**Assignment: Linux Server**

1. **What is the minimum number of partitions you need to install Linux?**

* You only need one partition to install Linux, however I recommend a second partition formatted ext2 for your pictures and music and what not files. The only thing left is the swap space that need a specific format. So, a workable linux system needs a minimum of 2 partitions.

1. **Explain About Chmod Command**

* The chmod, or change mode, command allows an administrator to set or modify a file's permissions. Every UNIX/Linux file has an owner user and an owner group attached to it, and every file has permissions associated with it. The permissions are as follows: read, write, or execute.

1. **How to check Linux memory utilization**

* Certainly! There are several ways to check memory utilization in Linux. Let’s explore a few commonly used methods:
* **Using the**free**Command**: The free command provides information on various aspects of memory usage. When you run the command, it displays details about total, used, free, shared, buffer/cache, and available RAM, as well as swap space. For example:
* $ free -m

1. **Describe the root account**

* The root account has virtually unlimited access to all programs, files, and resources on a system. The root account is the special user in the /etc/passwd file with the user ID (UID) of 0 and is commonly given the user name, root. It is not the user name that makes the root account so special, but the UID value of 0 .

1. **What is shell?**

* A shell is a type of computer program called a command-line interpreter that lets Linux and Unix users control their operating systems with command-line interfaces.

1. **What is Linux?**

* Linux® is an open source operating system (OS). An operating system is the software that directly manages a system's hardware and resources, like CPU, memory, and storage. The OS sits between applications and hardware and makes the connections between all of your software and the physical resources that do the work.

1. **What is Bash?**

* We now know that Bash is a versatile and powerful shell and scripting language that provides a way to interact with Unix-based operating systems. It allows users to execute commands, perform complex operations, and automate tasks. Also, it is some of the most widely used and essential tools for Linux and macOS users.

1. **How can you find out how much memory Linux is using?**

* cat Command.
* free Command.
* vmstat Command.
* top Command.
* htop Command.
* sar Command.
* /proc/meminfo.

1. **What is a typical size for a swap partition under a Linux system?**

* Swap space should be twice the size of RAM in case the RAM amount is below 2 GB. If RAM amounts to more than 2 GB, then swap space should be the size of RAM + 2 GB. For example, 6GB of swap for 4GB of RAM.

1. **How do you switch from one desktop environment to another, such as switching from KDE to Gnome?**

* In order to switch desktop environments, at the login screen, enter your username. From the login screen (GDM), click the gear button next to the Sign In button. From the drop-down menu that appears, select the option that you prefer.

1. **What are the kinds of permissions under Linux**

* Linux provides three types of owners: user, group, and other, Each has its own set of permissions: read, write, and execute. The chmod command is used to modify these ownerships and permissions.

1. **What are the different modes when using vi editor?**

* The Vi editor has two modes: Command and Insert. When you first open a file with Vi, you are in Command mode. Command mode means you can use keyboard keys to navigate, delete, copy, paste, and do a number of other tasks—except entering text. To enter Insert mode, press i .

1. **How to run Windows Software on Linux operating System?**

* Open a terminal window. The first thing to do is log in to your Linux desktop and open a terminal window.
* Install Wine on Ubuntu-based distributions. ...
* Install Wine on Fedora-based distributions. ...
* Configure Wine.

1. **what is difference between windows and Linux**

* Linux is generally more efficient in system resource utilization, which is beneficial in server and development environments. Windows has a more user-friendly GUI, making it more suitable for everyday users, while Linux provides robust CLI options favored by system administrators and developers.

1. **What is the advantage of Open Source?**

* Open source enables technology agility, typically offering multiple ways to solve problems. Open source helps keep your IT organization from getting blocked because a particular capability isn't available from a vendor. Instead of waiting for the vendor to deliver that capability, you can create it yourself.

1. **Explain File Permission groups in Linux?**

* User, group, and others Option in Linux File PermissionThe user permissions apply only to the owner of the file or directory, they will not impact the actions of other users. The group permissions apply only to the group that has been assigned to the file or directory, they will not affect the actions of other users.

1. **Explain different file system types in Linux?**

* Ext, Ext2, Ext3 and Ext4 file systemThe Ext file system is an older version, and is no longer used due to some limitations. Ext2 is the first Linux file system that allows managing two terabytes of data. Ext3 is developed through Ext2; it is an upgraded version of Ext2 and contains backward compatibility.

1. **Why LVM is required?**

* The most obvious benefit of LVM is that it provides an easy and flexible way to scale storage capacity. Admins can scale capacity up or down as users' storage needs change by simply adding or removing extents from an LV.

1. **How to exit from vi editors?**

* When you have finished your editing, you need to inform VI that you wish to "quit" the editor and return to your shell. This is done by typing ":q" (quit).

1. **How to delete information from a file in vi?**

* dd deletes the whole line under the cursor.
* 5dd deletes multiple (5) lines, starting at the cursor.
* d$ deletes to the end of the line, starting at the cursor.
* dG deletes all lines starting from the line under the cursor.

1. **You have a new, empty hard drive that you will use for Linux. What is the first step you use.**

* Identify the New Hard Drive:
* First, you need to determine the device name of your new hard drive. Open a terminal and run the following command to list all available disks:
* $ sudo fdisk -l
* Look for the new drive (usually starting with /dev/sd) in the output. Note down its device path (e.g., /dev/sdb).
* Partition the Disk:
* Use the fdisk or parted command to create a new partition on the empty disk. For example:
* $ sudo fdisk /dev/sdX

1. **Write the Linux command to show the current working directory.**

* pwd (print working directory) – The pwd command is used to display the name of the current working directory in the Linux system using the terminal.

