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CS THIRD YEAR

SECTION : "I"

ROLL NO.: 01

ENROLLMENT NO.: 12019009001127

OPERATING SYSTEMS LABORATORY

ASSIGNMENT 9 and 10

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UNIVERSITY OF ENGINEERING & MANAGEMENT, KOLKATA

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Q1. Write a shell script to check if a given file (filename supplied as command line argument) is a regular file or not and find the total number of words, characters and lines in it.

```
# Finding out the category of the file, no. of words
# lines and characters in it.
# Abhishek S, 2021

file=$1
if [ -f $file ]
then
        echo "File $file exists."
else
        echo "File $file does not exist."
fi
w=`cat $file | wc -w`
c=`cat $file | wc -c`
l=`grep -c "." $file`
echo "Number of words in $file is $w."
echo "Number of characters in $file is $c."
echo "Number of lines in $file is $l."
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ ./assignment.sh assignment.sh
File assignment.sh exists.
Number of words in assignment.sh is 78.
Number of characters in assignment.sh is 410.
Number of lines in assignment.sh is 17.
```

Q2. Write a shell script which reads a directory name and compares the current directory with it (which has more files and how many more files)

```
# Comparing two directories which has more files.
# Abhishek S, 2021

directory=$1
dir1=$pwd
if [ -d $directory ]
then
        count1=$( find $dir1 -type f | wc -l )
        count2=$( find $directory -type f | wc -l )
        if [ $count1 -gt $count2 ]
        then
                echo "Current directory has more files."
        else if [ $count1 -eq $count2 ]
        then
                echo "Current directory has equal files with the other one."
        else
                echo "Current directory has less files than the other."
        fi
        fi
else
        echo "Invalid directory"
fi
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ ./assignment.sh /home/abhisheks008
Current directory has equal files with the other one.
abhisheks008@LAPTOP-9RGGUF05:~$
```

Q3. Write a shell Script which reports names and sizes of all files in a directory (directory should be should be supplied as an argument to the shell script) whose size exceeds 100 bytes. The filenames should be printed in decreasing order of their sizes. The total number of such files should also be reported.

```
# Checking file sizes of different files and
# Calculate the sum of them.
# Abhishek S, 2021

read -p "Enter directory : " -r dir
echo "File names with their sizes : "
echo "------------------------------"
for i in $(find "$dir" -depth)
do
        size=$(stat -c%s "$i")
        if [ $size -gt 100 ]
        then
                echo $i " ----- " $size
        fi
done
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ ./assignment.sh /home/abhisheks008
Enter directory : /home/abhisheks008
File names with their sizes :
------------------------------
/home/abhisheks008/.bashrc  -----  3771
/home/abhisheks008/.bash_history  -----  12982
/home/abhisheks008/.bash_history.swo  -----  16384
/home/abhisheks008/.bash_history.swp  -----  16384
/home/abhisheks008/.bash_logout  -----  220
/home/abhisheks008/.landscape  -----  4096
/home/abhisheks008/.local/share/nano  -----  4096
/home/abhisheks008/.local/share  -----  4096
/home/abhisheks008/.local  -----  4096
/home/abhisheks008/.profile  -----  807
/home/abhisheks008/.viminfo  -----  11283
/home/abhisheks008/assignment.sh  -----  350
/home/abhisheks008  -----  4096
```

Q4. Write a shell Script to concatenate two files and count the number of characters, number of words and number of lines in the resultant file.

```
# Concatenate two files and ten find the size
# Abhishek S, 2021

echo "Enter first filename : "
read first
w1=`cat $first | wc -w`
c1=`cat $first | wc -c`
l1=`grep -c "." $first`

echo "Enter second filename : "
read second
w2=`cat $second | wc -w`
c2=`cat $second | wc -c`
l2=`grep -c "." $second`
w3=$(($w1+$w2))
c3=$(($c1+$c2))
l3=$(($l1+$l2))
echo "Enter the filename where you want to paste : "
read third
cat $first > $third
cat $second > $third
echo "After concatenation of two files : "
cat $third | more
echo "Number of characters in $third is $c3."
echo "Number of words in $third is $w3."
echo "Number of lines in $third is $l3."
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ cat > f1
This is a dummy file named as f1.
abhisheks008@LAPTOP-9RGGUF05:~$ cat > f2
This is another dummy file named as f2.
abhisheks008@LAPTOP-9RGGUF05:~$ cat > f3

abhisheks008@LAPTOP-9RGGUF05:~$ ./assignment.sh
Enter first filename :
f1
Enter second filename :
f2
Enter the filename where you want to paste :
f3
After concatenation of two files :
This is another dummy file named as f2.
Number of characters in f3 is 74.
Number of words in f3 is 16.
Number of lines in f3 is 2.
```

