Lab-1
System Administration-CSNW3203-ITNT403

Shell Scripting in Linux

A shell script is a file containing a series of Linux commands executed sequentially. The extension of shell script is .sh

Step1: Create the script file.

Use a text editor like nano to create a script file.
For example, to create a script named myscript.sh

```
[root@localhost ~]# nano -l myscript.sh
```

Press Enter Key

Step2: Add the Commands.

```
 GNU nano 5.3                        myscript.sh                        Modified
1 clear
2 echo "Today date  is `date`"
3 echo  "Current month";cal
4 echo  "Current user `whoami"
5 echo  "Current directory path is";pwd
6
```

Step3: Save and Exit

In nano,

- **press CTRL + O and press Enter key.**
- **press CTRL + X**

Note: Ctrl O Save
Ctrl X Exit

Step4: Make the Script Executable

Before running the script, grant it execute permission. Use the following command:

```
[root@localhost ~]# chmod 777 myscript.sh
```

Step5: Execute the Shell Script

Run the script using the following command:

```
[root@localhost ~]# ./myscript.sh
```

Press Enter Key

Output:

```
Today date is Fri Feb 21 08:40:55 PM UTC 2025
Current month
     February 2025
Su Mo Tu We Th Fr Sa
                   1
 2  3  4  5  6  7  8
 9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28

Current user root
Current directory path is
/root
[root@localhost ~]#
[root@localhost ~]#
```

Task – A

Write shell script named lab1.sh to perform the following tasks:

- **Clear the screen.**
- **Create an empty file named as "utas.txt"**
- **Write a single command to list the file permissions of the current directory, save the output to a file named permission.txt, and then display the contents of the file permission.txt.**
- **Display your name and id.**

```
clear
touch utas.txt
ls –l > permission.txt; cat permission.txt
echo "Ahmed 26J2314"
```

Task – B

1. **Create four directories named UTAS, T1, T2, and T3 inside your home directory using a single command.**
2. **Add the text "Your name, Your ID, LAB-1 Linux Course" by creating a file named LAB1.txt file inside the UTAS directory under your home directory using a single command.**
3. **Create hidden directories named .hidden and .nct in your home directory using a single command.**
4. **Create a parent directory structure as Linux/student/LAB-1 in your home directory using a single command.**

```
mkdir UTAS;mkdir T1;mkdir T2;mkdir T3
echo "Ahmed 26J1232 LAB-1 Linux course" >  ~/UTAS/LAB1.txt
mkdir .hidden;mkdir .nct
mkdir -p Linux/student/LAB-1
```

```
mkdir ~/UTAS ~/T1 ~/T2 ~/T3

echo "Ahmed 26J12121 LAB-1 Linux Course" > ~/UTAS/LAB1.txt

mkdir ~/.hidden ~/.nct

mkdir -p ~/Linux/student/LAB-1
```

Write a shell script named "dir.sh" in your home directory to perform the following tasks:

- **Using a single command, copy the file LAB1.txt from the UTAS directory to the T1 directory, both of which are located under your home directory.**
- **Using a single command, rename the file LAB1.txt to test.txt in the T1 directory, which is located under your home directory.**
- **Using a single command, remove the directory T3 and the hidden directory. nct, which are located under your home directory.**
- **Using a single command, recursively delete the LAB-1 directory located at Linux/student/LAB-1, with the parent directory being under your home directory.**
- **Using a single command, display all folders and subfolders, including hidden folders located under your home directory.**

```
cp ~/UTAS/LAB1.txt ~/T1
mv ~/T1/LAB1.txt ~/T1/test.txt
rmdir ~/T3 ~/.nct
rm -r ~/Linux/Student/LAB-1
ls -Ra
```

Task – C

Create a file named "College.txt" with the below given content and perform the following tasks in command line interface:

Nizwa-college of Technology

Ibri-college of Technology

Nizwa-college of Technology

Ibra-college of Technology

Nizwa-college of Technology

Sohar-college of Technology

- **Write a command to count how many times the string "Nizwa-college of Technology" appears in the file "College.txt"**
- **Write the command to display the first line of the file "College.txt".**
- **Write the command to display the last line of the file "College.txt".**
- **Write the command to display only the branch names from the file 'College.txt' using an appropriate delimiter.**
- **Write the command to display the contents of the file 'College.txt' with duplicate lines removed.**
- **Write the command to display the contents of the file 'College.txt' in descending order**
- **Write the command to change the content of file "College.txt" to upper case.**

```
grep "Nizwa college of Technology" College.txt | wc -l
head -1 College.txt
tail -1 College.txt
cut -d "-" -f1 College.txt
uniq College.txt
sort -r College.txt
cat College.txt | tr [a-z] [A-Z]
```

```
grep -c "Nizwa-college of Technology"
College.txt
head -1 College.txt
tail -1 College.txt
cut -d "-" -f1 College.txt
uniq College.txt
sort -r College.txt
cat College.txt | tr [a-z] [A-Z]
```

Task – D

Write a shell script named "file.sh" in your home directory to perform the following tasks:

- **Write down the command to display the manual for the "ls" command page by page and redirect the output of the entire command to a file named manls.txt**
- **Write the command to determine the type of the file 'manls.txt'.**
- **Write the command to display the file with the smallest size and its permissions.**
- **Write the command to display the empty files and count the number of available empty files in your home directory.**
- **Write the command to delete the empty files in your home directory.**
- **Write a command to display the empty folders and count the number of available empty folders in your home directory.**
- **Write a command to delete the empty folders in your home directory.**

```
man ls | more > manls.txt
file manls.txt
ls -lS | tail -1
find -type f -empty | wc -l
find -type f -empty -delete
find -type d -empty | wc -l
find -type d -empty -delete
```

Task – E

Write the command to display the current date and save the output to a text file named "date.txt".
Write the command to append the current month to the text file named "date.txt".

```
date > date.txt
cal >> date.txt
```

Write the command to create two files, 'students.txt' and 'marks.txt', in your home directory. Enter the student number and name in the file 'students.txt' and student number and marks in 'marks.txt'.

students.txt	**marks.txt**
1 Ahmed	**1 80**
2 Salim	**2 85**
3 Eman	**3 87**

Write a command to combine the two files, students.txt and marks.txt, based on a common field.

```
join  students.txt marks.txt
```

Write the command to create two files, 'name.txt' and 'age.txt', in your home directory. Enter the name in the file 'name.txt' and age in 'age.txt'.

name.txt	**age.txt**
Ahmed	**20**
Salim	**21**
Eman	**20**

Write the command to merge the contents of two files, 'name.txt' and 'age.txt', side by side.

```
paste name.txt age.txt
```