Linux Assignment

1. Create a new directory(folder)?

Ans. mkdir

2. Create/Open text file using vi?

Ans. Vi filename.txt

3. Copy file from src to Dest?

Ans. Cp

4. Copy folde from src to dest?
Ans. cp –r

5. Rename file and folder name?
Ans. mv

6. Delete a single file?
Ans.rm

7. Delete a whole folder?
Ans.rm -r

8. Write a command to Change the working directory?

Ans. cd

9. How to Move to the Parent Folder?
Ans. cd ..

10. List contents of a folder?
Ans. ls

11.List contents of a folder including hidden files?
Ans. ls –a

12. Write a command to check the Print current directory?
Ans. Pwd

13. How to Open a manual for a command?
Ans. man

14. Create a new directory with the name COL100?
Ans. mkdir COL100

15. Change the current directory to COL100?

Ans. cd COL100

16. In this directory, create another folder, called Lab0?
Ans.mkdir Lab0

17. Change the current directory to Lab0?
Ans. cd Lab0

18. Create a text file me.txt using vi and copy the contents of me.txt to mycopy.txt using?
Ans. cp me.txt mycopy.txt

19.Rename mycopy.txt as stillme.txt using mv?
Ans. mv mycopy.txt stillme.txt

20. Check if the file has been renamed by listing the contents using ls?
Ans. ls –l

21. Copy the directory hierarchy COL100 to COL100copy using cp –r?
Ans. cp -r COL100 COL100copy

22. Check the contents of the folder COL100copy by going to the folder (cd) and then listing the contents(ls)?
Ans. ls –ltr

23. Go out of the folder (cd ..) and delete the whole directory COL100copy?
Ans.rm -r

24. Write a command to count no. of lines, no of words, no. of characters in a file?
Ans. wc

25. Write a command to search a pattern in a file?
Ans. grep

26. Write a command to display the running process?
Ans. ps –ef

27. Write a command to stop the process forcefully?
Ans. Kill

28. How you are going to stop the process gracefully?
Ans.ps -p

29 How you're going to check which process is taking more memory?
Ans. Top

30. Write a command to see the available ports on the system and listening(used) ports?
Ans. netstat

31. command is used to check if the remote server port is open or not?
Ans. telnet

Shell Scripting Assignment

1. write a script to check if the given string is a file or a directory or a link or if it doesn’t exist.

Ans. #!/bin/bash

```
check_path() {
  if [ -e "$1" ]; then
    if [ -f "$1" ]; then
      echo "'$1' is a file."
    elif [ -d "$1" ]; then
      echo "'$1' is a directory."
    elif [ -L "$1" ]; then
      echo "'$1' is a symbolic link."
    else
      echo "'$1' exists, but it's neither a regular file, directory, nor a symbolic link."
    fi
  else
    echo "'$1' does not exist."
  fi
}

# Input:-
read -p "Enter the path to check: " path_to_check
```

check_path "$path_to_check"

2. Write a script to find the number of characters in each line of a file.

Ans. #!/bin/bash

echo “Enter the filename”

read file

c=`cat $file | wc -c`

echo Number of characters in $file is $c

3. Write a script to display file names if they contain the pattern and display the respective message whether the file contains a pattern or not.

Ans.

```
#!/bin/bash
echo "Enter file pattern to search for:"
read pattern
for file in *
do
   if grep -q "$pattern" "$file"; then
      echo "$file contains the pattern."
   else
      echo "$file does not contain the pattern."
   fi
done
```

4. Write a script to find the sum of elements in an array

Ans.

```
#!/bin/bash
# Declare the array
  arr=(1 2 3 4 5)
# Set a variable to store the sum
  sum=0
# Loop through the array and add each element to the sum
   for i in "${arr[@]}"
do
   sum=$((sum + i))
     done
# Print the sum
        echo "The sum of the array elements is: $sum"
```

5. Write a script to monitor the usage of the server memory, if the server memory reaches its threshold value (70%). It will send an email to the concerned person.

