LAB-4.md

LAB 4 – File & Backup Automation

Aim

To design a shell script that automatically creates backups of `.txt` files by saving them with a timestamp in a dedicated `backup/` folder.

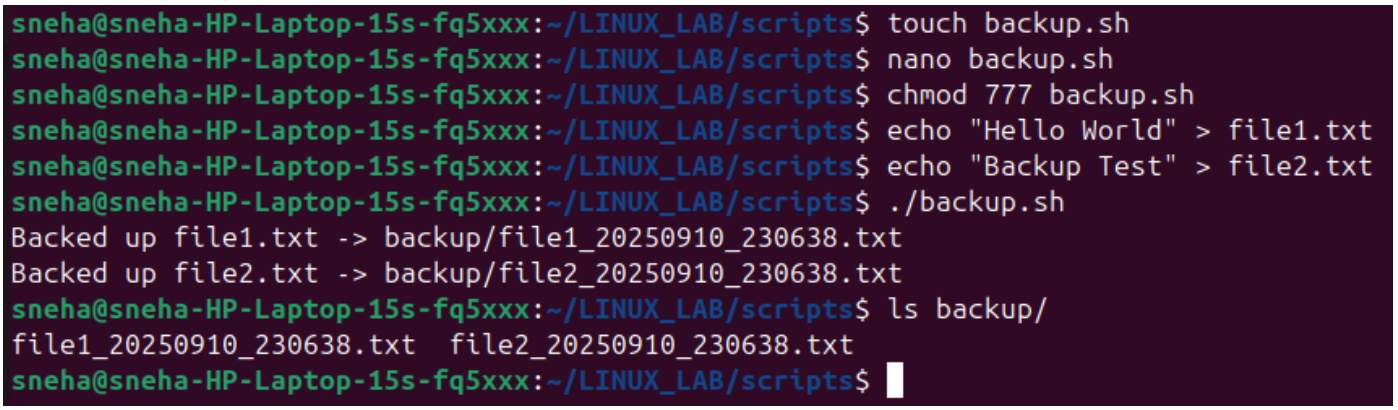
Script Overview: `backup.sh`

- Checks if a folder named `backup/` exists; if not, it creates one.
- Scans the current working directory for all files ending with `.txt`.
- Copies each file into `backup/` while appending the current timestamp to its filename.
- Displays a completion message with the exact timestamp of the backup.

Demonstration

```
$ touch notes.txt report.txt
$ ./backup.sh
Backup completed at 20240908_232900
$ ls backup/
notes_20240908_232900.txt  report_20240908_232900.txt
```

Illustration:



Step-by-Step Explanation

1. Creating sample files

```
$ touch notes.txt report.txt
```

➡ This command makes two empty files, `notes.txt` and `report.txt`. They serve as test files for the backup process.

2. Running the backup script

```
$ ./backup.sh
Backup completed at 20240908_232900
```

➡ When executed, the script:

- Retrieves the current timestamp (`20240908_232900`).
- Ensures the `backup/` folder exists (creates it if missing).
- Copies all `.txt` files into `backup/`, renaming them with the timestamp suffix.
- Prints a confirmation message once the process finishes.

3. Verifying the backup

```
$ ls backup/
notes_20240908_232900.txt  report_20240908_232900.txt
```

➡ Listing the contents of the `backup/` folder confirms that both files were copied successfully and renamed with the timestamp.

Additional Questions

Q1. Distinction between `cp`, `mv`, and `rsync`

Command	Purpose	Key Point
`cp`	Copies files	Leaves the original file untouched
`mv`	Moves or renames	Original file is removed after the move
`rsync`	Synchronizes	Copies only changes, works locally & remotely

Q2. Automating backups with schedulers

In Linux, we can use **cron jobs** to run scripts automatically at fixed times.

```
crontab -e
# Example: Run script every day at 8 AM
0 8 * * * /path/to/backup.sh
```