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Subject: Operating System

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Question 1: Write a script to obtain the effect DELETE/CONFIRM command. Generalize it to be used for COPY/CONFIRM and RENAME/ CONFIRM.

Script:

```
printf 'Menu'

printf 'A) Copy file(s)'

printf 'B) Delete file(s)'

printf 'C) Rename file(s)'

echo 'Enter your Choice ->'
read choice

case $choice in
    [aA]) echo 'Enter filename from which to copy ->'
          read Filename
          echo 'Enter filename to copy ->'
          read Des_Filename
          cp -i $Filename $Des_Filename #copy,interactive,source
          sleep 5
          echo 'Copy Completed!'
          continue;;
    [bB]) echo 'Enter Filename ->'
          read Filename
          rm -i $Filename #remove,interactive,source
          echo 'File Deleted!'
          sleep 5
          continue;;
    [cC]) echo 'Enter Filename ->'
          read Filename
          echo 'Enter Filename to Rename ->'
          read newFilename
          mv -i $Filename $newFilename #rename,interactive,source
          sleep 5
          echo 'Renamed!'
          continue;;
esac
```

Figure 1 Shell Script -1

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A1.sh
Menu
A) Copy file(s)
B) Delete file(s)
C) Rename file(s)
Enter your Choice ->
a
Enter filename from which to copy ->
A1.sh
Enter filename to copy ->
1
cp: overwrite '1'? y
Copy Completed!
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A1.sh
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A1.sh
Menu
A) Copy file(s)
B) Delete file(s)
C) Rename file(s)
Enter your Choice ->
1
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A1.sh
Menu
A) Copy file(s)
B) Delete file(s)
C) Rename file(s)
Enter your Choice ->
a
Enter filename from which to copy ->
A2.sh
Enter filename to copy ->
1
cp: overwrite '1'? y
Copy Completed!
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A1.sh
Menu
A) Copy file(s)
B) Delete file(s)
C) Rename file(s)
Enter your Choice ->
c
Enter Filename ->
1
Enter Filename to Rename ->
tmp.sh
Renamed!
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ █
```

Figure 2 Output Shell Script-1

Question 3: Input a file name from a user and find out the complete path for a give file name.

Script:

```
echo 'Enter File ->|'  
read File  
find "$(cd ../; pwd)" -name $File
```

Figure 3 Shell Script-3

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh  
A3.sh  
Enter File ->  
1023  
/media/charvik2020/charvik/education/Sem 5/OS/Lab/1/1023  
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh  
A3.sh  
Enter File ->  
2020  
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$
```

Figure 4 Output Shell Script-3

Question 4: Write a script to broadcast a message to a specified user or a group of users logged on any terminal.

Script:

```
echo "Enter the username:"  
read uid  
write $uid #for broadcast
```

Figure 5 Shell Script-4

Output:

```
charvik2020@charvik2020:~$  
charvik2020@charvik2020:~$  
Message from charvik2020@charvik2020 on pts/1 at 22:58 ...  
hello  
message is broadcast  
^Z  
[3]+  Stopped                  sh A4.sh  
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh  
A4.sh  
Enter the username:  
charvik2020  
write: charvik2020 is logged in more than once; writing to pts/19  
hello  
^Z  
[4]+  Stopped                  sh A4.sh  
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh  
A4.sh  
Enter the username:  
charvik2020  
write: charvik2020 is logged in more than once; writing to pts/21  
hello  
message is broadcast
```

Figure 6 Output Shell Script-4

Question 5: Write a script to copy the files from two directories onto a new directory in such a way that only the latest file is copied, in case there are common files in both the directories

Script:

```
echo "Enter first Directory Name ->"
read dir1 #read directory

echo "Enter second Directory Name ->"
read dir2 #read directory

echo "Enter Destination Directory Name ->|"
read dir #read directory

rsync -avz -u $dir1/* $dir #archive,verbose,compression source
rsync -avz -u $dir2/* $dir
```

