

Top 50 Shell Scripting Interview Questions & Answers



1: What is a shell?

Shell is a interface between user and the kernel. Even though there can be only one kernel

; a system can have many shell running simultaneously . Whenever a user enters a command through keyboard the shell communicates with the kernel to execute it and then display the output to the user.

2: What are the different types of commonly used shells on a typical linux system?

csh,ksh,bash,Bourne . The most commonly used and advanced shell used today is "Bash" .

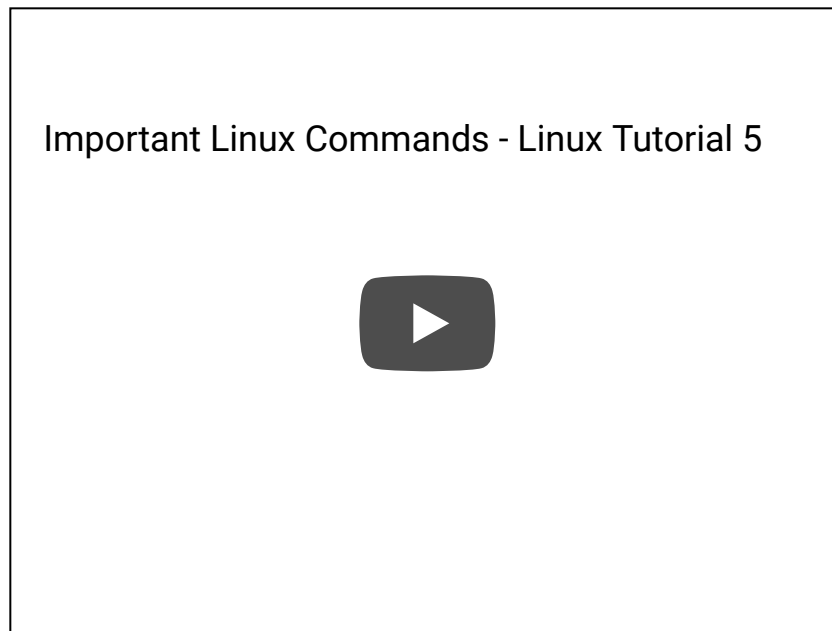
3:What is the equivalent of a file shortcut that we have on window on a Linux system?

Shortcuts are created using "links" on Linux. There are two types of links that can be used namely "soft link" and "hard link"

4:What is the difference between soft and hard links?

Soft links are link to the file name and can reside on different filesystem as well; however hard links are link to

the inode of the file and has to be on the same filesystem as that of the file. Deleting the original file makes the soft link inactive (broken link) but does not affect the hard link (Hard link will still access a copy of the file)



5: How will you pass and access arguments to a script in Linux?

Arguments can be passed as:

scriptName "Arg1" "Arg2"..."Argn" and can be accessed inside the script as \$1 , \$2 .. \$n

6: What is the significance of \$#?

\$# shows the count of the arguments passed to the script.

7: What is the difference between \$* and \$@?



\$@ treats each quoted arguments as separate arguments but \$* will consider the entire set of positional parameters as a single string.

8: Use sed command to replace the content of the file (emulate tac command)

Eg:

```
1 if cat file1
2
3 ABCD
4 EFGH
```

Then O/p should be

EFGH

ABCD

```
1 sed '1! G; h;$!d' file1
```

Here G command appends to the pattern space,

h command copies pattern buffer to hold buffer

and d command deletes the current pattern space.

9: Given a file, replace all occurrence of word "ABC" with "DEF" from 5th line till end in only those lines that contains word "MNO"

```
1 sed -n '5,$p' file1|sed '/MNO/s/ABC/DEF/'
```

10: Given a file , write a command sequence to find the count of each word.

```
1 tr -s "(backslash)040" <file1|tr -s "(backslash)011"
2
3 where "(backslash)040" is octal equivalent of "space"
```

"(backslash)011" is octal equivalent of "tab character" and

"(backslash)012" is octal equivalent of newline character.

