

LINUX PROGRAMMING PRE CAT1 PRACTICE- 3.3.21

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SLOT : B1 + TB1
COURSE CODE : SWE4009

1. Write a Shell script that displays the list of all the files in the current directory to which the user has read, write and execute permissions.

PROGRAM:

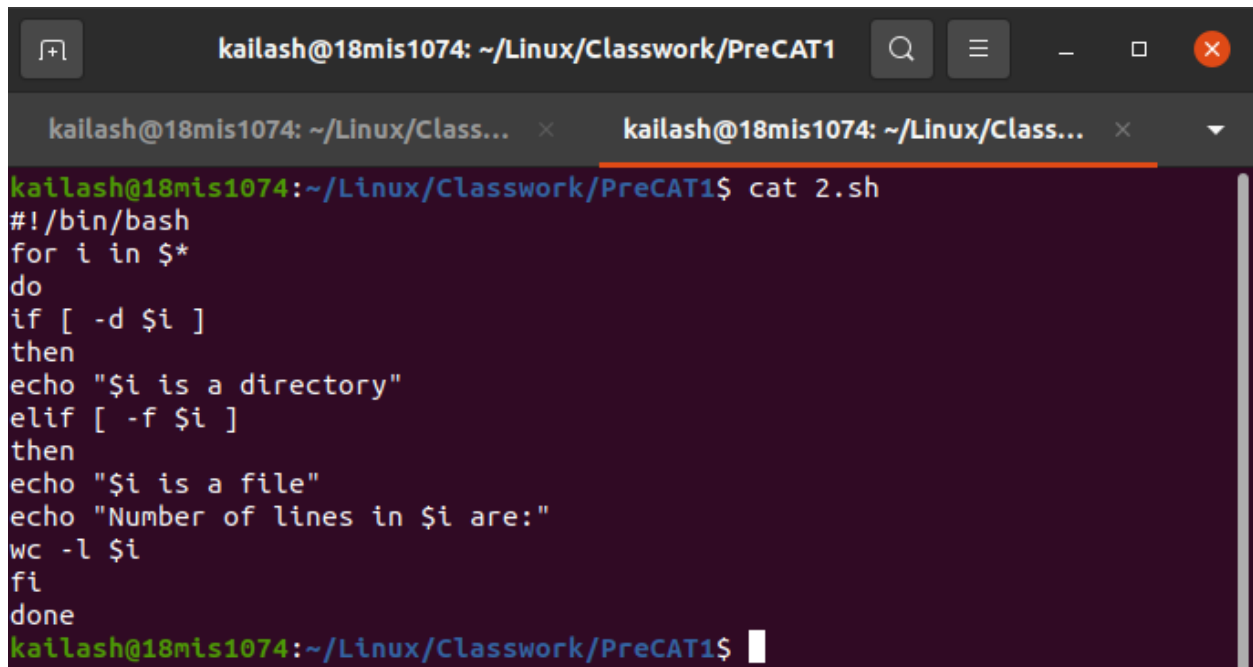
```
kailash@18mis1074: ~/Linux/Classwork/PreCAT1
kailash@18mis1074: ~/Linux/Classwork/PreCAT1$ cat 1.sh
#!/bin/bash
echo -e "\e[31mLIST OF ALL FILES\e[0m"
ls -l
echo -e "\e[31mUSER HAS READ, WRITE AND EXECUTE\e[0m"
ls -l | grep "rwx"
kailash@18mis1074: ~/Linux/Classwork/PreCAT1$
```

OUTPUT:

```
kailash@18mis1074: ~/Linux/Classwork/PreCAT1
kailash@18mis1074: ~/Linux/Classwork/PreCAT1$ ./1.sh
LIST OF ALL FILES
total 4
-rwxrwxr-x 1 kailash kailash 130 Mar  3 12:50 1.sh
-rwxrwxr-x 1 kailash kailash   0 Mar  3 11:39 file1
-rwxrwxr-x 1 kailash kailash   0 Mar  3 11:39 file2
-rw-rw-r-- 1 kailash kailash   0 Mar  3 11:39 file3
-rwxrwxr-x 1 kailash kailash   0 Mar  3 12:43 file4
-rw-rw-r-- 1 kailash kailash   0 Mar  3 12:43 file5
USER HAS READ, WRITE AND EXECUTE
-rwxrwxr-x 1 kailash kailash 130 Mar  3 12:50 1.sh
-rwxrwxr-x 1 kailash kailash   0 Mar  3 11:39 file1
-rwxrwxr-x 1 kailash kailash   0 Mar  3 11:39 file2
-rwxrwxr-x 1 kailash kailash   0 Mar  3 12:43 file4
kailash@18mis1074: ~/Linux/Classwork/PreCAT1$
```

