An article featuring Linux Interview Questions and Answers**, which is designed to help candidates prepare for Linux-based roles. The questions range from basic to advanced levels to cover a variety of Linux topics.**🗄️

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Top Linux Interview Questions and Answers

Basic Linux Questions

1. What is Linux?

Linux is a free and open-source operating system based on Unix. It is known for its stability, security, and flexibility.

2. What is the difference between Linux and Unix?

Linux is open-source and free, while Unix is proprietary and licensed. Linux is widely used on servers and desktops, whereas Unix is more commonly used in academic and enterprise environments.

3. What is the Linux kernel?

The Linux kernel is the core of the Linux operating system that interacts with hardware and manages resources like CPU, memory, and storage.

4. What are the features of Linux?

- Open-source
- Multitasking
- Multi-user support
- Security (IPTables, SELinux)
- Portability
- Rich networking support

5. How do you check the current Linux kernel version?

Use the command:

```
uname -r
```

6. What are Linux distributions?

Linux distributions are different versions of Linux built on the Linux kernel, e.g., Ubuntu, Fedora, CentOS, Debian, and Red Hat Enterprise Linux (RHEL).

7. What command is used to display system information?

```
uname -a
```

8. How do you check disk usage in Linux?

```
df -h
```

9. What does the ls command do?

It lists the contents of a directory.

10. How do you create a file in Linux?

- Using touch: touch filename
- Using a text editor: vim filename or nano filename

Intermediate Linux Questions

11. How do you view the contents of a file?

- cat filename
- less filename
- more filename

12. What is the purpose of the chmod command?

It changes file permissions.

13. Explain file permissions in Linux.

Linux permissions include:

- **Read (r):** 4
- **Write (w):** 2
- **Execute (x):** 1

They are grouped into:

- **User (u):** Owner
- **Group (g):** Assigned group
- **Others (o):** Everyone else

14. What is the use of the grep command?

grep searches for patterns in files.

Example:

```
grep "pattern" filename
```

15. How do you find the size of a directory?

```
du -sh directory_name
```

16. What is a symbolic link?

A symbolic link is a reference or shortcut to another file or directory.

17. What is the difference between a hard link and a soft link?

- **Hard link:** Directly points to the file's inode, even if the original file is deleted.
- **Soft link:** Points to the file path and breaks if the original file is deleted.

18. How do you kill a process in Linux?

Use the kill command followed by the process ID (PID):

```
kill -9 PID
```

19. How do you find running processes?

```
ps aux
```

20. What does the cron command do?

The cron utility schedules repetitive tasks.

Advanced Linux Questions

21. What is SELinux?

SELinux (Security-Enhanced Linux) is a security module that enforces access control policies.

22. What is the difference between ext4 and xfs?

- **ext4:** Widely used, supports journaling, and is good for general-purpose use.
- **xfs:** High-performance, ideal for large-scale data management.

23. How do you check open ports on a system?

```
netstat -tuln
```

or

```
ss -tuln
```

24. Explain the difference between df and du.

- df: Shows disk space usage at the filesystem level.
- du: Shows disk usage of files and directories.

25. What is the umask command?

umask sets default permissions for newly created files.

Network and System Administration

26. How do you configure a static IP in Linux?

Edit the network configuration file:

```
/etc/sysconfig/network-scripts/ifcfg-eth0
```

27. What does the ifconfig command do?

It displays or configures network interfaces.

28. How do you check the system's uptime?

```
uptime
```

29. How do you restart a service?

```
systemctl restart service_name
```

30. What is the iptables command used for?

It manages firewall rules.

Shell Scripting and Automation

31. What is a shell?

A shell is a command-line interpreter that executes user commands.

32. Write a simple shell script to display "Hello, World."

```
#!/bin/bash
echo "Hello, World"
```

33. How do you schedule a one-time task?

Use the at command:

```
echo "command" | at 10:00
```

Advanced Linux Questions:

34. What is the purpose of the /etc/fstab file?

It contains the details of file systems to be automatically mounted at boot.

35. How do you view the contents of the /etc/fstab file?

```
cat /etc/fstab
```

36. What is a runlevel? How do you check it?

Runlevels define the state of the system, such as single-user mode or graphical mode. You can check it using:

```
who -r
```

37. What is the difference between soft and hard mounts in NFS?

- **Soft Mount:** Returns an error if the server is unavailable.
- **Hard Mount:** Keeps retrying until the server responds.

38. How do you add a user in Linux?

```
useradd username
```

39. How do you change a user's password?

```
passwd username
```

40. How do you delete a user?

```
userdel username
```

Performance Monitoring

41. How do you check CPU usage in Linux?

```
top
```

42. How do you monitor memory usage?

```
free -h
```

43. What is the purpose of the vmstat command?

vmstat provides information about system performance, including memory, CPU, and I/O.

44. How do you check disk I/O performance?

```
iostat
```

45. What is the sar command used for?

The sar command is used for collecting and viewing system activity reports.

Networking

46. How do you test network connectivity?

```
ping hostname_or_ip
```

47. What is the purpose of the traceroute command?

It shows the route packets take to reach a host.

48. How do you check open connections on the server?

```
netstat -an
```

or

```
ss -an
```

49. How do you list all network interfaces?

```
ip link show
```

50. How do you configure a DNS server in Linux?

Edit the /etc/resolv.conf file to include nameserver entries:

```
nameserver 8.8.8.8
nameserver 8.8.4.4
```

Storage and File Systems

51. How do you mount a filesystem?

```
mount /dev/sdX /mnt
```

52. How do you unmount a filesystem?

```
umount /mnt
```

53. What is the fsck command?

fsck checks and repairs file system errors.

54. How do you create a partition in Linux?

Use the fdisk command:

```
fdisk /dev/sdX
```

55. How do you create a filesystem?

```
mkfs.ext4 /dev/sdX
```

File Management

56. How do you copy a file in Linux?

```
cp source_file destination_file
```

57. How do you move or rename a file?

```
mv source_file destination_file
```

58. How do you delete a file?

```
rm filename
```

59. What is the difference between tar and gzip?

- tar**:** Archives multiple files into a single file.
- gzip**:** Compresses a single file.

60. How do you extract a .tar.gz file?

```
tar -xvzf filename.tar.gz
```

Security

61. How do you change the ownership of a file?

```
chown user:group filename
```

62. How do you find files with specific permissions?

```
find /path -perm 777
```

63. How do you set a firewall rule to allow traffic on port 80?

```
iptables -A INPUT -p tcp --dport 80 -j ACCEPT
```

64. What is the sudo command?

sudo allows users to run commands with administrative privileges.

65. How do you check the status of SELinux?

```
sestatus
```

Package Management

66. How do you install a package in Red Hat-based systems?

```
yum install package_name
```

or

```
dnf install package_name
```

67. How do you install a package in Debian-based systems?

```
apt install package_name
```

68. How do you check installed packages?

```
rpm -qa
```

or

```
dpkg -l
```

69. How do you remove a package?

For Red Hat:

```
yum remove package_name
```

For Debian:

```
apt remove package_name
```

70. How do you update all packages?

For Red Hat:

```
yum update
```

For Debian:

```
apt upgrade
```

Virtualization and Containers

71. What is virtualization?

Virtualization allows multiple operating systems to run on the same hardware by abstracting resources.

72. What is Docker?

Docker is a containerization platform that packages applications and dependencies into portable containers.

73. How do you list Docker containers?

```
docker ps
```

74. How do you start a Docker container?

```
docker start container_id
```

75. How do you stop a Docker container?

```
docker stop container_id
```