11: How will you find the 99th line of a file using only tail and head command?

```
tail +99 file1 | head -1
```

12: Print the 10th line without using tail and head command.

```
1 sed -n '10p' file1
```

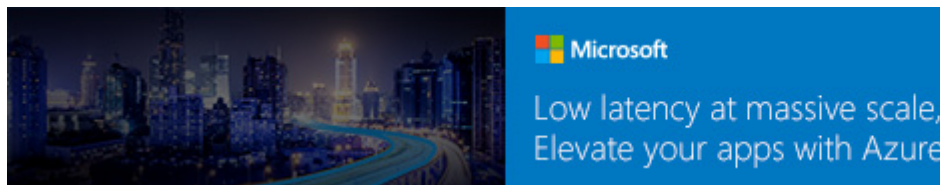
13: In my bash shell I want my prompt to be of format '\$'Present working directory':"hostname"> and load a file containing a list of user defined functions as soon as I login , how will you automate this?

In bash shell we can create ".profile" file which automatically gets invoked as soon as I login and write the following syntax into it.

```
1 export PS1='$ `pwd` : `hostname`>' .File1
```

Here File1 is the file containing the user defined functions and "." invokes this file in current shell.

14: Explain about "s" permission bit in a file?



"s" bit is called "set user id" (SUID) bit.

"s" bit on a file causes the process to have the privileges of the owner of the file during the instance of the program.

Eg: Executing "passwd" command to change current password causes the user to write its new password to shadow file even though it has "root" as its owner.

15: I want to create a directory such that anyone in the group can create a file and access any person's file in it but none should be able to delete a file other than the one created by himself.

We can create the directory giving read and execute access to everyone in the group and setting its sticky bit "t" on as follows:

```
1 mkdir direc1
2
3 chmod g+wx direc1
4
5 chmod +t direc1
```

16: How can you find out how long the system has been running?

Command "uptime"

17: How can any user find out all information about a specific user like his default shell, real life name, default directory, when and how long he has been using the system?

finger "loginName" ...where loginName is the login name of the

user whose information is expected.

18: What is the difference between \$\$ and \$!?

\$\$ gives the process id of the currently executing process whereas \$! shows the process id of the process that recently went into background.

19: What are zombie processes?

These are the processes which have died but whose exit status is still not picked by the parent process. These processes even if not functional still have its process id entry in the process table.

20: How will you copy file from one machine to other?

We can use utilities like "ftp" ,"scp" or "rsync" to copy file from one machine to other.

Eg: Using ftp:

ftp hostname

>put file1

>bye

Above copies file file1 from local system to destination system whose hostname is specified.

21: I want to monitor a continuously updating log file, what command can be used to most efficiently achieve

this?

We can use `tail -f filename` . This will cause only the default last 10 lines to be displayed on std o/p which continuously shows the updating part of the file.

22: I want to connect to a remote server and execute some commands, how can I achieve this?

We can use telnet to do this:

```
telnet hostname -l user
```

```
>Enter password
```

```
>Write the command to execute
```

```
>quit
```

23: I have 2 files and I want to print the records which are common to both.

We can use "comm" command as follows:

```
comm -12 file1 file2      ... 12 will suppress the content  
which are
```

unique to 1st and 2nd file respectively.

24: Write a script to print the first 10 elements of Fibonacci series.

```
1  #!/bin/sh
2
3  a=1
4
5  b=1
6
7  echo $a
8
9  echo $b
10
11 for I in 1 2 3 4 5 6 7 8
12
13 do
14
15 c=a
16
17 b=$a
18
19 b=$((a+c))
20
21 echo $b
22
23 done
```

25: How will you connect to a database server from linux?

We can use isql utility that comes with open client driver as follows:

```
isql -S serverName -U username -P password
```

26: What are the 3 standard streams in Linux?

- 0 – Standard Input
- 1 – Standard Output
- 2 – Standard Error

27: I want to read all input to the command from file1 direct all output to file2 and error to file 3, how can I achieve this?

```
command <file1 1>file2 2>file3
```

28: What will happen to my current process when I execute a command using exec?

