LINUX PREPARATION – 3

System Access and File System

◆ **System Access**

How do you connect to a Linux server remotely from Windows?

- Linux server can be remotely connected through the putty terminal

What is PuTTY and how do you configure it to access a Linux VM?

- Putty is used as an remote server connector, where we have to give them the ip address and then launch the terminal

What port does SSH run on by default? How do you confirm SSH is running?

- Port 22 is the default port to run ssh , make an connection using the port ssh and check them

◆ **File System Concepts**

Explain the Linux file system hierarchy (/, /home, /etc, etc.).

What is the difference between absolute and relative paths?

- Absolute path is where the paths are determined using the / command

- Relative path is where there is no use of / all commands ae given in an

  format

What are some key things to remember when working in a Linux terminal?

- Take an snapshot before changing files in the system

- Create an backup before we change the contents of the file

- Create file permissions correctly to the files in the machine

◆ Navigation & File Management

How do you move from one directory to another in Linux?

- Cd /path/to/directory

What's the command to list all hidden files in the current directory?

- Ls -a

How do you create:

- A file named info.txt – touch info.txt or vi info.txt
- A directory named docs – mkdir docs

◆ Search & Utilities

Difference between find and locate? When would you prefer each?

- Find command is used to find any file using the keywords that have been used in the current path
- Locate is used to find all the files and directories starting with the certain keyword

How would you search for all .log files inside /var modified in the last 2 days?

- Find /var -type f name ".log" -mtime -2

How do you change your login password in Linux?

- Passwd username

◆ Wildcards & Linking

What does the * wildcard mean in Linux? What about ??

- * determines the starting and ending of an word

- ? determines that it can be starting with anything

How do you create:

- A hard link to a file – ls filename
- A soft (symbolic) link to a file – ls -s filename

What happens if you delete the original file that a soft link points to?

- The link to the file is done and the link is destroyed when the file is destroyed

◆ **File Concatenation & Cutting**

How do you combine the contents of 3 .txt files into one file?

- Cat file1 file2 > totalfile

What is the use of the cut command?

- Cut command is used to cut the file to a given file size
- cut -c1 filename – this is used to cut the first character
- cut -c1-4 filename – this is used to cut the range of characters
- cut -d ":" -f6 filename – this is used to cut the field
- cut -d ":" -f1-6 filename – this is used to cut range of feilds

Linux Fundamentals

◆ **Syntax & Permissions**
What is the general syntax of a Linux command?

- Command [options] [arguments]

Explain the meaning of rwxr-xr--.

- This is regarding the permission to the user group and others

How do you:

- Grant execute permissions to all users – chmod a+x filename
- Change file owner to another user – chown u:users filename

- Assign a group to a file – chgrp g:group filename

◆ **Command Assistance**

How do you use man, whatis, and --help?

- Man, whatis, --help which is used to get help of all the command that are available for the command we are gonna use

What is tab completion and how does it help?

- Tab completion is used to complete the full filename or commands we are going to use

◆ **Text Handling & File Viewing**

How do you append the string Hello Zoho to a file called welcome.txt?

- touch welcome.txt
- echo "hello zoho" > welcome.txt
- echo "hello zoho1" >> welcome.txt

Explain the use of pipes |. Provide a real example.

- Pipes are used combine different commands with the first commands output being the input of the second command
- ls -ltr | more - example

What command displays the first 10 lines of a file? Last 10 lines?

- Head -n 10 filename

◆ **Filters & Text Utilities**

What is the difference between grep, awk, and cut?

- Grep is used for finding words and keywords in a file for example take this command grep "error "filename – this command is used to find all the words related to error keyword in that file
- Awk is used for the process of data extraction where we can extract field or words or characters for example awk '{print $1}' filename – this command is used to print the first word of the file, for extracting fields we have to use the delimiter as -f for field extraction
- Cut is used to cut the file into an required size
  cut -c1 filename – this is used to cut the first character
  cut -c1-4 filename – this is used to cut the range of characters

cut -d ":" -f6 filename – this is used to cut the field

cut -d ":" -f1-6 filename – this is used to cut range of feilds

Use wc to count the number of lines, words, and characters in a file.

- wc -l filename – line count
- wc -w filename – word count
- wc -c filename – character count

Write a one-liner command to sort and remove duplicates from a file.

- sort filename | uniq -c

How do you compare the contents of two files?

- cmp file1name file2name

◆ Archiving & Compression

What's the difference between .tar, .gz, and .tar.gz files?

- .tar is used to archive file and make an backup and store them to an particular file size and store them for backup for example on how to create an tar file tar -cvf userfull.tar /home/user to tar all the files in the path
- tar.gz is the process of reducing the file size of the tar file the command used for this process is gzip , gzip -cvf userfull.tar.gz this reduces the file size of the tar file
- .gz is used to create an compressed file of an archive file to reduce the file size

How do you:

- Compress a folder using tar – tar -cvf userfull.tar /home/user
- Extract files from a .tar.gz archive – gzip -e userfull.tar.gz

System Administration

◆ User & Group Management

How do you add a new user and assign a password?

- useradd new username
- passwd username

What is the difference between su and sudo?

- Su – is used to change from main user to root user
- Sudo – is the command used by the main user to have the permissions of the root users

How do you check which users are currently logged in?