Figure 7 Shell Script-5

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh
A5.sh
Enter first Directory Name ->
../tmp
Enter second Directory Name ->
../tmp2
Enter Destination Directory Name ->
../tmp3
sending incremental file list
1_code.png
1_output.png
3_code.png
3_output.png
4_code.png
4_output.png
5_code.png
6_code.png
6_output.png
8_code.png
A1.sh
A10.sh
A11.sh
A2.sh
A3.sh
A4.sh
A5.sh
A6.sh
A8.sh

sent 365,842 bytes  received 377 bytes  732,438.00 bytes/sec
total size is 395,411  speedup is 1.08
sending incremental file list
A22.sh
A23.sh
A26.sh
A32.sh
A33.sh
A34.sh
LabAssignmentsSetI.pdf
awk_a.sh
file.txt

sent 28,022 bytes  received 187 bytes  56,418.00 bytes/sec
total size is 235,441  speedup is 8.35
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$
```

Figure 8 Output Shell Scrit-5

Question 6: Write a script to display the files in the specified directory in the following format: **File Size in KB Date Protection Owner** at the end display total number of files occupying total space.

Script:

```
set `ls -l`  
ls -l |cut -d ' ' -f 5-9 >>file.txt # cut 5 to 9 columns copy content into file  
  
shift 2 # removing unwanted data  
while [ $1 ]  
do  
  
    echo $9 \ $5 \ $6 $7 \ $3 \ $4 #printing required columns  
    shift 9 # shifting for get next file details  
done  
wc -l file.txt # for counting
```

Figure 9 Shell Script-6

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh  
A6.sh  
1023  0   Aug 23  charvik2020  charvik2020  
A10.sh 63  Aug 22  charvik2020  charvik2020  
A11.sh 286 Aug 22  charvik2020  charvik2020  
A12.sh 77  Aug 22  charvik2020  charvik2020  
A15.sh 655 Aug 22  charvik2020  charvik2020  
A16.sh 206 Aug 23  charvik2020  charvik2020  
A16.sh~ 206 Aug 23  charvik2020  charvik2020  
A19.sh 65  Aug 22  charvik2020  charvik2020  
A1.sh 774 Aug 23  charvik2020  charvik2020  
A1.sh~ 762 Aug 23  charvik2020  charvik2020  
A20.sh 40  Aug 22  charvik2020  charvik2020  
A21.sh 73  Aug 22  charvik2020  charvik2020  
A22.sh 58  Aug 22  charvik2020  charvik2020  
A23.sh 107 Aug 22  charvik2020  charvik2020  
A26.sh 109 Aug 22  charvik2020  charvik2020  
A2.sh 144 Aug 22  charvik2020  charvik2020  
A32.sh 3   Aug 22  charvik2020  charvik2020  
A33.sh 52  Aug 23  charvik2020  charvik2020  
A34.sh 102 Aug 23  charvik2020  charvik2020  
A3.sh 64  Aug 23  charvik2020  charvik2020  
A3.sh~ 64  Aug 23  charvik2020  charvik2020  
A4.sh 63  Aug 23  charvik2020  charvik2020  
A4.sh~ 161 Aug 23  charvik2020  charvik2020  
A5.sh 291 Aug 23  charvik2020  charvik2020  
A5.sh~ 291 Aug 23  charvik2020  charvik2020  
A6.sh 294 Aug 23  charvik2020  charvik2020  
A6.sh~ 294 Aug 23  charvik2020  charvik2020  
A8.sh 86  Aug 22  charvik2020  charvik2020  
awk_a.sh 88 Aug 23  charvik2020  charvik2020  
images 4096 Aug 23  charvik2020  charvik2020  
LabAssignmentsSetI.pdf 32641 Aug 15 charvik2020  charvik2020  
tmp.shl 144 Aug 23  charvik2020  charvik2020  
34 file.txt  
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$
```

Figure 10 Output Shell Script-6

Question 8: Write a script to delete zero sized files from a given directory (and all its sub directories).