“exec” overlays the newly forked process on the current process ; so when I execute the command using exec, the command gets executed on the current shell without creating any new processes.

Eg: Executing “exec ls” on command prompt will execute ls and once ls exits, the process will shut down

29: How will you emulate wc -l using awk?

```
awk 'END {print NR}' fileName'
```

30: Given a file find the count of lines containing word “ABC”.

```
grep -c “ABC” file1
```

31: What is the difference between grep and egrep?

egrep is Extended grep that supports added grep features like “+” (1 or more occurrence of previous character), “?” (0 or 1 occurrence of previous character) and “|” (alternate matching)

32: How will you print the login names of all users on a system?

/etc/shadow file has all the users listed.

```
awk -F ':' '{print $1}' /etc/shadow | uniq -u
```

33: How to set an array in Linux?

Syntax in ksh:

Set -A arrayname= (element1 element2 element)

In bash

A=(element1 element2 element3 elementn)

34: Write down the syntax of "for " loop

Syntax:

for iterator in (elements)

do

execute commands

done

35:How will you find the total disk space used by a specific user?

du -s /home/user1where user1 is the user for whom the total disk

space needs to be found.

36: Write the syntax for "if" conditionals in linux?

Syntax

If condition is successful

then

execute commands

else

execute commands

fi

37:What is the significance of \$? ?

\$? gives the exit status of the last command that was executed.

38: How do we delete all blank lines in a file?

```
1 sed '^ [(backslash)011(backslash)040]*$/d' file1
```

where (backslash)011 is octal equivalent of space and

(backslash)040 is octal equivalent of tab

39: How will I insert a line "ABCDEF" at every 100th line of a file?

```
sed '100i\ABCDEF' file1
```

40: Write a command sequence to find all the files modified in less than 2 days and print the record count of each.

```
find . -mtime -2 -exec wc -l {} \;
```

41: How can I set the default rwx permission to all users on every file which is created in the current shell?

We can use:

```
1 umask 777
```

This will set default rwx permission for every file which is created to every user.

42: How can we find the process name from its process id?

We can use "ps -p ProcessId"

43: What are the four fundamental components of every file system on linux?

bootblock, super block, inode block and datablock

44: What is a boot block?

This block contains a small program called “Master Boot record”(MBR) which loads the kernel during system boot up.

45: What is a super block?

Super block contains all the information about the file system like size of file system, block size used by it, number of free data blocks and list of free inodes and data blocks.

46: What is an inode block?

This block contains the inode for every file of the file system along with all the file attributes except its name.

47: How can I send a mail with a compressed file as an attachment?

```
zip file1.zip file1|mailx -s "subject"
```

Receipients email id

Email content

EOF

48: How do we create command aliases in shell?

alias Aliasname="Command whose alias is to be created"

49: What are “c” and “b” permission fields of a file?

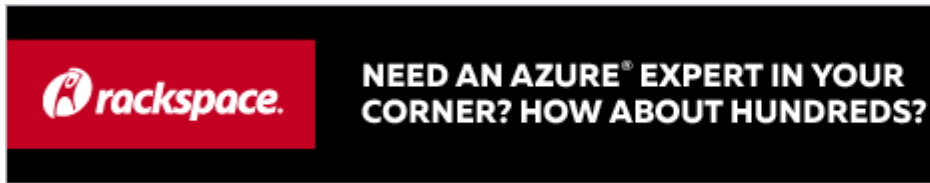
“c” and “b” permission fields are generally associated with a device file. It specifies whether a file is a character special file or a block special file.


50: What is the use of a shebang line?

Shebang line at top of each script determines the location of the engine which is to be used in order to execute the script.

