

# OPERATING SYSTEM

## ASSIGNMENT::4

NAME:SOURABH PATEL

ADMISSION NO::U19CS082

1) Write a shell script which takes filename as argument and checks whether file is regular file,directory,block special file, character special file, named pipe, symbolic link, socket, device file etc.

```
if [ $# == 1 ]
then
if [ -e $1 ]
then
if [ -f $1 ]
then
echo "Regular file"
elif [ -d $1 ]
then
echo "Directory"
elif [ -b $1 ]
then
echo "Block special file"
elif [ -c $1 ]
then
echo "Character special"
elif [ -S $1 ]
then
echo "Socket"
elif [ -p $1 ]
then
echo "Named pipe"
elif [ -h $1 ]
then
echo "Symbolic link"
fi
else
echo "'$1' doesn't exist"
fi
else
echo "Incorrect no of arguments"
fi
```

```

root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4
root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4# ./Q1.sh U19CS082
Directory
root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4# ./Q1.sh U19CS082.txt
'U19CS082.txt' doesn't exist
root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4# ./Q1.sh U19CS082.txt
Regular file
root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4#

```

2) Write a shell script which will take file name as argument and check whether the file name is a dir or not and then proceed further only if it is a dir, else give usage message. The script should then print in the tabular format, name of each sub-dir (within the argument dir) and a count of the number of top level files in that sub-dir. Modify the program to work with multiple numbers of arguments, too.

```

for direc in $@
do
if [ -d $direc ]
then
find $direc -type d |
while read -r dir
do printf "%10s:\t" "$dir"; find "$dir" -maxdepth 1 -type f | wc -l;
done
echo " "
else
echo "./Q2.sh [dirname]"
fi
done

```

```

root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4
./Q2.sh [dirname]
root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4# ./Q2.sh Departments
.:
4
./Departments: 0
./Departments/CODE: 0
./Departments/CODE/DataStructure: 3
./Departments/ELECTRICAL: 0
./Departments/ELECTRICAL/ATTE: 3
./Departments/ELECTRICAL/CAEE: 0
./Departments/ELECTRICAL/LM: 1
./Departments/MECHANICAL: 0
./Departments/MECHANICAL/DM: 4
./Departments/MECHANICAL/HMT: 2
./Departments/MECHANICAL/MP: 0
./U19CS082: 0

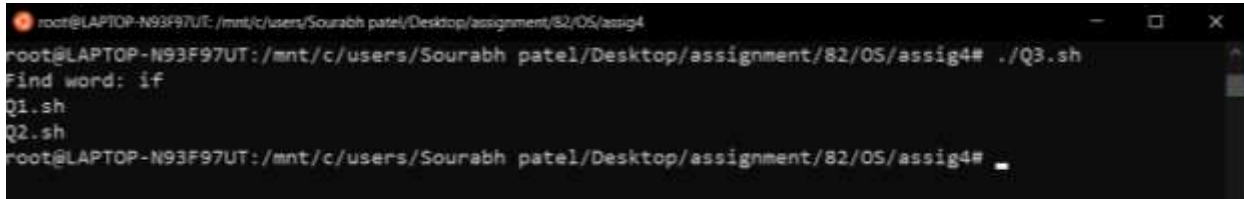
Departments: 0
Departments/CODE: 0
Departments/CODE/DataStructure: 3
Departments/ELECTRICAL: 0
Departments/ELECTRICAL/ATTE: 3
Departments/ELECTRICAL/CAEE: 0
Departments/ELECTRICAL/LM: 1
Departments/MECHANICAL: 0
Departments/MECHANICAL/DM: 4
Departments/MECHANICAL/HMT: 2
Departments/MECHANICAL/MP: 0

root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4#

