Linux Questions

LPIC-1 Practice

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Command Examples

1- Write a command to change the "Welcom to iran" to "(w)elcom (t)o (i)ran".

`echo Welcom to iran | sed 's/\b\([[:alnum:]]\)/(\1)/g'`

2- Write a command to show number of CPU cores.

`cat /proc/cpuinfo | grep processor`

3- Write a command to change [root@smile]/~ to ok_there$ and after that set to default.

username `\u`
hostnaem `\H`
current path `\w`
set color `\e`
$ or # `\$`

`PS1=ok_there$`

mohammad@smile_pc$

`PS1="\e[40;0;32m\u@\H \e[40;0;37m : \e[40;0;34m \w \e[40;0;37m \$"`

4- Write a command to get age from csv file and show sum of them.

`cat age.csv | sed 's/,/ /g'| awk 'BEGIN {sum=0} {sum=sum+$2} END{print sum}'`

5- Write a command to show just uptime.

`uptime | cut -f5 -d " "`

6- Write a command to get 1th, 3th, 5th column from a file.

`cat info.txt | cut --fields=1,3,5`

7- Write a command with regex to show result of ls like this:
color,Color,Colour.colour

`ls | \b[cC]olou?r\b`

8- Write a command to read a csv file and convert it to json file.

`sed 's/\([^,]*\),\([^,]*\)/"name":"\1","age":"\2"/' age.csv >> age.json`

9- Write a command to find *.log files and create a copy of them to the text file and same names.

```
find . -type f -name "*.log" -exec cp "{}" "{}.txt" \;
```

10- Write a command to read a csv file and it doesn't show the headers.

```
cat test.csv | tail -n +3 | sort
```

Shell Script

0- How to create shell script?

- Create *.sh file

- Write shebang

- change *.sh to execution file

- $./*.sh

1- Write a shell script to get current date, time, user name and current working directory.

```bash
#!/bin/bash
echo "Hello, $LOGNAME"
echo "Current date is `date`"
echo "User is `whami`"
echo "Current directory `pwd`"
```

2- Write a Shell Script that adds two numbers if provided as the command Line Argument and if the two numbers are not entered it outputs an Error Message along with a one-Line of how-to use description.

```bash
#!/bin/bash
echo "sum of $1 and $2 is `expr $1 + $2`"
if [ $# -ne 2 ]
then
echo "please enter your number like this ./sum.sh x y"
fi
```

```
./sum.sh 5 2
```

3- You needs to print a given Number say 10572, in reverse order using a Shell script such that the input is provided using command Line Argument only. If the input data is not provided as Command Line Argument, it should throw and error and should suggest, how to use the script. Write the script but before that tell me the algorithm that needs to be implemented here.

1. Let the Input Number = n

2. Set rev=0, sd=0 (Reverse and single digitis set to 0)

3. n % 10, will find and give single left most digit

4. reverse number is generated as rev * 10 + sd

5. Decrease Input Number (n) by 1.

6. if n > 0, then goto step 3 else goto setp 7

7. Print rev

```bash
#!/bin/bash
if [ $# -ne 1 ]
then
    echo "Usage: $0    number"
    echo "       I will find reverse of given number"
    echo "       For eg. $0 0123, I will print 3210"
    exit 1
fi

n=$1
rev=0
sd=0

while [ $n -gt 0 ]
do
    sd=`expr $n % 10`
    rev=`expr $rev \* 10  + $sd`
    n=`expr $n / 10`
done
    echo  "Reverse number is $rev"
```

4- You are supposed to calculate a real number calculation directly from terminal and not any shell script

```
echo 7.56 + 2.453 | bc
```

5- Write a script to show 1 to 5 with while loop.

```bash
#!/bin/bash
flag=true
count=0
while [ $flag ]
do
echo $count
if [ $count -eq 5 ]
then
break
fi
((count++))
done
```

6- Write a script to show 1 to 5 with for loop.

```bash
for (( i=0 ; i<10 ; i++ ))
do
        echo $i
done
```

7- Write a script to get a number digits and show it is 1 digit or no.

```bash
#!/bin/bash
read n
if [ $n -lt 10 ]
then
        echo "one dogots"
else
        echo "noooooo"
fi
```

8- Write a script to get a username and password and check them.

```bash
!/bin/bash

echo "Enter username"
read username
echo "Enter password"
read password

if [[ ( $username == "admin" &&
$password == "secret" ) ]];
then
echo "valid user"
else
echo "invalid user"
fi
```

9- Write a script to get a input from user and if input=101 and 510 get a price else show a message.

```bash
!#/bin/bash

echo "enter you numbner:"
read n
case $n in
101)
        echo "price 1";;
```

```bash
510)
        echo "price 2";;
*)
        echo "Sorry, try for the next time";;
esac
```

