UNIX AND SHELL PROGRAMMING

4. Shell Script

a) Write a shell script that takes a command –line argument and reports on whether it is directory, a file or something else

Aim: to a shell script that takes a command –line argument and reports on whether it is directory, a file or something else

Program:

[20A91A0568@Linux ~] $ vi program.sh

```
echo "Enter a file name:"
read file
if [ -f $ file ]
then
echo "  yes  it is a File"
elif [ -d $file ]
then
echo "yes it is a Directory"
else
echo "name not in the list"
fi
```

OUTPUT:

[20A91A0568@linux~]$sh program.sh

Enter a file name:

Program.sh

Yes it is a Directory

b) write a shell script to find Factorial of a number

[20A91A0568@Linux ~]$ vi fact.sh

```
echo "enter a number:"
read num
i=1
counter=1
fact=1
while [ $num -ge $counter ]
do
fact=`expr $fact \* $counter`
counter=`expr $counter + 1`
done
echo "the factorial of $num is : $fact"
```

OUTPUT:

[20A91A0568@Linux ~]$ sh fact.sh

```
enter a number:
5
the factorial of 5 is : 120
```

5. Shell Script

a) Write a shell script that determines the period for which a specified user is working on the system.

Aim: to a shell script that determines the period for which a specified user is working on the system .

[20A91A0568@Linux ~]$ vi user.sh

```
echo "enter the login of the user:"
read name
logindetails=`who|grep -w "$name"|grep "tty"`
if [$? -ne 0]
then
echo "$name has not logged in yet"
exit
fi

loginhours=`echo "$logindetails"|cut -c 26,27`
loginminutes=`echo "$logindetails"|cut -c 29-30`
hournow=`date|cut -c 12,13`
minnow=`date|cut -c 15,16`
hour=`expr $loginhours-$hournow`
min=`expr $loginminute-$minnow`
echo "$name is working since $hour hrs $min minutes"
```

output:

[20A91A0568@Linux ~]$ sh user.sh

```
enter the login of the user:
20A91A0568
20A91A0568 is working since -11 hrs -07 minutes
```

5 b)shell script that accepts a file name ,starting and ending line numbers as arguments and display all the lines between the given lines

Aim:to a shell script that accepts a file name starting and ending line numbers as arguments and displays all the lines between the given line numbers.

[20A91A0568@Linux ~]$ vi displaylines.sh

```
echo "enter a filename:"
read file
echo "enter the starting line:"
read s
echo "enter the ending line:"
read n
sed -n $s,$n\p $file|cat >newline
cat newline
```

OUTPUT

```
[20A91A0568@Linux ~]$ sh displaylines.sh
enter a filename:
mss
enter the starting line:
1
enter the ending line:
4
hi
hello
aditya hi
RK hi
```

6. Shell Script Write a shell script that computes the gross salary of a employee according to the following rules:

i) If basic salary is < 1500 then HRA =10% of the basic and DA =90% of the basic.

ii) If basic salary is >=1500 then HRA =Rs500 and DA=98% of the basic. The basic salary is entered interactively through the key board.

Aim: a shell script that computes the gross salary of a employee according to the following rules

[20A91A0568@Linux ~] $ vi salary.sh

```
echo "enter basic salary:"
read bs
if [ $bs -lt 1500 ]
then
hra=`echo $bs\*10/100|bc`
da=`echo $bs\*90/100|bc`
else
hra=500
da=`echo $bs\*98/100|bc`
fi
gs=`echo $bs+$hra+$da|bc`
echo "DA $da"
echo "HRA $hra"
echo "gross salary $gs"
```

OUTPUT:

```
[20A91A0568@Linux ~]$ sh salary.sh
enter basic salary:
100
DA 90
HRA 10
gross salary 200
```

Q)GREP SCRIPT THAT ASKS FOR A WORD AND A FILE NAME AND TELLS HOW MANY LINES CONTAINS THAT FILE

[20A91A0568@Linux ~]$ vi hlines.sh

```
echo "enter a word:"
read w
echo "enter a file name:"
read f
no1=`grep -c "$w" $f`
echo "the number of lines are :"$no1
```

OUTPUT:

[20A91A0568@Linux ~]$ shhlines.sh

```
enter a word:
hi
enter a file name:
mss
the number of lines are :8
```

Q) TO FIND LENGTH OF A STRING USING SHELL SCRIPT

[20A91A0568@Linux ~] $ vi length.sh

```
echo "enter a string:"
read string
l=`echo $string|wc -c`
echo "length of string is =$l"
```

OUTPUT:

```
[20A91A0568@Linux ~]$ sh length.sh
enter a string:
aditya
length of string is =6
```

Q)SHELL SCRIPT TO CONCATENATE TWO STRINGS

[20A91A0568@Linux ~] $ vi concatenate.sh

```
echo "enter a first string:"
read s1
echo "enter a second string:"
read s2
s3=$s1$s2
echo "concatenated string is $s3"
```

