Script Explanation

STEP 1: Identify the user

```
USER_NAME=$(whoami)
echo "Script run by: $USER_NAME"
```

Main idea: The script identifies the currently logged-in user and displays their username

- `whoami` prints the name of the effective user running the process.
- `USER_NAME=$(whoami)` captures that output into the variable USER_NAME

STEP 2: Identify the user

Main idea: It creates a directory (if it doesn’t exist) for storing daily log files named with the current date

Then it logs:

- Current user and date
- System uptime
- Top 5 CPU-consuming processes
- Disk usage summary

```
LOG_DIR=/home/nongshim/Documents/dailylogs
mkdir -p "$LOG_DIR"
LOGFILE="$LOG_DIR/log_$(date +%Y-%m-%d).txt"
```

In this block

- `LOG_DIR=/home/nongshim/Documents/dailylogs` defines where logs will live. Here I'm using absoulte path which is crucial for cron later.
- `mkdir -p "$LOG_DIR"` creates the directory and any missing parents
- `LOGFILE="$LOG_DIR/log_$(date +%Y-%m-%d).txt"` creates a daily files with name like `log_202510-14.txt`.

```
  echo "User: $USER_NAME"
  echo "Date: $(date)"
  echo "Uptime:"
  uptime
  echo "Top 5 CPU processes:"
  ps -eo pid,comm,%mem,%cpu --sort=-%cpu | head -n 6
  echo "Disk usage:"
  df -h
} > "$LOGFILE"
echo "Daily log saved: $LOGFILE"
```

In this block

- `{ ... } > "$LOGFILE"`: everything inside the braces is redirected once into "$LOGFILE" (overwrites).

STEP 3: Weekly Archiving

Main idea: Every Monday, it automatically compresses the logs from the past week into a .tar.gz archive inside an archive folder

```
mkdir -p "$ARCHIVE_DIR"

DAY_OF_WEEK=$(date +%u)  # 1 = Monday
if [ "$DAY_OF_WEEK" -eq 1 ]; then
  tar -czf "$ARCHIVE_DIR/weeklylogs_$(date +%Y-%m-%d).tar.gz" -C "$LOG_DIR" .
  echo "Weekly archive created."
fi
```

In this block

- `date +%u` returns day number 1..7 (1 = Monday).
- The `if` checks whether today is Monday. If yes, it creates a weekly archive.
- `tar -czf <archive> -C "$LOG_DIR" .`:
- `-c` create, `-z` gzip, `-f` file.
- `-C "$LOG_DIR" .` tells tar to `cd` into `$LOG_DIR` and archive `.` — this avoids nesting the full path inside the archive and results in a clean archive containing the log files directly.

STEP 4: Move Logs Older Than 7 Days

Main idea: Any log file older than 7 days is moved to the archive folder automatically to save space

```
for file in "$LOG_DIR"/log_*.txt; do
  if [ -f "$file" ] && [ $(find "$file" -mtime +7) ]; then
```

```
    mv "$file" "$ARCHIVE_DIR/"
  fi
done
```

In this block

- This loop goes through each log file inside the log directory `$LOG_DIR` that matches the pattern `log_*.txt`.
- For each matching file, it stores the file's full path in the variable `$file`
- `[ -f "$file" ]` ensures the item is a regular file (not a directory or something else)
- `[ $(find "$file" -mtime +7) ]` uses the find command to check if the file was last modified more than 7 days ago.
- The `mv` command transfers the selected log file into the archive directory.
- `$ARCHIVE_DIR` is the folder where old logs are stored to keep the main log directory clean and manageable.
- This prevents the daily log folder from becoming too large.

STEP 5: Menu for Manual Operations

Main idea: The script includes a menu-driven interface for manual control

1. **Archive all logs manually**
2. **Move logs older than 7 days**
3. **View the latest log**
4. **Exit**

```
echo ""
echo "Select an option:"
echo "1) Archive all logs manually"
echo "2) Move logs older than 7 days manually"
echo "3) View latest log"
echo "4) Exit"
read -p "Enter your choice (1-4): " choice
```

In this block

- Shows an interactive menu and reads user choice with `read -p`.

```
case $choice in
  1)
    echo "Archiving all logs..."
    tar -czf "$ARCHIVE_DIR/manual_archive_$(date +%Y-%m-%d).tar.gz" -C "$LOG_DIR"
.
    echo "Manual archive created."
    ;;
```

In this block

- First case if the input is `1` from the user then -
- Create and compress archive: `tar -czf` tells the system to create `-c` a gzip-compressed `-z` archive and save it with a specified filename `-f`.
- Archive filename with date: `"$ARCHIVE_DIR/manual_archive_$(date +%Y-%m-%d).tar.gz"` names the archive using the current date, storing it in the archive folder.
- Archive contents from log directory:`-C "$LOG_DIR"` changes to the log folder so all its files `.` are included in the archive.

```
2)
    echo "Moving logs older than 7 days to archive..."
    for file in "$LOG_DIR"/log_*.txt; do
      if [ -f "$file" ] && [ $(find "$file" -mtime +7) ]; then
        mv "$file" "$ARCHIVE_DIR/"
        echo "Moved $file to archive"
      fi
    done
    ;;
```

In this block

- Second case if the input is`2`.
- `echo` prints `"Moving logs older than 7 days to archive..."` to inform the user that old logs are being processed.
- Loop through logs: for file in `"$LOG_DIR"/log_*.txt; do ... done`iterates over all log files in the log directory.
- **`if`**statement Checks if each file exists and is older than 7 days `-mtime +7`, then **`mv`**moves it to the archive folder and prints confirmation.