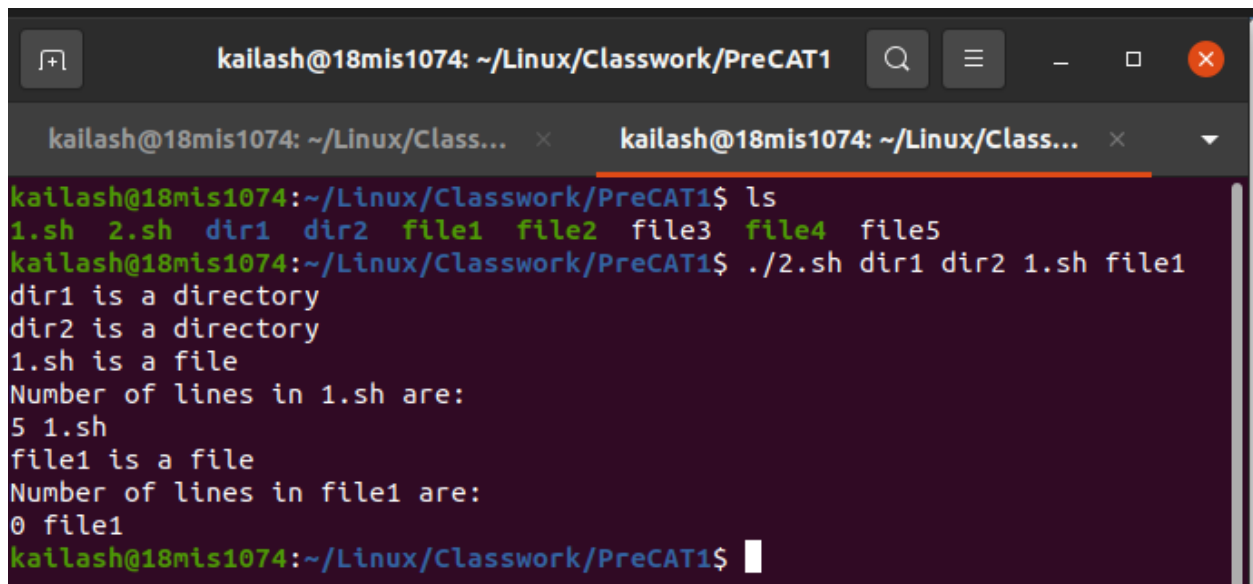
2. Write a Shell script that receives any number of file names as arguments checks if every argument supplied is a file or a directory and reports accordingly. Whenever the argument is a file, the number of lines on it is also reported?

PROGRAM:



```
kailash@18mis1074: ~/Linux/Classwork/PreCAT1
kailash@18mis1074: ~/Linux/Classwork/PreCAT1$ cat 2.sh
#!/bin/bash
for i in $*
do
if [ -d $i ]
then
echo "$i is a directory"
elif [ -f $i ]
then
echo "$i is a file"
echo "Number of lines in $i are:"
wc -l $i
fi
done
kailash@18mis1074:~/Linux/Classwork/PreCAT1$
```

OUTPUT:



```
kailash@18mis1074: ~/Linux/Classwork/PreCAT1
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ ls
1.sh 2.sh dir1 dir2 file1 file2 file3 file4 file5
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ ./2.sh dir1 dir2 1.sh file1
dir1 is a directory
dir2 is a directory
1.sh is a file
Number of lines in 1.sh are:
5 1.sh
file1 is a file
Number of lines in file1 are:
0 file1
kailash@18mis1074:~/Linux/Classwork/PreCAT1$
```

3. Write a Shell script to list all of the directory files in a directory.

PROGRAM:

```
kailash@18mis1074: ~/Linux/Class... x kailash@18mis1074: ~/Linux/Class... x
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ cat 3.sh
#!/bin/bash
echo "Enter directory path"
read dir
if [ -d $dir ]
then
echo -e "\e[31mLIST OF EVERYTHING IN PATH\e[0m"
ls -l $dir
echo -e "\e[31mLIST OF ALL DIRECTORIES IN PATH\e[0m"
ls -l $dir | grep "d"
fi
kailash@18mis1074:~/Linux/Classwork/PreCAT1$
```

OUTPUT:

```
kailash@18mis1074: ~/Linux/Class... x kailash@18mis1074: ~/Linux/Class... x
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ pwd
/home/kailash/Linux/Classwork/PreCAT1
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ ./3.sh
Enter directory path
/home/kailash/Linux/Classwork/PreCAT1
LIST OF EVERYTHING IN PATH
total 20
-rwxrwxr-x 1 kailash kailash 130 Mar 3 12:50 1.sh
-rwxrwxr-x 1 kailash kailash 161 Mar 3 13:01 2.sh
-rwxrwxr-x 1 kailash kailash 206 Mar 3 13:17 3.sh
drwxrwxr-x 2 kailash kailash 4096 Mar 3 13:07 dir1
drwxrwxr-x 2 kailash kailash 4096 Mar 3 13:07 dir2
-rwxrwxr-x 1 kailash kailash 0 Mar 3 11:39 file1
-rwxrwxr-x 1 kailash kailash 0 Mar 3 11:39 file2
-rw-rw-r-- 1 kailash kailash 0 Mar 3 11:39 file3
-rwxrwxr-x 1 kailash kailash 0 Mar 3 12:43 file4
-rw-rw-r-- 1 kailash kailash 0 Mar 3 12:43 file5
LIST OF ALL DIRECTORIES IN PATH
drwxrwxr-x 2 kailash kailash 4096 Mar 3 13:07 dir1
drwxrwxr-x 2 kailash kailash 4096 Mar 3 13:07 dir2
kailash@18mis1074:~/Linux/Classwork/PreCAT1$
```

