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5 Shell Scripts for Linux Newbies to Learn Shell Programming – Part II

 By [Avishek Kumar](#) Under: [Bash Shell](#) On: **July 16, 2013**
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Quiz 3: Take "Test Yourself" Online Exam and Get Famous

To Learn something you need to do it, without the fear of being unsuccessful. I believe in practicality and hence will be accompanying you to the practical world of Scripting Language.



Learn Basic Shell Scripting

This article is an extension of our First article [Understand Linux Shell and Basic Shell Scripting – Part I](#), where we gave you a taste of Scripting, continuing that we won't disappoint you in this article.

Script 1: Drawing a Special Pattern

```
#!/bin/bash
MAX_NO=0
echo -n "Enter Number between (5 to 9) : "
read MAX_NO
if ! [ $MAX_NO -ge 5 -a $MAX_NO -le 9 ] ; then
    echo "WTF... I ask to enter number between 5 and 9, Try Again"
    exit 1
fi
clear
for (( i=1; i<=MAX_NO; i++ )) do          for (( s=MAX_NO; s>=i; s-- ))
do
    echo -n " "
done
for (( j=1; j<=i; j++ ))          do          echo -n " ."          done          echo "" done ##### Second stage #####
do
for (( s=i; s<=MAX_NO; s++ ))
do
    echo -n " "
done
for (( j=1; j<=i; j++ ))
do
    echo -n " ."
done
echo ""
done
echo -e "\n\n\t\t\t\t\t Whenever you need help, Tecmint.com is always there"
```

Most of the above **'key words'** would be known to you and most of them are self explanatory. e.g., **MAX** sets the maximum value of the variable, **for** is a loop and anything within the loop gets on executing again and again till the loop is valid for given value of input.

Sample Output

```
[root@tecmint ~]# chmod 755 Special_Pattern.sh
[root@tecmint ~]# ./Special_Pattern.sh
Enter Number between (5 to 9) : 6
```

```
.
.
.
.
.
```



Whenever you need help, Tecmint.com is always there

If you are a little aware of any programming language, learning the above script is not difficult, even if you are new to computation, programming and Linux it is not going to be much difficult.

[Download Special_Pattern.sh](#)

Script 2: Creating Colorful Script

Who says, **Linux is colorless** and boring, save the codes below to anything **[dot] sh**, make it executable and Run it, don't forget to tell me how it was, Think what you can achieve, implementing it somewhere.

```
#!/bin/bash
clear
echo -e "\033[1m Hello World"
# bold effect
echo -e "\033[5m Blink"
# blink effect
echo -e "\033[0m Hello World"
# back to normal
echo -e "\033[31m Hello World"
# Red color
echo -e "\033[32m Hello World"
# Green color
echo -e "\033[33m Hello World"
# See remaining on screen
echo -e "\033[34m Hello World"
echo -e "\033[35m Hello World"
echo -e "\033[36m Hello World"
echo -e -n "\033[0m"
# back to normal
echo -e "\033[41m Hello World"
echo -e "\033[42m Hello World"
echo -e "\033[43m Hello World"
echo -e "\033[44m Hello World"
echo -e "\033[45m Hello World"
echo -e "\033[46m Hello World"
echo -e "\033[0m Hello World"
```

Note: Don't bother about the color code now, Those important to you will be at your tongue, gradually.

Warning: Your terminal might not have the facility of blinking.

Sample Output

```
[root@tecmint ~]# chmod 755 Colorfull.sh
[root@tecmint ~]# ./Colorfull.sh
```

```
Hello World
Blink
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
```

```
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
```

[Download Colorfull.sh](#)

Script 3: Encrypt a File/Directory

This script will encrypt a **file** (remember? **directory/driver/....** everything is treated as file, in **Linux**). The current limitation of the above script is that it don't support auto completion of name using **TAB**. Moreover, you need to place the script and file to be encrypted in the same folder. You may need to install "**pinentry-gui**", using **yum** or **apt** the package, if required.

```
[root@midstage ~]# yum install pinentry-gui
[root@midstage ~]# apt-get install pinentry-gui
```

Crete a file called "**Encrypt.sh**" and place the following script, make it executable and run it as shown.

```
#!/bin/bash
echo "Welcome, I am ready to encrypt a file/folder for you"
echo "currently I have a limitation, Place me to thh same folder, where a file to be
encrypted is present"
echo "Enter the Exact File Name with extension"
read file;
gpg -c $file
echo "I have encrypted the file successfully..."
echo "Now I will be removing the original file"
rm -rf $file
```