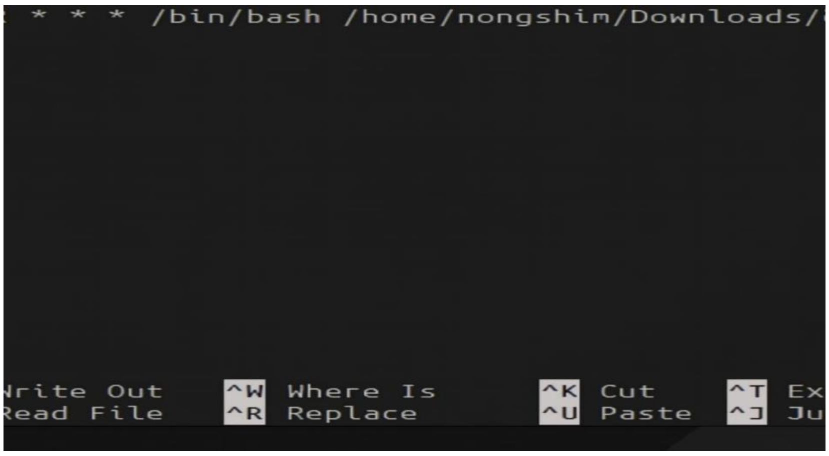
```
3)
    echo "Latest log content:"
    cat "$LOGFILE"
    ;;
  4)
    echo "Exiting..."
    exit 0
    ;;
  *)
    echo "Invalid choice!"
    ;;
esac
```

In this block

- Option 3: if the input is `3` displays `Latest log content:` and uses **`cat "$LOGFILE"`**to show the contents of the most recent log file.
- Option 4: Prints **`Exiting...`**and ends the script using `exit 0`.
- Default case `*`: If the user enters anything other than 1–4, it shows `Invalid choice!`.

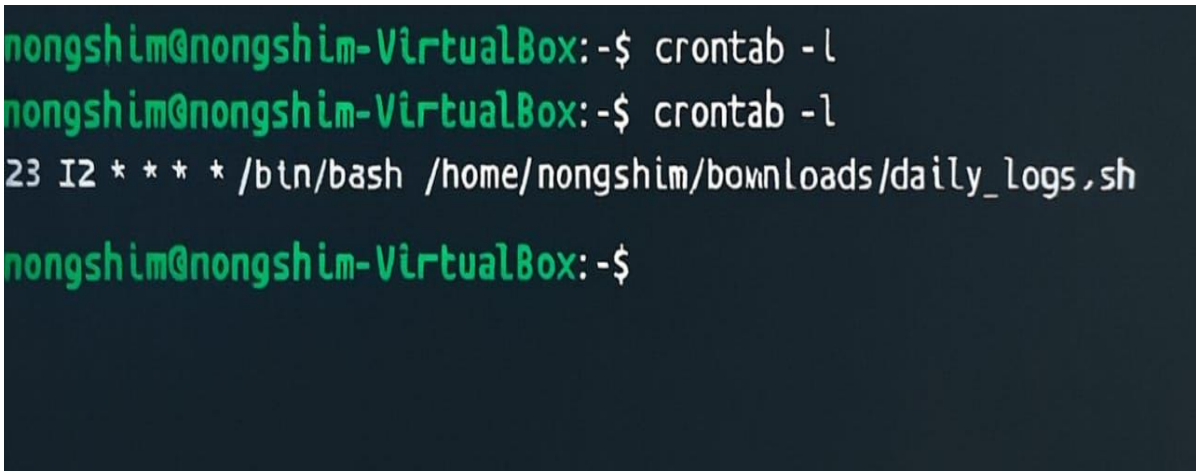
Scheduling Script using Cron

- The script `daily_logs.sh` is scheduled to run automatically every day at `23:22` using the command `crontab -e`.



```
* * * /bin/bash /home/nongshim/Downloads/
```

- Cron reads the schedule and executes the script at the specified time without any manual intervention.
- The full path `/home/nongshim/Downloads/daily_logs.sh` is used to ensure cron can locate the script.



```
nongshim@nongshim-VirtualBox:-$ crontab -l
nongshim@nongshim-VirtualBox:-$ crontab -l
23 I2 * * * /bin/bash /home/nongshim/bownloads/daily_logs,sh

nongshim@nongshim-VirtualBox:-$
```

- This automation ensures that daily logs are created, old logs are archived, and the system monitoring process runs consistently without the user having to run the script manually.

OBSERVATIONS

- The script successfully creates a daily log file containing user **info**, **date/time**, **system uptime**, top **CPU-consuming processes**, and **disk usage**.
- The script is automated using **Crontab**, scheduled to run daily at `23:22`, ensuring logs are generated and managed without manual execution.
- Daily log files are automatically named with the current date, making them easy to organize and sort.
- The script creates directories `dailylogs` and `archive` automatically if they don't exist, ensuring smooth execution.
- On Mondays, it automatically generates a weekly compressed archive `.tar.gz` of all logs.
- Logs older than **7 days** are automatically moved to the archive folder, preventing clutter in the main log directory.
- The manual menu allows the user to archive all logs, move old logs, view the latest log, or exit.
- Compressed archives store logs in a neat and space-efficient manner.

CONCLUSION

The project demonstrates practical skills in **Linux automation** and **shell scripting**.
