $count files in the current directory."
}

file_count
```

```
Activities Terminal Apr 20 13:54 hitendra@hitendra-VM: ~/Hitendra
hitendra@hitendra-VM:~/Hitendra$ chmod +x count.sh
hitendra@hitendra-VM:~/Hitendra$ ./count.sh
There are 14 files in the current directory.
hitendra@hitendra-VM:~/Hitendra$
```



3. For each directory in the \$PATH, display the number of executable in that directory

```
Activities Terminal Apr 20 14:01 hitendra@hitendra-VM: ~/Hitendra
GNU nano 6.2 executable.sh
#!/bin/bash

IFS=":" read -ra dirs <<< "$PATH"

for dir in "${dirs[@]}; do
    # Count the number of executable files in the directory
    count=$(find "$dir" -maxdepth 1 -type f -executable | wc -l)
    # Display the directory name and count
    echo "$dir: $count"
done
```

```
Activities Terminal Apr 20 14:00 hitendra@hitendra-VM: ~/Hitendra
hitendra@hitendra-VM:~/Hitendra$ chmod +x executable.sh
hitendra@hitendra-VM:~/Hitendra$ ./executable.sh
/usr/local/sbin: 0
/usr/local/bin: 0
/usr/sbin: 301
/usr/bin: 1188
/sbin: 0
/bin: 0
/usr/games: 6
/usr/local/games: 0
/snap/bin: 0
/snap/bin: 0
hitendra@hitendra-VM:~/Hitendra$
```

4. Display the names of any file-system which have less than 10% free space available

```
hitendra@hitendra-VM: ~/Hitendra$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs            389M  2.1M  387M   1% /run
/dev/sda3        31G   15G   15G  51% /
tmpfs            1.9G   0  1.9G   0% /dev/shm
tmpfs            5.0M  4.0K  5.0M   1% /run/lock
/dev/sda2        512M  6.1M  506M   2% /boot/efi
tmpfs            389M  104K  389M   1% /run/user/1000
/dev/sr1         3.6G  3.6G   0 100% /media/hitendra/Ubuntu 22.04.1 LTS amd64
/dev/sr0         127M  127M   0 100% /media/hitendra/CDROM
hitendra@hitendra-VM: ~/Hitendra$
```

```
GNU nano 6.2 free.sh *
#!/bin/bash
mounts=$(df -h)

while read -r mount;
do
    if [[ "$mount" == Filesystem* ]]; then
        continue
    fi

    mount_point=$(echo "$mount" | awk '{print $NF}')
    free_space=$(echo "$mount" | awk '{print $(NF-1)}')

    free_space=${free_space%*%}

    if (( free_space < 10 )); then
        echo "File system \"$mount_point\" has less than 10% free space"
    fi
done <<< "$mounts"
```

```
hitendra@hitendra-VM: ~/Hitendra$ nano free.sh
hitendra@hitendra-VM: ~/Hitendra$ chmod +x free.sh
hitendra@hitendra-VM: ~/Hitendra$ ./free.sh
File system "/run" has less than 10% free space
File system "/dev/shm" has less than 10% free space
File system "/run/lock" has less than 10% free space
File system "/boot/efi" has less than 10% free space
File system "/run/user/1000" has less than 10% free space
File system "amd64" has less than 10% free space
hitendra@hitendra-VM: ~/Hitendra$
```

5. Write a script that takes any number of directories as command-line arguments and then lists the contents of each of these directories.

```
Activities Terminal Apr 20 14:20 hitendra@hitendra-VM: ~/Hitendra
GNU nano 6.2 list.sh *
#!/bin/bash
for dir in "$@";
do
    if [[ -d "$dir" ]];
    then
        echo "Contents of directory \"$dir\":"
        ls -l "$dir"
        echo ""
    fi
done
```

```
Activities Terminal Apr 20 14:19 hitendra@hitendra-VM: ~/Hitendra
hitendra@hitendra-VM:~/Hitendra$ chmod +x list.sh
hitendra@hitendra-VM:~/Hitendra$ ./list.sh ~/Documents
Contents of directory "/home/hitendra/Hitendra":
total 68
-rwxrwxr-x 1 hitendra hitendra 130 Apr 20 13:54 count.sh
-rw-rw-r-- 1 hitendra hitendra 90 Apr 17 16:14 e2.txt
-rw-rw-r-- 1 hitendra hitendra 16 Apr 17 16:15 e3.txt
-rw-rw-r-- 1 hitendra hitendra 93 Apr 17 16:21 employee.txt
-rw-rw-r-- 1 hitendra hitendra 43 Apr 17 16:20 eployee.txt
-rwxrwxr-x 1 hitendra hitendra 267 Apr 20 13:59 executable.sh
-rwxrwxr-x 1 hitendra hitendra 292 Apr 18 16:30 factorial.sh
-rw-rw-r-- 1 hitendra hitendra 84 Apr 13 14:51 file.txt
-rwxrwxr-x 1 hitendra hitendra 679 Apr 20 14:03 free.sh
-r--r--r-- 1 hitendra hitendra 22 Apr 12 16:41 Linux.txt
-rwxrwxr-x 1 hitendra hitendra 149 Apr 20 14:17 list.sh
-rwxrwxr-x 1 hitendra hitendra 724 Apr 20 13:43 myapp.sh
-rw-rw-r-- 1 hitendra hitendra 89 Apr 12 18:43 newfile.txt
-rwxrwxr-x 1 hitendra hitendra 228 Apr 18 16:20 operators2.sh
-rwxrwxr-x 1 hitendra hitendra 55 Apr 18 16:11 operators.sh
-rwxrwxr-x 1 hitendra hitendra 141 Apr 19 19:08 password.sh
-rw-rw-r-- 1 hitendra hitendra 19 Apr 17 16:16 Tx.txt

Contents of directory "/home/hitendra/Documents":
total 8316
-rw-rw-r-- 1 hitendra hitendra 1491913 Apr 17 16:51 'disk and package management.docx'
drwxrwxr-x 2 hitendra hitendra 4096 Apr 12 18:16 Hitendra
-rw-rw-r-- 1 hitendra hitendra 1534912 Apr 12 20:03 'linux commands.docx'
-rw-rw-r-- 1 hitendra hitendra 841696 Apr 12 16:48 'linux commands.odt'
-rw-rw-r-- 1 hitendra hitendra 1326720 Apr 12 16:08 'Linux Training Session1-MP-Manoj.pdf'
-rw-rw-r-- 1 hitendra hitendra 1068831 Apr 18 16:41 'miscellaneous Linux and basic shell scripting.docx'
-rw-rw-r-- 1 hitendra hitendra 589000 Apr 19 19:32 shell_Day1.docx
-rw-rw-r-- 1 hitendra hitendra 86946 Apr 19 19:11 shell_Day2.odt
-rw-rw-r-- 1 hitendra hitendra 1012043 Apr 13 15:28 'Untitled 1.docx'
-rw-rw-r-- 1 hitendra hitendra 543495 Apr 19 16:07 'Untitled 1.odt'

hitendra@hitendra-VM:~/Hitendra$
```