4. Write a Shell script to find the factorial of a given integer?

PROGRAM:

```
kailash@18mis1074: ~/Linux/Class... x kailash@18mis1074: ~/Linux/Class... x ▼
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ cat 4.sh
#!/bin/bash
echo "Enter a number"
read num
x=1
for((i=2;i<=num;i++))
{
    x=$((x*i))
}
echo "Factorial is $x"
kailash@18mis1074:~/Linux/Classwork/PreCAT1$
```

OUTPUT:

```
kailash@18mis1074: ~/Linux/Class... x kailash@18mis1074: ~/Linux/Class... x ▼
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ ./4.sh
Enter a number
5
Factorial is 120
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ ./4.sh
Enter a number
7
Factorial is 5040
kailash@18mis1074:~/Linux/Classwork/PreCAT1$
```

5. Write a C program to list for every file in a directory, its inode number and file name.?

PROGRAM:

```
kailash@18mis1074: ~/Linux/Class... x kailash@18mis1074: ~/Linux/Class... x
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ cat 5.c
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
int main(int argc, char *argv[]){
    char dir[50];
    if(argc==2){
        bzero(dir,sizeof(dir)); //making the string dir as zero
        strcat(dir,"ls -l "); //concat ls -l
        strcat(dir,"-i "); //concat -i
        strcat(dir,argv[1]); //concat filename argument
        system(dir);//execute the string using system() function
    }
    else{
        printf("Invalid inputs");
    }
}
kailash@18mis1074:~/Linux/Classwork/PreCAT1$
```

OUTPUT:

```
kailash@18mis1074: ~/Linux/Classwork/PreCAT1
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ ./5.out /home/kailash/Linux/Classwork/PreCAT1
total 48
11276112 -rwxrwxr-x 1 kailash kailash 130 Mar 3 12:50 1.sh
11276113 -rwxrwxr-x 1 kailash kailash 161 Mar 3 13:01 2.sh
11276114 -rwxrwxr-x 1 kailash kailash 206 Mar 3 13:17 3.sh
11276115 -rwxrwxr-x 1 kailash kailash 108 Mar 3 13:29 4.sh
11276116 -rw-rw-r-- 1 kailash kailash 402 Mar 3 13:45 5.c
11276117 -rwxrwxr-x 1 kailash kailash 16832 Mar 3 13:43 5.out
11276109 drwxrwxr-x 2 kailash kailash 4096 Mar 3 13:07 dir1
11276110 drwxrwxr-x 2 kailash kailash 4096 Mar 3 13:07 dir2
11276046 -rwxrwxr-x 1 kailash kailash 0 Mar 3 11:39 file1
11276068 -rwxrwxr-x 1 kailash kailash 0 Mar 3 11:39 file2
11276069 -rw-rw-r-- 1 kailash kailash 0 Mar 3 11:39 file3
11276107 -rwxrwxr-x 1 kailash kailash 0 Mar 3 12:43 file4
11276108 -rw-rw-r-- 1 kailash kailash 0 Mar 3 12:43 file5
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ ./5.out
Invalid inputskailash@18mis1074:~/Linux/Classwork/PreCAT1$
```

6. Write a C Program that demonstrates redirection of standard output to a file
ls>f1.?

PROGRAM:

```
kailash@18mis1074: ~/Linux/Class... × kailash@18mis1074: ~/Linux/Class... × ▼
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ cat 6.c
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
int main(int argc, char *argv[]){
    char dir[100];
    if(argc==2){
        bzero(dir,sizeof(dir)); //make dir as zero
        strcat(dir,"ls ");      //concat ls
        strcat(dir,"> ");      //concat > redirection
        strcat(dir,argv[1]);    //attach path of file
        system(dir);            //execute using system() command
    }
    else{
        printf("\nInvalid input\n");
    }
}
kailash@18mis1074:~/Linux/Classwork/PreCAT1$
```

OUTPUT:

```
kailash@18mis1074: ~/Linux/Class... × kailash@18mis1074: ~/Linux/Class... × ▼
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ gcc -o 6.out 6.c
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ cat file5
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ ./6.out file5
kailash@18mis1074:~/Linux/Classwork/PreCAT1$ cat file5
1.sh
2.sh
3.sh
4.sh
5.c
5.out
6.c
6.out
dir1
dir2
f1
file1
file2
file3
file4
file5
kailash@18mis1074:~/Linux/Classwork/PreCAT1$
```