Script:

```
. for file in *
do
if [ ! -s $file ]; then #zero size file to be deleted
echo 'deleting file '$file
rm -i $file
echo 'Deleted file'$file
fi
done
```

Figure 11 Shell Script-8

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh
A8.sh
deleting file 1023
rm: remove regular empty file '1023'? y
Deleted file1023
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$
```

Figure 12 Output Shell Script-8

Question 10: Write a script to display the name of all executable files in the given directory.

Script:

```
echo "Enter Directory Name:"  
read dir |  
find $dir/* -executable # find executable file in directory
```

Figure 13 Shell Script-10

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh  
A10.sh  
Enter Directory Name:  
./  
./1023  
./A1.sh  
./A1.sh~  
./A10.sh  
./A11.sh  
./A12.sh  
./A15.sh  
./A16.sh  
./A16.sh~  
./A19.sh  
./A2.sh  
./A20.sh  
./A21.sh  
./A22.sh  
./A23.sh  
./A26.sh  
./A3.sh  
./A3.sh~  
./A32.sh  
./A33.sh  
./A34.sh  
./A4.sh  
./A4.sh~  
./A5.sh  
./A5.sh~  
./A6.sh  
./A6.sh~  
./A8.sh  
./LabAssignmentsSetI.pdf  
./awk_a.sh  
./file.txt  
./images  
./images/16_code.png  
./images/16_output.png  
./images/1_code.png  
./images/1_output.png  
./tmp.sh  
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$
```

Figure 14 Output Shell Script-10

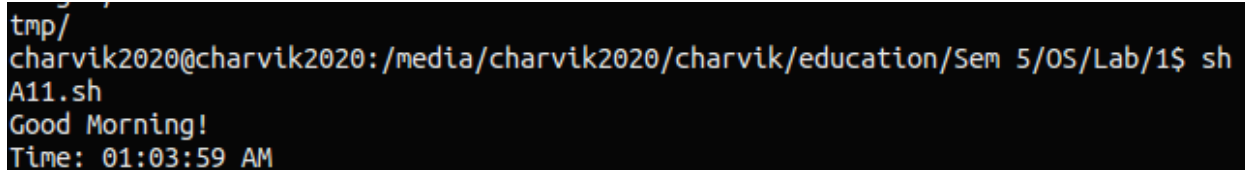
Question 11: Write a script to display the date, time and a welcome message (like Good Morning etc.) The time should be displayed with “a.m.” Or “p.m.” and not in terms of 24 hours’ notation.

Script:

```
t=12 #initail with 12
h=`date |cut -d ' ' -f 4-4 |cut -d ':' -f 1-1` #fetching hour from date (24 hour format)
if [ $h -ge $t ]
then
    echo "Good Afternoon!"
    z=`expr $h - $t` #seting hour in 12hour format
    echo "Time: $z:`date |cut -d ' ' -f 4-4 |cut -d ':' -f 2-3` PM"
else
    echo "Good Morning!" #seting hour in 12hour format
    echo "Time: $h:`date |cut -d ' ' -f 4-4 |cut -d ':' -f 2-3` AM"
fi
```

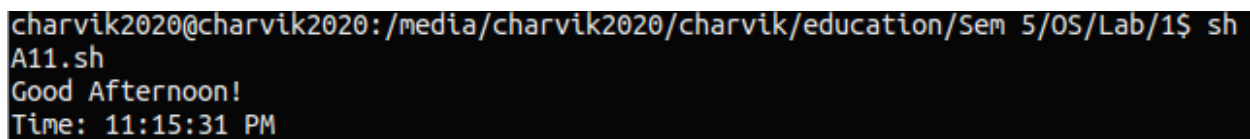
Figure 15 Shell Script-11

Output:



```
tmp/
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh
A11.sh
Good Morning!
Time: 01:03:59 AM
```

Figure 16 Output Shell Script-11(AM)



```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh
A11.sh
Good Afternoon!
Time: 11:15:31 PM
```

Figure 17 Output Shell Script-11(PM)

Question 12: Write a script to display the directory in the descending order of the size of each file.

Script:

```
echo "Enter Directory Name ->|"  
read dir  
du --max-depth=1 $dir/* | sort -nr #estimated file size=1 in given directory,numerical and reverse sort
```