Ans.

```
#!/bin/bash
# Set the threshold value for memory usage
threshold=70
# Get the current memory usage percentage
memory_usage=$(free | awk '/Mem/{printf("%.2f"), $3/$2*100}')

# Check if memory usage is above the threshold
if (( $(echo "$memory_usage > $threshold" | bc -l) )); then
   # Send an email to the concerned person
   echo "Warning: Memory usage is above $threshold% on the server." | mail -s "Memory usage warning" concerned_person@example.com
fi
```

6. Write a shell script to rename all text files into HTML files.

Ans.

```
#!/bin/bash
for file in *.txt
do
   mv "$file" "${file%.txt}.html"
Done
```

7. Write a script to display the content of the file in reverse.

Ans.

```
#!/bin/bash
if [ $# -ne 1 ]; then
  echo "Usage: $0 FILENAME"
  exit 1
fi
filename=$1
if [ ! -f $filename ]; then
  echo "$filename does not exist"
  exit 1
fi
tac $filename
```

8. Write a script to monitor the services, if the services stop automatically it has to send a mail notification to the concerned team

Ans.

```
#!/bin/bash
# Define the service to monitor
service_name="my_service"
# Define the email notification settings
```

```
to="user@example.com"
from="monitoring@example.com"
subject="Service $service_name stopped"
body="The $service_name service has stopped. Please take action." # Monitor the service indefinitely
while true; do
# Check if the service is running
if systemctl is-active --quiet $service_name; then
echo "$service_name is running"
Else
 # Service has stopped, send email notification
 echo "$service_name has stopped, sending notification"
 echo "$body" | mail -s "$subject" -r "$from" "
```

Git Assignment

Assignment – 1

1.Clone our fork of the project locally. (Any github project)
Ans. opening git hub account.
Search for project
Forking it to repo
Using git clone “url” in git bash ,to clone

2.Create a descriptive topic branch.
Ans. git branch branch_name
Git checkout branch_name

3.Make our change to the code.
Ans.
A. adding new .txt file
B. git add .

4.Check that the change is good.
Ans. Git status

5.Commit our change to the topic branch.
Ans. git commit –m “message”

6.Push our new topic branch back up to our GitHub fork.
Ans. Git push origin branch_name

Assignment – 2

1.Add the original repository as a remote named upstream.
Ans. Git remote add upstream “url”

2.Fetch the newest work from that remote.
Ans. git fetch upstream

3.Merge the main branch of that repository into your topic branch.
Ans. Edit a same file in both the branch and then
a. switch to topic branch
b. use merge commend

4.Fix the conflict that occurred.
Ans. open the file and view for the requirements .
Again save changes by adding and commiting.

5.Push back up to the same topic branch.
Ans. git push upstream topic

Assignment – 3

1.Fork the project. (Any github project)
Ans. Open github and search for any project and then fork it to your repo in github.

2.Create a topic branch from the master.
Ans. Git branch branch_name

3.Make some commits to improve the project.
Ans. Open some file and edit . Add and commit it

4.Push this branch to your GitHub project.
Ans. Git push origin branch_name

5.Open a Pull Request on GitHub.
Ans. Open github account
Open pull request

6.Discuss, and optionally continue committing.
Ans. Doing some commits in local repo.

7.The owner merges or closes the pull request.
Ans. This will execute in github and update the master to your fork.

Assignment – 4

Adding files to the repository Create a folder with all the necessary files to be pushed into the repository.

Open a terminal from VSCode, go to the created folder, and perform the following steps:

git init
git status
git add .
git status
git commit -m “Any message”
Enter the two statements from the notepad(git remote add and git push)
Refresh the repository page to see the pushed files.

Assignment 5

Click on “Create your first assignment”.

Enter the title starting with Assign-1 and followed by a number (Ex: Assign-02) and click on continue.

Click on select a repository and type the repository name created in GitHub and choose it.

Select the template repository and click on continue.

Under Add Autograding tests, click on Add test and choose “run python”.

For each file in your repository, perform the following steps:

Enter the program file name in the test name field.

Clear setup command field.

Enter the program file name in the test name field.

Enter python3 filename.py - in the run command field.

Enter the points for the program (optional). Save the test case and click on create an Assignment.

Ans. Open the terminal and create new Assignment and name as Assign-1

And select a repo and name the repo with name created in github

```
git status
git add .
git commit -m "Commit from vsCode terminal"
git remote
git branch
git checkout assignment1
git status
```

```
git merge main
git status
git push origin assignment1
```