Shell Scripting Quiz

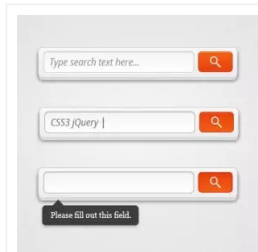
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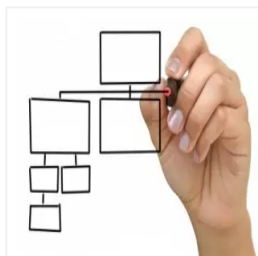
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19

REPLIES

**Senthil Prabu S**

Thanks for your support!!

Reply

**E=Mc²**

Good job.

Also Can you please correct your answer to Question 26.

0 - Standard Input

1 - Standard Output

2 - Standard Error

Reply

**Guru99**

Updated. Thanks for bringing this to notice!

Reply

**E=Mc²**

Thanks.

Guru99 , you are doing a great job of knowledge sharing. Thanks again.

Reply

**Shivakumar Madagiri**

For question no : 20 . sftp can also be used to copy files from one machine to another machine . To use sftp first we need to ssh connectivity from one host to another host

```
sftp username@hostname
```

```
put file1
```

```
bye
```

Reply

**Shivakumar Madagiri**

for question no 25 : We can also use sqlplus to connect to DB from linux server

```
sqlplus -s
```

```
dbloginname/password@remotedatabasename
```

Reply

**The Urban Socrates**

Thanks for this. However on Question 27:

I want to direct all output to file2. You have command file2 2>file3. It should be command file2 2>file3.

Reply

**Guru99**

Error Fixed! Thanks for bringing this to notice

Reply

**Mohit Garg**

Question number 5 of the quiz : Print the 10th line without using tail and head command has wrong answer.

```
sed n '10p' file1
```

Reply



Rahul Singh

the correct answer is `sed -n '10p' file1`. There is a hyphen missing before n.

Reply



atul gupta

I think Question no 24 fibonacci series. The program is wrong . it is not giving the required output. I have made the required changes to get correct output.

```
#!/bin/sh
```

```
a=1
```

```
b=1
```

```
echo $a
```

```
echo $b
```

```
for i in {1..100}
```

```
do
```

```
c=$b
```

```
b=$((a+b))
```

```
a=$c
```

```
echo $b
```

```
done
```

Reply



Nishant Jalsutram

```
#!/bin/sh
```

```
a=1
b=1
echo $a
echo $b
for i in 1 2 3 4 5 6 7 8
do
#{
c=expr $b + $a
b=$a
a=$c
echo $c
#}
done
Reply
```



caleb kunene

Question 11: How will you find the 99th line of a file using only tail and head command?

tail starts at the bottom of the file.

head starts at the top of the file.

+ means search downwards

- means search upwards

Your Answer :tail +99 file1 | head -1 =your answer starts at the End of the file attempting to go further down 99 lines.

What it should be: head +99 file1 | tail -1 =starts at the top counts till 99 and of that output it starts at bottom and takes the last line which is the 99th line

if you apply my answer to what you did to for Question 12 IE: sed -n '99p' file1 you will get the same answer
12: Print the 10th line without using tail and head

command.

```
sed -n '10p' file1
```

Reply



vijay gupta

It depends on flavor of Linux been used .Correct format is

```
head -99 file1 | tail -1
```

No '+' accepted for head command by most of the Linux distributions.

Reply



Anupam Kumar

39: How will I insert a line "ABCDEF" at every 100th line of a file? ans- sed '100iABCDEF' file1

It will insert only at 100th position. to repeat it should be sed '1~100 i repeatLine' file1

I have tested this in cygwin.

Reply



tapas parida

For Qn.11 there are 2 ways to represent in solaris os- head -99 | tail -1->Fetch records from 1st line to 99 and picks the bottom.

or

tail +99 | head -1->>Fetch records from 99 to end of file and picks the top.

Reply

Sow



String = ABCD

I want to print only BC using shell scripting

How can I do this?

Reply



Asit Sarkar

String = ABCD

```
Temp = echo $String | cut -c2-3
```

```
echo $Temp
```

Reply



EII

For question 38 it is easier to do:

```
awk 'NF' file1
```

Reply