- Users, who, w command

◆ Communication & Permissions
How do you send a message to all users using wall?

- In your main user and check the users that have been logged in
- Now you can send message to all user logged in this machine
- Wall
- Message to be written
- Ctrl + d – to exit and send the message to all the users

Explain the purpose of /etc/passwd and /etc/shadow.

- /etc/passwd and /etc/shadow are used to manage password and authentication for the users
- /etc/passwd – they are used to record all the data of the users present in the database. They are used to have encrypted password having placeholders like * and x
- /etc/shadow – they are used to password encryption for the users recorded an they details of the passwords created

◆ **Directory Services**

What is LDAP? How is it different from Active Directory?

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What is the use of WinBIND or OpenLDAP in Linux systems?

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◆ **Utility Commands**

How do you display:

- System date and time - date
- System uptime - uptime
- System hostname - hostname
- Current shell – echo $SHELL

◆ **Process Management**
How do you list all active processes?

- ps aux command

How do you kill a process with kill and killall?

- Kill <PID> - Process id
- Killall <PID>

What is the difference between ps and top?

- ps command is used to list the process that are being runned in the linux machine
- top command is used list all the process where they list all the cpu percentages, memory allocation, ram usage , shared memory, virtual memory and ram memory

◆ Monitoring & Scheduling

How do you schedule a job to run at 7:00 AM every day using crontab?

- Command used is crontab -e
- 00 7 7 13 * echo " run the command "

What's the difference between crontab and at?

- Crontab is used to schedule run commands that are used to run command and get output based on the time and date scheduled and can be continuous
- At command can be only used to create one time task where the command can be runned for one time

Explain df, free, and dmesg commands.

- Df command is used to show the disk usage percentage and how many of them are having high disk usage
- Free command is used to display the free spaces in the system
- Dmesg command displays the hardware and software details of the system

How do you monitor disk I/O or memory usage?

- Free command is used to display the memory usage of the system
- Top command is used to display the memory usage and the cpu usage of the system
- Iostat command is used to display the disk io usage

◆ OS Maintenance & System Info

What is the difference between reboot, halt, and shutdown -h now?

- Reboot command is used to reboot the system or the machine with out shuting it down
- Halt is used to stop all the cpu processes and bring the machine to an halt
- Shutdown command is used to stop all the process and switch of the machine

How do you find:

- Kernel version – uname -r
- Linux distribution version – cat /etc/os_release
- System architecture – uname -a

◆ **Advanced Admin**

How do you change the hostname of a Linux system?

- hostnamectl sethostname <new_hostname>

What are init, runlevels, and systemctl?

- init is the command that is used to initialise the kernel and use it

- runlevel are those commands defines the states of the system

- systemctl is used to start stop and restart the service using the service name

How do you recover root password in single user mode?

- reboot your machine

- then select the centos system and click e for editing it

- in the line where there is an selection of ro , that means read only

- so now clear the ro only and then type this command

    - rw_init=/sysroot/bin/sh

- and then after typing this click ctrl + X this is will start the computer

- chroot /sysroot

- passwd root

- now create the new password and retype the password

- now exit and reboot

What is the sosreport and when do you use it?

- Sos command is used to create an report based on the diagnosis and create an report and then use the report for analysis

Shell Scripting

◆ **Shell Concepts**
What is a Shell? Name some common Linux shells.

- Ksh – korn shell
- Bash shell
- C chell

How is a shell different from the Linux kernel?

- Kernel is used to interact with the hardware and software of the machine
- Shell is used to commands and interpret the outputs of the command and used to interact with the kernel

How do you check which shell you are using?

- echo $SHELL

◆ **Scripting Basics**
Write a basic script to print your name and today's date.

- #!/bin/bash
- a="jash"
- b=$(date)
- echo ` my name is  $a`
- echo `the date is $b`

How do you make a .sh file executable and run it?

- By giving the file its executable permission to the user or to all
- Touch exe.sh
- Write the shell script in it and save and quit
- Chmod a+x exe.sh – giving the permission to all
- Now exe.sh run it

◆ Control Statements

Write an if-then script to check if a file exists.

- #!/bin/bash
- clear
- if[-e /home/user/filename]
- then echo "the file exist"
- else
- echo "the file doesn't exist"
- fi

Write a for loop to print numbers from 1 to 5.

- #!/bin/bash
- Clear
- for i in {1..3}
- do
- touch checkcommand $i
- done

How does a while loop differ from for loop in shell?

- For loops are used to run the command till the desired amount that have been specified is being met
- While loops return true when the condition is met or else they might return false

Write a case script to display "Good Morning", "Good Evening" based on input time.

- #!/bin/bash
- clear
- a=$(date)
- if[$a =< 1]
- then
- echo " good morning "
- elif [$a >=13 && $a<=17]
- then
- echo " good afternoon "
- else
- echo " good evening "

- fi

🔷 **Shell Features**

What is the purpose of aliases in shell scripting?

- alias ls = " ls -ltr"
- alias p = "ls , pwd , hostname "
- purpose of using alias is for easy command usage by forming group of command to an single alias

How do you view your shell history?

- History command can be used to know all the commands that are runned in the shell

How can you re-run the last command without typing it again?

- Using the up arrow key to use the command that have been already used in the previous way