Operating System Practicals

Assignment 4

Krunal Rank
U18CO081

1.

```bash
#! /bin/bash

if ! [ $1 ]
then
    echo 'Help: Please enter 1st Param as Path of File!'
    exit
fi

if [ -d "$1" ]
then
    echo $1' is a Directory!'
fi

if [ -L "$1" ]
then
    echo $1' is a Symbolic Link!'
fi

if [ -f "$1" ]
then
    echo $1' is a File!'
fi

if [ -b "$1" ]
then
    echo $1' is a Block Special File!'
fi

if [ -c "$1" ]
then
    echo $1' is a Character Special File!'
fi

if [ -p "$1" ]
then
    echo $1' is a Named Pipe!'
fi
```

```
if [ -S "$1" ]
then
    echo $1' is a Socket!'
fi
```

```
krhero@hellblazer:/mnt/0FB812900FB81290/BTech/Assignments/3rd_Year/OS/Assignment4$ ./1.sh /dev/sda3
/dev/sda3 is a Block Special File!
krhero@hellblazer:/mnt/0FB812900FB81290/BTech/Assignments/3rd_Year/OS/Assignment4$ ./1.sh ../
../ is a Directory!
krhero@hellblazer:/mnt/0FB812900FB81290/BTech/Assignments/3rd_Year/OS/Assignment4$ ./1.sh ./1.sh
./1.sh is a File!
```

2.

```bash
#! /bin/bash

for arg in "$@"
do
    if ! [ -d $arg ]
    then
        echo 'Help: Please enter valid Params : Path to directory'
        exit
    fi
done

for arg in "$@"
do
    echo 'Inside '$arg
    array=()

    mapfile -t array< <(find $arg -maxdepth 1 -type d )

    for path in ${array[@]}
    do
        echo -ne $path' '
        find "$path" -maxdepth 1 -executable -type f | wc -l
    done
done
```

```
krhero@hellblazer:/mnt/0FB812900FB81290/BTech/Assignments/3rd_Year/OS/Assignment4$ ./2.sh ../ ./
Inside ../
../ 0
../Assignment1 36
../Assignment2 20
../Assignment3 8
../Assignment4 4
Inside ./
./ 4
```

3.

```bash
#! /bin/bash

if ! [[ $1 && $2 ]]
then
    echo 'Help: Please enter 2 Params: 1st - Search Keyword and 2nd - Path'
    exit
fi

grep -RI $1 $2
```

```
krhero@hellblazer:/mnt/0FB812900FB81290/BTech/Assignments/3rd_Year/OS/Assignment4$ ./3.sh .sh ../
../Assignment1/man.sh:#! /bin/sh
../Assignment1/apt-get.sh:#! /bin/sh
../Assignment1/cat.sh:#! /bin/sh
../Assignment1/cat.sh:cat ./cat.sh # Displays file content
../Assignment1/cat.sh:cat ./cat.sh > ./temp.txt # Appends file temp.txt with cat.sh
../Assignment1/cd.sh:#! /bin/bash
../Assignment1/chmod.sh:#! /bin/sh
../Assignment1/chmod.sh:chmod u+x ./chmod.sh # Gives the user who owns the file to execute it
../Assignment1/chmod.sh:chmod u+rw ./chmod.sh # Gives the user rights to reach and write to file/directory
../Assignment1/clear.sh:#! /bin/bash
../Assignment1/cmp.sh:#! /bin/bash
../Assignment1/cp.sh:#! /bin/sh
../Assignment1/date.sh:#! /bin/sh
```

4.

```bash
#! /bin/bash

if ! [ $1 ]
then
    echo 'Help: Please enter 1 Param : Path'
    exit
fi

array=()
mapfile -t array< <(find "$1" -type d)

for path in "${array[@]}"
do
    echo -ne 'Executables in '$path': '
    find "$path" -executable | wc -l
done
```

```
krhero@hellblazer:/mnt/0FB812900FB81290/BTech/Assignments/3rd_Year/OS/Assignment4$ ./4.sh ../
Executables in ../: 72
Executables in ../Assignment1: 37
Executables in ../Assignment2: 21
Executables in ../Assignment3: 9
Executables in ../Assignment4: 4
```

5.

```bash
#! /bin/bash


for arg in "$@"
do
    if ! [ -d $arg ]
    then
        echo 'Help: Please enter valid Params which are directory paths!'
        exit
    fi
done

ans=0

for arg in "$@"
do
    array=()
    mapfile -t array< <(find $arg -type f)

    for file in ${array[@]}
    do
        val=$(ls -s $file | awk '{print $1}')
        ans=$((ans+val))

    done
done
echo 'Blocks Occupied: '$ans
```

```
krhero@hellblazer:/mnt/0FB812900FB81290/BTech/Assignments/3rd_Year/OS/Assignment4$ ./5.sh ../
Blocks Occupied: 1210
krhero@hellblazer:/mnt/0FB812900FB81290/BTech/Assignments/3rd_Year/OS/Assignment4$ ./5.sh ./
Blocks Occupied: 6
krhero@hellblazer:/mnt/0FB812900FB81290/BTech/Assignments/3rd_Year/OS/Assignment4$ ./5.sh ../
Blocks Occupied: 1210
```

6.

```bash
#! /bin/bash

if ! [ -d $1 ]
then
    echo 'Help: Please enter 1 Param : Directory Path'
    exit
fi

find $1 -type f -mtime -1
```

```
krhero@hellblazer:/mnt/0FB812900FB81290/BTech/Assignments/3rd_Year/OS/Assignment4$ ./6.sh ../
../Assignment4/1.sh
../Assignment4/2.sh
../Assignment4/3.sh
../Assignment4/4.sh
../Assignment4/5.sh
../Assignment4/6.sh
```