OUTPUT:

```
[20A91A0568@Linux ~]$ sh concatenate.sh
enter a first string:
aditya
enter a second string:
engg
concatenated string is adityaengg
```

Q) Write a shell script to accept emp no, emp name, basic salary and find the DA, HRA, TA, PF, IT using the following rules

1. If basic salary>5000 then

HRA=18% OF BASICSAL

PF=13% OF BASICSAL

IT=14% OF BASICSAL

TA=10% OF BASICSAL

DA=35% OF BASICSAL

2. If basic salary<5000 then

HRA=550

PF=13% OF BASICSAL

IT=14% OF BASICSAL

TA=10% OF BASICSAL

DA=35% OF BASICSAL

[**20A91A0568@Linux ~]$ vi employe.sh**

```
echo "enter employee no:"
read empno
echo "enter employee name:"
read empname
echo "enter basic salary:"
read bs
if [ $bs -lt5000 ]
then
hra=550
da=`echo $bs\*35/100|bc`
pf=`echo $bs\*13/100|bc`
it=`echo $bs\*14/100|bc`
ta=`echo $bs\*10/100|bc`
else
hra=`echo $bs\*18/100|bc`
da=`echo $bs\*35/100|bc`
pf=`echo $bs\*13/100|bc`
```

```
it=`echo $bs\*14/100|bc`
ta=`echo $bs\*10/100|bc`
fi
gs=`echo $bs+$hra+$da+$pf+$it+$ta|bc`
echo "DA $da"
echo "HRA $hra"
echo "PF $pf"
echo "IT $it"
echo "TA $ta"
echo "GROSS SALARY $gs"
```

OUTPUT:

```
[20A91A0568@Linux ~]$sh employe.sh
enter employee no:
123
enter employee name:
aditya
enter basic salary:
15000
DA 5250
HRA 2700
PF 1950
IT 2100
TA 1500
GROSS SALARY 28500

[20A91A0568@Linux ~]$sh employe.sh
enter employee no:
456
enter employee name:
RK
enter basic salary:
```

1200

DA 420

HRA 550

PF 156

IT 168

TA 120

GROSS SALARY 2614

7. Shell Script

a) Write a shell script that accepts two integers as its arguments and computes the value of first number raised to the power of the second number.

Aim:to a shell script that accepts two integers as its arguments and computes the value of first number raised to the power of the second number**.**

[20A91A0568@Linux ~]$ vi power.sh

```
if [ $# -ne 2 ]
then
echo "invalid number of arguments"
exit
fi
pwr=`echo $1^$2|bc`
echo "$1 raised to $2 is $pwr"
```

OUTPUT:

```
[20A91A0568@Linux ~]$sh power.sh 2 3
2 raised to 3 is 8
```

7 b) Write a shell script which will display Armstrong number from given arguments.

Aim: to ashell script which will display Armstrong number from given arguments.

[20A91A0568@Linux ~]$ vi armstrong.sh

```
for n in $*
do
t=$n
sum=0
while [ $n -ne 0 ]
do
r=`expr $n % 10`
sum=`expr $sum + $r \* $r \* $r`
n=`expr $n / 10`
done
if [ $t -eq $sum ]
then
echo $t is armstrong number
else
echo $t is not armstrong number
fi
done
```

OUTPUT:

```
[20A91A0568@Linux ~]$sh armstrong.sh 153
153 is armstrong number
[20A91A0568@Linux ~]$sh armstrong.sh 125
125 is not armstrong number
```

8.

Shell Script

Write an interactive file-handling shell program. Let it offer the user the choice of copying, removing, renaming, or linking files. Once the user has made a choice, have the program ask the user for the necessary information, such as the file name, new name and so on.

[20A91A0566@Linux ~]$ vi filehandling.sh

```
echo 1.copy
echo 2.rename
echo 3.remove
echo 4.link
echo 5.exit
echo "enter your choice"
read ch
case $ch in
1) echo "enter the source file"
read s
echo "enter the destination file"
read d
cp $s $d
;;
2) echo "enter old file name"
read of
echo "enter the new filename"
read nf
mv $of $nf
;;
3) echo "enter the filename to delete"
read df
rm $df
;;
4) echo "enter file 1"
read f1
```

```
echo "enter file 2"
read f2
ln $f1 $f2
;;
5) exit 0
;;
esac
```

OUTPUT

```
[20A91A0568@Linux ~]$sh filehandling.sh
1.copy
2.rename
3.remove
4.link
5.exit
enter your choice
1
enter the source file
a.txt
enter the destination file
b.txt
[20A91A0568@Linux ~]$sh filehandling.sh
1.copy
2.rename
3.remove
4.link
5.exit
enter your choice
2
enter old file name
b.txt
enter the new filename
d.txt
```