1. **write the Linux command to get help with various options.**

* Try 'help help' or 'man -k [specified string]' or 'info [specified string]'. For example, if you use the help command to get information about the passwd command, you will get the following error message. bash: help: no help topics match 'passwd'. Try 'help help' or 'man -k passwd' or 'info passwd'.

1. **Write the linux comman! to display what all users are currently doing.**

* The who command prints the list of users currently logged into the system along with other information such as the terminal they're using, login date and time, and IP address or hostname of the system if a user is on a remote machine.

1. **write the Linux command to get information about the operating system.**

* Open the terminal application (bash shell)
* For remote server login using the ssh: ssh user@server-name.
* Type any one of the following command to find os name and version in Linux: cat /etc/os-release. lsb\_release -a. hostnamectl.
* Type the following command to find Linux kernel version: uname -r.

1. **Write the Linux command to create a hard link of a file.**

* The ln command make links between files. By default, ln makes hard links.

1. **Write the Linux command to create a soft link of a file as well as Directory.**

* ln – this is the command used to create links.
* -s – this option specifies that the link is a symbolic link.
* [source file] – this is the path to the original file you want to link to.
* [link name] – this is the name of the symlink you are creating.

1. **Write the Linux command! to search for specific pattern in a file.**

* Grep is a Linux command-line tool that allows users to search files for a specified textual pattern. When grep finds a match, it prints lines containing that pattern to the terminal. By default, the grep command outputs entire lines that contain the match.

1. **Write the Linux command to show the use of basic regular expressions usinggrep command.**

* For example, the command grep -E '{1' searches for the two-character string {1 instead of reporting a syntax error in the regular expression.

1. **What is the maximum file size on the ext4 file system?**

* The ext4 file system can support volumes with sizes up to 1 Exabyte (EB) (1,000 Terabytes = 1018 Bytes) and files with sizes up to 16 Terabytes (TB). Ext4 is backward compatible with ext3 and ext2, making it possible to mount ext3 and ext2 as ext4.

1. **What is the maximum file size on the xfs file system?**

* Capacity. XFS is a 64-bit file system and supports a maximum file system size of 8 exbibytes minus one byte (263 − 1 bytes), but limitations imposed by the host operating system can decrease this limit. 32-bit Linux systems limit the size of both the file and file system to 16 tebibytes.

1. **What is Difference between LILO And GRUB?**

* GRUB is a new boot loader with multi-OS device management. On the other hand, LILO is an older boot loader with single OS device management. GRUB supports Windows, Linux, UNIX, macOS, BSD, and Solaris. On the other hand, LILO only supports Linux.

1. **How to Recover Linux Password ?**

* Boot from the Live CD/USB. Insert your Live CD or USB stick. ...
* Open a Terminal. ...
* Identify the System's Root Partition. ...
* Mount the Root Partition. ...
* Change Root into the System. ...
* Reset the Password. ...
* Exit and Unmount. ...
* Reboot.

1. **Which command use for format partition in Linux OS?**

* Now that we have complete information about the storage devices and partitions, we can use the mkfs command to format disk partitions. The great thing about the command is that it can set up any of the three file systems (ext4, NTFS, and FAT32) we discussed in the previous section.

1. **How to enable “quota” in Linux ?**

* Enabling disk quotas in Linux allows you to limit the storage space used by users or groups. This is particularly useful on systems like file servers where multiple users connect and store data. By implementing quotas, you ensure that no individual user consumes an excessive amount of storage, preventing unexpected disk space shortages.
* Install the Disk Quota Package:
* Most Linux distributions come with the disk quota package pre-installed. However, if it’s not available, you can install it using the appropriate package manager commands:
* On Ubuntu, Debian, and Linux Mint:
* $ sudo apt install quota
* On Fedora, CentOS, AlmaLinux, and Red Hat:
* $ sudo dnf install disk quota

1. **How to Mount Partition in Linux ?**

* Open the terminal.
* Find the disk or partition you want to mount. ...
* Figure out the filesystem type for the disk or partition. ...
* Make a directory for the mount point if it's not already there. ...
* Use the mount command to mount the partition temporarily.

1. **What is use of “mdadm” Command ?**

* The mdadm command is a utility in Linux used for managing and monitoring software RAID devices. It's a powerful tool that can help you create, manage, and troubleshoot RAID arrays. It is used with the syntax, mdadm --[action] /dev/mdX --level=<RAID LEVEL> --raid-devices=<NUMBER OF DEVICES> <DEVICE1> <DEVICE2>...

1. **How to configure secure Apache web server in Linux ?**

* Disable the server-info Directive. ...
* Disable the server-status Directive. ...
* Disable the ServerSignature Directive. ...
* Set the ServerTokens Directive to Prod. ...
* Disable Directory Listing. ...
* Enable Only the Required Modules. ...
* Use An Appropriate User and Group. ...
* Restrict Unwanted Services.

1. **How to Set Static IP in Linux?**

* Search for settings .
* Click on either Network or Wi-Fi tab, depending on the interface you would like to modify.
* To open the interface settings, click on the gear icon next to the interface name.
* Select “Manual” in the IPV4 tab and enter your static IP address, Netmask and Gateway.

1. **What is selinux Security?**

* SELinux, or Security-Enhanced Linux, is a part of the Linux security kernel that acts as a protective agent on servers. In the Linux kernel, SELinux relies on mandatory access controls (MAC) that restrict users to rules and policies set by the system administrator.