Q5. Write a shell Script that accepts two directory names, say mac1 and mac2 as arguments and delete those files in mac2 which have identical named files in mac1.

```
# Concatenate two files and ten find the size
# Abhishek S, 2021

mac1=$1
mac2=$2
if [ $# -ne 2 ]
then
        echo "$(basename $0) Directory1 Directory2"
        exit 1
fi
if [ ! -d $mac1 ]
then
        echo "Directory $mac1 does not exist."
        exit 2
fi
if [ ! -d $mac2 ]
then
        echo "Directory $mac2 does not exist."
        exit 2
fi
for f in $mac2/*
do
        if [ -f $f ]
        then
                tFile="$mac1/$(basename $f)"
                if [ -f $tFile ]
                then
                        echo -n "Deleting $tFiles...."
                        /bin/rm $tFile
                        [ $? -eq 0 ] && echo "Done!!" || echo "Failed :("
                fi
        fi
done
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ ./assignment.sh D1 D2
Deleting ....Done!!
Deleting ....Done!!
abhisheks008@LAPTOP-9RGGUF05:~$ cd D1
abhisheks008@LAPTOP-9RGGUF05:~/D1$ ls -l
total 0
-rw-r--r-- 1 abhisheks008 abhisheks008 0 Sep 28 10:52 f3
abhisheks008@LAPTOP-9RGGUF05:~/D1$ cd
abhisheks008@LAPTOP-9RGGUF05:~$ cd D2
abhisheks008@LAPTOP-9RGGUF05:~/D2$ ls -l
total 0
-rw-r--r-- 1 abhisheks008 abhisheks008 0 Sep 28 10:52 f1
-rw-r--r-- 1 abhisheks008 abhisheks008 0 Sep 28 10:52 f2
```

Q6. Write a shell script that takes a list of names and displays all information in the password file, where login named are the members of the list.

```
# Showing login details via list
# Abhishek S, 2021

if [ $(id -u) -eq 0 ]; then
        read -p "Enter username : " username
        read -s -p "Enter password : " password
        egrep "^$username" /etc/passwd > /dev/null
        if [ $? -eq 0 ]; then
                echo "$username exists."
                exit 1
        else
                pass=$(perl -e 'print crypt($ARGV[0], "password")' $passowrd)
                useradd -m -p "$pass" "$username"
                [ $? -eq 0 ] && echo "User has been added to the system" || echo "failed :("
        fi
else
        echo "Only root may add a user to the system."
        exit 2
fi
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ vim assignment.sh
abhisheks008@LAPTOP-9RGGUF05:~$ ./assignment.sh
Only root may add a user to the system.
```

Q8. A shell script receives even number of filenames. Suppose four filenames are supplied then the first file should get copied into the second file, the third file should get copied into the fourth file and so on. If odd number of filenames is supplied then no copying should take place and an error message will appear regarding the odd number as input.

```
# Home Assignment Q4
# Abhishek S 2021

checkNo=`expr $# % 2`
if [ $checkNo -ne 0 ]
then
        echo "Enter even number of arguments."
else
        cnt=1
        while [ $cnt -lt $# ]
        do
                cp $1 $2
                shift
                shift
                cnt=`expr $cnt + 2`
        done
fi
```

Output :

```
abhisheks008@LAPTOP-9RGGUF05:~$ ./a10l2.sh f1 f2
abhisheks008@LAPTOP-9RGGUF05:~$ cat f1
This is file 1
abhisheks008@LAPTOP-9RGGUF05:~$ cat f2
This is file 1
```

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