Sample Output

```
[root@tecmint ~]# chmod 755 Encrypt.sh
[root@tecmint ~]# ./Encrypt.sh
```

```
Welcome, I am ready to encrypt a file/folder for you
currently I have a limitation, Place me to the same folder, where a file to be
```

```
encrypted is present
Enter the Exact File Name with extension
```

```
package.xml
```

Enter passphrase

Passphrase *****

<OK>

<Cancel>

Please re-enter this passphrase

Please re-enter this passphrase

Passphrase *****

<OK>

<Cancel>

```
I have encrypted the file successfully...
Now I will be removing the original file
</pre>
```

gpg -c : This will encrypt your file, using a passkey aka **password**. In this process of learning you would have never thought

that the actual process of learning could be that much easy. So after encrypting a file what you need? Obviously! decrypting the file. And I want you – the learner, the reader to write the decryption script yourself, don't worry I am not leaving you in the middle, I just want you to gain something out of this article.

Note: `gpg -d filename.gpg > filename` is what you need to implement in your decryption script. You may post your script in comment if successful, if not you may ask me to write it for you.

[Download Encrypt.sh](#)

Script 4: Checking Server Utilization

Checking the server utilization is one of the important task of an administrator, and a good administrator is one who knows how to automate his day to day task. Below is the script that will give many such information about your server. Check it yourself.

```
#!/bin/bash
date;
echo "uptime:"
uptime
echo "Currently connected:"
w
echo "-----"
echo "Last logins:"
last -a |head -3
echo "-----"
echo "Disk and memory usage:"
df -h | xargs | awk '{print "Free/total disk: " $11 " / " $9}'
free -m | xargs | awk '{print "Free/total memory: " $17 " / " $8 " MB"}'
echo "-----"
start_log=`head -1 /var/log/messages |cut -c 1-12`
oom=`grep -ci kill /var/log/messages`
echo -n "OOM errors since $start_log : " $oom
echo ""
echo "-----"
echo "Utilization and most expensive processes:"
top -b |head -3
echo
top -b |head -10 |tail -4
echo "-----"
echo "Open TCP ports:"
nmap -p- -T4 127.0.0.1
echo "-----"
echo "Current connections:"
ss -s
echo "-----"
echo "processes:"
ps auxf --width=200
echo "-----"
echo "vmstat:"
vmstat 1 5
```

Sample Output

```
[root@tecmint ~]# chmod 755 Server-Health.sh
[root@tecmint ~]# ./Server-Health.sh

Tue Jul 16 22:01:06 IST 2013
uptime:
 22:01:06 up 174 days,  4:42,  1 user,  load average: 0.36, 0.25, 0.18
Currently connected:
 22:01:06 up 174 days,  4:42,  1 user,  load average: 0.36, 0.25, 0.18
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
tecmint   pts/0    116.72.134.162  21:48    0.00s  0.03s  0.03s sshd: tecmint [priv]
-----
Last logins:
tecmint   pts/0    Tue Jul 16 21:48    still logged in   116.72.134.162
tecmint   pts/0    Tue Jul 16 21:24 - 21:43  (00:19)          116.72.134.162
-----
Disk and memory usage:
```

```
Free/total disk: 292G / 457G
Free/total memory: 3510 / 3838 MB
-----
OOM errors since Jul 14 03:37 : 0
-----
Utilization and most expensive processes:
top - 22:01:07 up 174 days,  4:42,  1 user,  load average: 0.36, 0.25, 0.18
Tasks: 149 total,   1 running, 148 sleeping,   0 stopped,   0 zombie
Cpu(s):  0.1%us,   0.0%sy,   0.0%ni, 99.3%id,   0.6%wa,   0.0%hi,   0.0%si,   0.0%st

  PID USER      PR  NI  VIRT  RES  SHR S %CPU  %MEM    TIME+  COMMAND
    1 root        20   0  3788 1128  932 S   0.0   0.0   0:32.94 init
    2 root        20   0     0    0    0 S   0.0   0.0   0:00.00 kthreadd
    3 root        RT   0     0    0    0 S   0.0   0.0   0:14.07 migration/0
```

Note: I have given you the script that gives the output in the terminal itself, how about getting the output in a file for future reference. Implement it using redirect operator.