Figure 18 Shell Script-12

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh  
A12.sh  
Enter Directory Name ->  
./  
232    .//images  
32     .//LabAssignmentsSetI.pdf  
4      .//A1.sh~  
4      .//A1.sh  
1      .//tmp.sh  
1      .//file.txt  
1      .//awk_a.sh  
1      .//A8.sh  
1      .//A6.sh~  
1      .//A6.sh  
1      .//A5.sh~  
1      .//A5.sh  
1      .//A4.sh~  
1      .//A4.sh  
1      .//A3.sh~  
1      .//A3.sh  
1      .//A34.sh  
1      .//A33.sh  
1      .//A32.sh  
1      .//A2.sh  
1      .//A26.sh  
1      .//A23.sh  
1      .//A22.sh  
1      .//A21.sh  
1      .//A20.sh  
1      .//A19.sh  
1      .//A16.sh~  
1      .//A16.sh  
1      .//A15.sh  
1      .//A12.sh~  
1      .//A12.sh  
1      .//A11.sh~  
1      .//A11.sh  
1      .//A10.sh~  
1      .//A10.sh  
0      .//1023  
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$
```

Figure 19 Output Shell Script-12

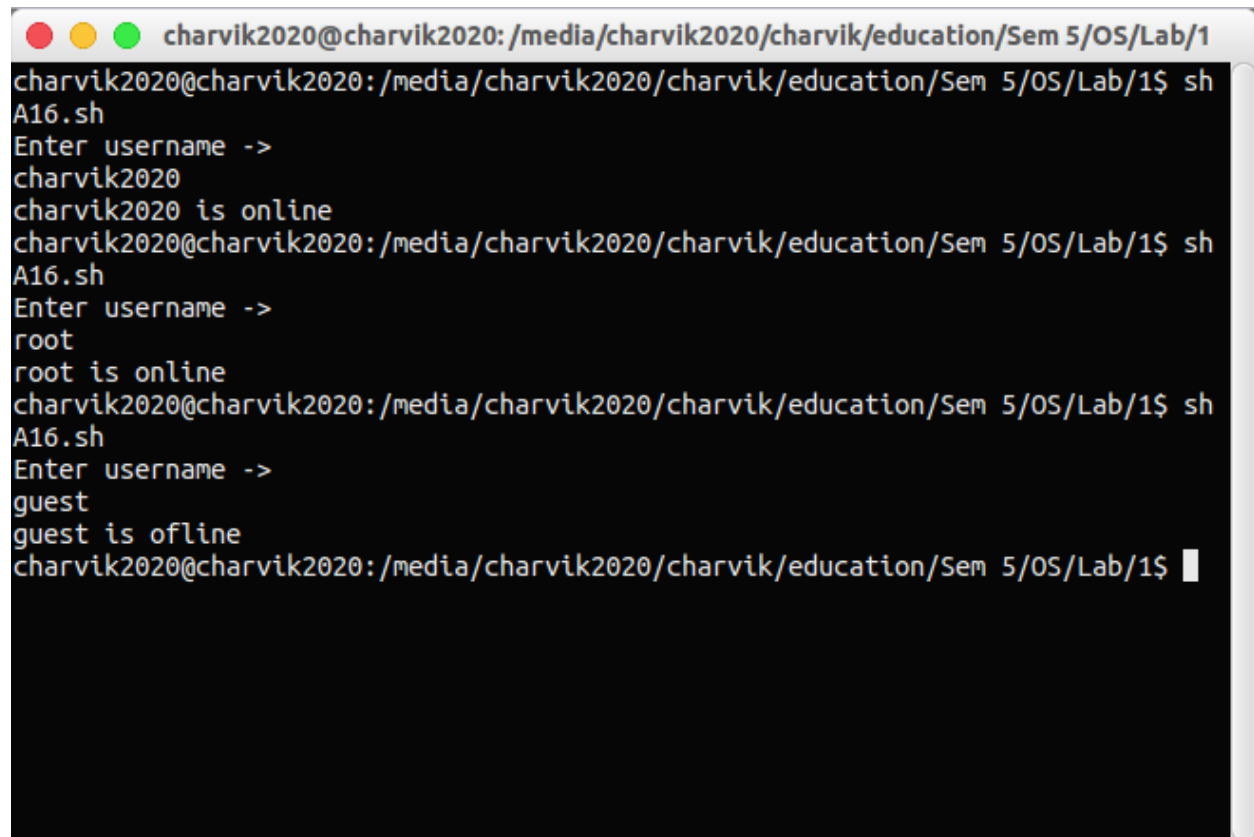
Question 16: Write a shell script to ask for the name of a user, and check whether that user is currently online or not

Script:

```
echo "Enter username ->"
read user
if [ `getent passwd $user | wc -l` -gt 0 ] #details of username with password:groupid:userid and other details
then
echo "$user is online"
else
echo "$user is offline"
fi
```

Figure 20 Shell Script-16

Output:



```
charvik2020@charvik2020: /media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A16.sh
Enter username ->
charvik2020
charvik2020 is online
charvik2020@charvik2020: /media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A16.sh
Enter username ->
root
root is online
charvik2020@charvik2020: /media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A16.sh
Enter username ->
guest
guest is offline
charvik2020@charvik2020: /media/charvik2020/charvik/education/Sem 5/OS/Lab/1$
```

Figure 21 Output Shell Script-16

Question 20: Count the users

Script:

```
getent passwd | wc -l #Details of user, no of lines
```

Figure 22 Shell Script-20

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A20.sh
40
```

Figure 23 Output Shell Script-20

Question 22:

Script:

```
echo "Enter Username -> |"
read user
getent passwd $user #fetch detail from passwd file
```

Figure 24 Shell Script-22

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A22.sh
Enter Username ->
charvik2020
charvik2020:x:1000:1000:charvik2020,,,:/home/charvik2020:/bin/bash
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A22.sh
Enter Username ->
root
root:x:0:0:root:/root:/bin/bash
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A22.sh
Enter Username ->
./
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$
```

Figure 25 Output Shell Script-22

Question 26: List detailed attributes of all files that have names beginning with “po” followed by either 1,2,3,4, or 5

Script:

```
ls -la | grep "po[12345]" #it will fetch file with name po and followed by 1,2,3,4,5
```

Figure 26 Shell Script-26

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A26.sh
-rwxrwxrwx 1 charvik2020 charvik2020 0 Aug 24 00:13 po1
-rwxrwxrwx 1 charvik2020 charvik2020 0 Aug 24 00:14 po3
-rwxrwxrwx 1 charvik2020 charvik2020 0 Aug 24 00:14 po52
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$
```

Figure 27 Output Shell Script-26

Question 33: List all subdirectory names

Script:

```
echo "Enter Path ->"
read path
cd $path
ls -F | grep /
```

Figure 28 Shell Script-33

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh A33.sh
Enter Path ->
./
images/
tmp/
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$
```

Figure 29 Output Shell Script-33

Question 34: List files others can read and write

Script:

```
ls -la | cut -c 8,9,47- | grep rw # cut 8,9 char and 47 onwards and grep will search for rw
```

Figure 30 Shell Script-34

Output:

```
drwxr-xr-x  4 charvik2020 charvik2020 4096 Aug 24 00:47 .
drwxr-xr-x 25 charvik2020 charvik2020 4096 Aug 24 00:42 ..
-rw-rw-r--  1 charvik2020 charvik2020   0 Aug 24 00:47 1
-rw-rw-r--  1 charvik2020 charvik2020  18 Aug 21 21:54 1.c
-rw-rw-r--  1 charvik2020 charvik2020  22 Aug 21 21:54 2.c
-rwx-----  1 charvik2020 charvik2020  72 Aug 24 00:42 A34.sh
-rw-rw-r--  1 charvik2020 charvik2020 4161 Feb 24 14:19 Cap.html~
drwxrwxr-x  3 charvik2020 charvik2020 4096 Aug 10 10:25 Charvik
drwxrwxr-x  4 charvik2020 charvik2020 4096 Aug 23 22:37 OS_Lab
charvik2020@charvik2020:~/Desktop$ chmod 777 2.c
charvik2020@charvik2020:~/Desktop$ chmod 777 1.c
charvik2020@charvik2020:~/Desktop$ sh A34.sh
Enter Path
./
rw 21 21:54 1.c
rw 21 21:54 2.c
charvik2020@charvik2020:~/Desktop$
```

Figure 31 Output Shell Script-34

Question awk_a: Print name and time of login sorted by time

Script:

```
w | awk '{print $1,$4}' | awk 'FNR>=3' | sort -k 2 #login detail,print column 1 & 4,print from 3 line, sort with key column 2
```

Figure 32 Shell Script-awk(a)

Output:

```
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$ sh
awk_a.sh
charvik2 21:22
charvik2 22:54
charvik2020@charvik2020:/media/charvik2020/charvik/education/Sem 5/OS/Lab/1$
```

Figure 33 Output Shell Script-awk(a)