```

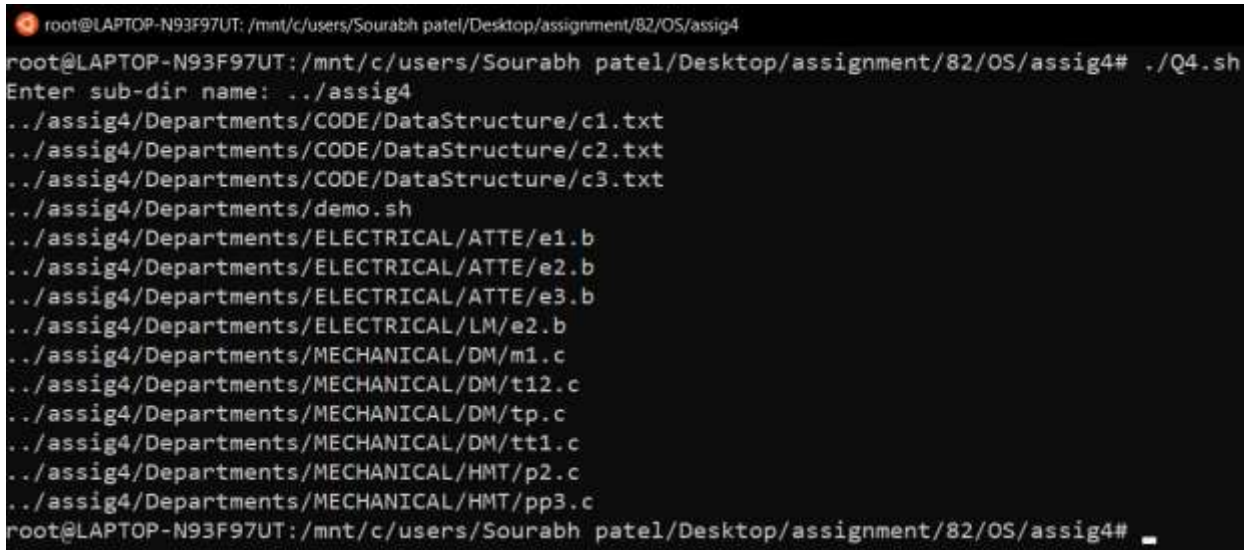
- 3) Write a script that will search for a specific word in all the files in the current directory and then prompt with the file name in which word is found.

```
read -p "Find word: " word
grep -l "$word" *.*
```

A terminal window showing the execution of a script. The prompt is root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4. The user runs ./Q3.sh. The script prompts "Find word: if". The user enters "if". The script then lists files: Q1.sh, Q2.sh, and then returns to the prompt root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4#.

- 4) Write a script to print only the number of executable files in each sub-dir of the argument directory specified.

```
direc="."
echo -e "Enter sub-dir name: \c"
read direc
find $direc -mindepth 2 -executable -type f
```

A terminal window showing the execution of a script. The prompt is root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4. The user runs ./Q4.sh. The script prompts "Enter sub-dir name: ./assig4". The user enters "assig4". The script then lists a long list of files and directories, including Departments/CODE/DataStructure/c1.txt, Departments/CODE/DataStructure/c2.txt, Departments/CODE/DataStructure/c3.txt, Departments/demo.sh, Departments/ELECTRICAL/ATTE/e1.b, Departments/ELECTRICAL/ATTE/e2.b, Departments/ELECTRICAL/ATTE/e3.b, Departments/ELECTRICAL/LM/e2.b, Departments/MECHANICAL/DM/m1.c, Departments/MECHANICAL/DM/t12.c, Departments/MECHANICAL/DM/tp.c, Departments/MECHANICAL/DM/tt1.c, Departments/MECHANICAL/HMT/p2.c, and Departments/MECHANICAL/HMT/pp3.c. The script then returns to the prompt root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4#.

- 5) Write a non-interactive script that takes in any no. of directory name as argument and calculates total no. of blocks of disk space occupied by the ordinary files in all the directories.

```
for direc in $@
do
if [ -d $direc ]
then
echo -e "Blocks by $direc: \c"
ls -s $direc | sed 's/^ *//' | grep total
else
echo "$direc not found"
fi
done
```

```

root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4
root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4# ./Q5.sh . Departments
Blocks by .: total 0
Blocks by Departments: total 0
root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4#

```

- 6) Write a shell script file named exercise2.sh that makes a list of files in your home directory that were changed less than 24 hours ago, but leave out directories.

```

find ~ -type f -mtime -1 -ls

```

```

root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4
root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4# ./Q6.sh
281474977824756      0 -rw-r--r--    1 root    root          0 Aug 30 22:19 /root/.motd_shown
38562071809395432    0 -rw-r--r--    1 root    root          0 Aug 30 23:15 /root/temp.txt
52072870691502486    0 -rw-r--r--    1 root    root          0 Aug 30 23:16 /root/temp1.txt
 4222124651736578    0 -rw-r--r--    1 root    root          0 Aug 30 23:16 /root/temp2.txt
1970324838051393     0 -rw-r--r--    1 root    root          0 Aug 30 23:16 /root/temp3.txt
root@LAPTOP-N93F97UT: /mnt/c/users/Sourabh patel/Desktop/assignment/82/OS/assig4#

```