1. ‘>’ : the redirection operator causes a file creation, and if it does exist, the contents are overwritten.
2. ‘>>’ : when you use >>, you are adding information, rather than replacing it.
3. ‘>>’ is safe, as compared to ‘>’

[Download Server-Health.sh](#)

Script 5: Check Disk Space and Sends an Email Alert

How about getting an email when disk use in partition **PART** is bigger than Maximum allowed, it is a life saver script for web administrators with little modification.

```
MAX=95
EMAIL=USER@domain.com
PART=sda1
USE=`df -h |grep $PART | awk '{ print $5 }' | cut -d'%' -f1`
if [ $USE -gt $MAX ]; then
    echo "Percent used: $USE" | mail -s "Running out of disk space" $EMAIL
fi
```

Note: Remove “USER” with your user name. You can check mail using using ‘mail’ command.

[Download Check-Disk-Space.sh](#)

Script writing and programming is beyond boundaries, anything and everything could be implemented as required. That’s all for now, In my very next article I will be giving your some different flavors of scripting. Till then stay cool and tuned, enjoy.

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Avishek Kumar

I am a major in computer science, love to research nix. I love to write codes and scripts, review distros, experiment Foss Technologies, write technical articles, Hack, of course Ethically. I am working as System Administrator (nix) for a NGO.



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9 Responses

1. *Ganesh* says:
[July 17, 2013 at 8:58 am](#)
Great work. Kept it up...
[Reply](#)

2. *Hari* says:
[July 17, 2013 at 8:17 pm](#)

Hello,
the tips u r giving is very helpful for me, thanks a lot
can u plz put debian based command for Ubuntu
its main configuration file location etc....

[Reply](#)

○ *Avishek* says:

[July 18, 2013 at 10:43 pm](#)

ThanKs Hari, for the good words about our Article, we will continue to provide you, valueable articles of this kind.
However Your question was not clear, hence we are not able to understand your problem.

Debain based command for ubuntu???

Ubuntu is a derivative of Debian, and more or less all the programs will run on ubuntu as smooth as on Debian.
Which Kind of Configuration File you Need to edit?
Please Tell us your problem in details and be clear in language. We will be Happy to help you.

[Reply](#)

3. *zhangbufan* says:

[July 17, 2013 at 10:21 pm](#)

great ! where is the part one?

[Reply](#)



○ *Ravi Saive* says:

[July 18, 2013 at 6:53 pm](#)

We already included Part I in this article above, check once again.

[Reply](#)

○ *Avishek* says:

[July 18, 2013 at 10:38 pm](#)

part 1: <http://www.tecmint.com/understand-linux-shell-and-basic-shell-scripting-language-tips/>

Next article of this series will be available soon, keep visiting Tecmint.com

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4. *sivakumar* says:

[July 19, 2013 at 7:06 am](#)

I am getting error while running pattern sample script

```
./drawing2.sh: line 15: syntax error near unexpected token `do'
./drawing2.sh: line 15: `do'
```


[Reply](#)

5. *nipun* says:

[July 27, 2013 at 6:40 pm](#)

superb work avishek...really helpful for me!!!!

[Reply](#)

6. *kirti nandan* says:

[October 8, 2013 at 2:58 am](#)

Awosome work dear.....well explained.

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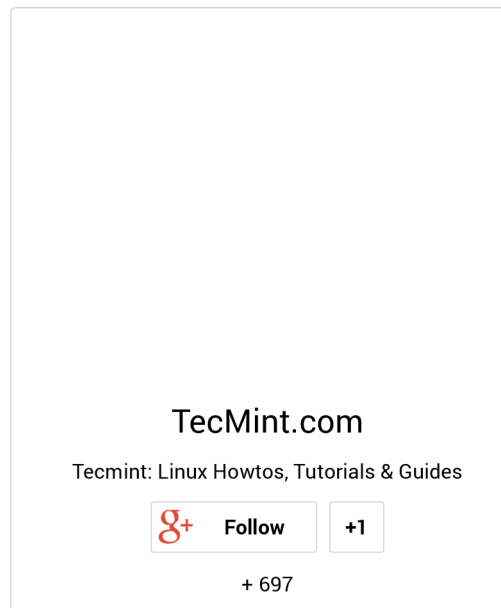
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