10- Combine String variables.

```bash
#!/bin/bash
echo "Please enter input 1:"
read var1
echo "Please enter input 2:"
read var2
var3=m $var1+$var2
var3+=" this is good"
echo $var3
```

11- Get substring of String

```bash
#!/bin/bash
Str="Learn Linux from LinuxHint"
subStr=${Str:6:5}
echo $subStr
```

12- Sum of numbers.

```bash
#!/bin/bash
echo "Please enter input 1:"
read var1
echo "Please enter input 2:"
read var2
((sum=var1+var2))
echo "sum is : $sum"
```

13- Create a function and call it

```bash
#!/bin/bash
function f1()
{
        echo "salam"
}
f1
```

14- Write a function to show the rectangle area.

```bash
#!/bin/bash

Rectangle_Area() {
area=$(($2 * $1))
echo "Area is : $area"
}


Rectangle_Area 10 20
```

15- Write a script to Make a directory by checking existence.

```bash
#!/bin/bash
echo "Please enter directory name: "
read dirname
if [ -d $dirname ]
then
        echo "file exist"
else
        `sudo mkdir $dirname`
fi
```

16- Write a script to send a mail to a destination.

```bash
#!/bin/bash
echo "Please enter destination address:"
read Recipient
echo "Please enter subject:"
read Subject
echo "Please enter Message:"
read Message
`mail -s $Subject $Recipient <<< $Message`
```

17- Write a script to create n directory in current location. they name should start with a and end with d[number].

```bash
#!/bin/bash
echo "Please enter number of directory: "
read n
for (( i=0 ; i<$n ; i++ ))
do
        `sudo mkdir ad$i`
done
```

18- Write a script to get a username from user and just wait for 10 sec. if user didn't write it, show a message.

```bash
#!/bin/bash
read -t 10 -p "please enter your name  " NAME
if [ -s $NAME ]
then
        echo "sorry,please enter you name"
else
        echo "welcome $NAME"
fi
```

19- Write a script to show number of file and disk usage on home.

```bash
#!/bin/bash
    DIR="/home/mohammad/"
    NUM=$(ls -1 $DIR | wc -l)
    DISK=$(du -hs $DIR)
    echo $NUM $DISK | mail -s "User Usage" root
```

20- Write a script to check two text files together and show the message.

```bash
#!/bin/bash
rm ./compare
cmp $1 $2 1> compare
if [ -s ./compare ]
then
    echo "There are some differences"
else
    echo "There aren't any differences"
fi
```

21- Write a script to split a file to 3 part and send it to the 192.168.1.10 .

```bash
#!/bin/bash
    split -n 3 -d $1 ok
    scp /source/ok* alone@192.168.1.10:/destination
```

A simple project

1- Connect to the 192.168.1.2 with username : mohammadmahdi

```
ssh mohammadmahdi@172.0.0.1
```

2- Get list of all files and directories to end of /var and save it to var.txt .

`tree /var > var.txt`

3- Get log file from var.txt and save it on varlog.txt.

`cat var.txt | grep log > varlog.txt`

4- Get kernel log file from varlog.txt and save it on varlogkernel.txt

`cat varlog.txt | grep kern > varlogkern.txt`

5- Create a user with name ali.

`adduser ali`

6- Change varlogkernel owner to ali.

`chown ali:ali varlogkernel.txt`

7- Change permission to 700.

`chmod 700 varlogkernel.txt`

8- Just ali can read varlogkernel.txt.

```
chown ali:ali varlogkernel.txt
chmod 400 varlogkernel.txt
```

9- Wtite a service to run a script every one minutes. script name is thisTime.sh .

```
date >> date.txt
```

```
crontab -e
    *1 * * * * ./thisTime.sh
```

cat date.txt .

Project

How to block a cool disk?

(When you connect cool disk to sysytem, it couldn't mount and show)

1- We need some information about cool disk :
SUBSYSTEM,
ENV{DEVTYPE},
ENV{ID_SERIAL_SHORT},
ENV{ID_VENDOR_ID}

Get this information from

`udevadm info /dev/sdb1`

2- Go to this directiry

`/etc/udev/rules.d`

3- Create a file like this : *.rules

```
touch blockCoolDisk.rules
```

4- And write cool disk information like this template

```
ACTION=="add or change or remove" ,
SUBSYSTEM=="block" ,
ENV{DEVTYPE}=="partition",
ENV{ID_SERIAL_SHORT}=="23RA7A1HRZWE" ,
ENV{ID_VENDOR_ID}=="8564" ,
RUN+="/bin/behnam.sh %P '%E{DEVNAME}'"
```

5- Create a script

```
#!/bin/bash
echo "this is ok $1 - $2 " > /home/mohammadm/temp.log
rm -rf /dev/$1*
or
#umount "/media/mohammad/Local" &> /tmp/aa
```