

**Name:** Lakshay Dhanda

**SAP ID:** 590029328

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## AIM

To create and schedule a shell script that:

- Logs system information daily
  - Stores logs in a dedicated folder
  - Rotates logs older than 7 days
  - Runs automatically using **cron**
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## Requirements

- Any Linux distribution (e.g., Linux Mint / Ubuntu / Pop!\_OS)
  - Text editor (Nano, Vim, VS Code, etc.)
  - Cron service enabled
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## Theory

System administrators often automate logs to track performance and system health. This experiment focuses on:

1. Collecting system data: processes, memory, disk usage, user info
  2. Saving daily logs with date-based filenames
  3. Deleting old logs automatically
  4. Scheduling tasks using **cron**
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## Exercise 1: Creating the Daily Log Script

### Task:

Create a Bash script that saves system info and rotates logs older than 7 days.

### Script (daily\_log.sh):

```
#!/bin/bash

LOG_DIR="$HOME/daily_logs"
mkdir -p "$LOG_DIR"

# Create a log file with today's date
LOG_FILE="$LOG_DIR/log_$(date +"%Y-%m-%d").txt"
```

```
# Record system information
{
    echo "===== Daily System Log ====="
    echo "Date: $(date)"
    echo "User: $USER"
    echo

    echo "===== Top 5 Running Processes (by CPU) ====="
    ps -eo pid,user,comm,%cpu,%mem --sort=-%cpu | head -n 6
    echo

    echo "===== Disk Usage ====="
    df -h
    echo

    echo "===== Memory Usage ====="
    free -h
} > "$LOG_FILE"

# Delete logs older than 7 days
find "$LOG_DIR" -type f -name "log_*.txt" -mtime +7 -exec rm {} \;

echo "Log saved to: $LOG_FILE"
```

## Output Screenshot:

```
GNU nano 7.2                                lakshay42@lakshay42-VirtualBox: ~
#!/bin/bash                                daily_log.sh

LOG_DIR="$HOME/daily_logs"
mkdir -p "$LOG_DIR"

LOG_FILE="$LOG_DIR/log_$(date +%Y-%m-%d).txt"

echo "===== Daily System Log ====="
echo "Date: $(date)"
echo "User: $USER"
echo
echo "===== Top 5 Running Processes (by CPU) ====="
ps -eo pid,user,comm,%cpu,%mem --sort=-%cpu | head -n 6
echo
echo "===== Disk Usage ====="
df -h
echo
echo "===== Memory Usage ====="
free -h
echo "$LOG_FILE"

find "$LOG_DIR" -type f -name "log_*.txt" -mtime +7 -exec rm {} \;

echo "Log saved to: $LOG_FILE"
```

## Exercise 2: Scheduling the Script Using Cron

### Task:

Schedule the script to run daily.

## Steps:

1. Open crontab:

```
crontab -e
```

2. Add this line:

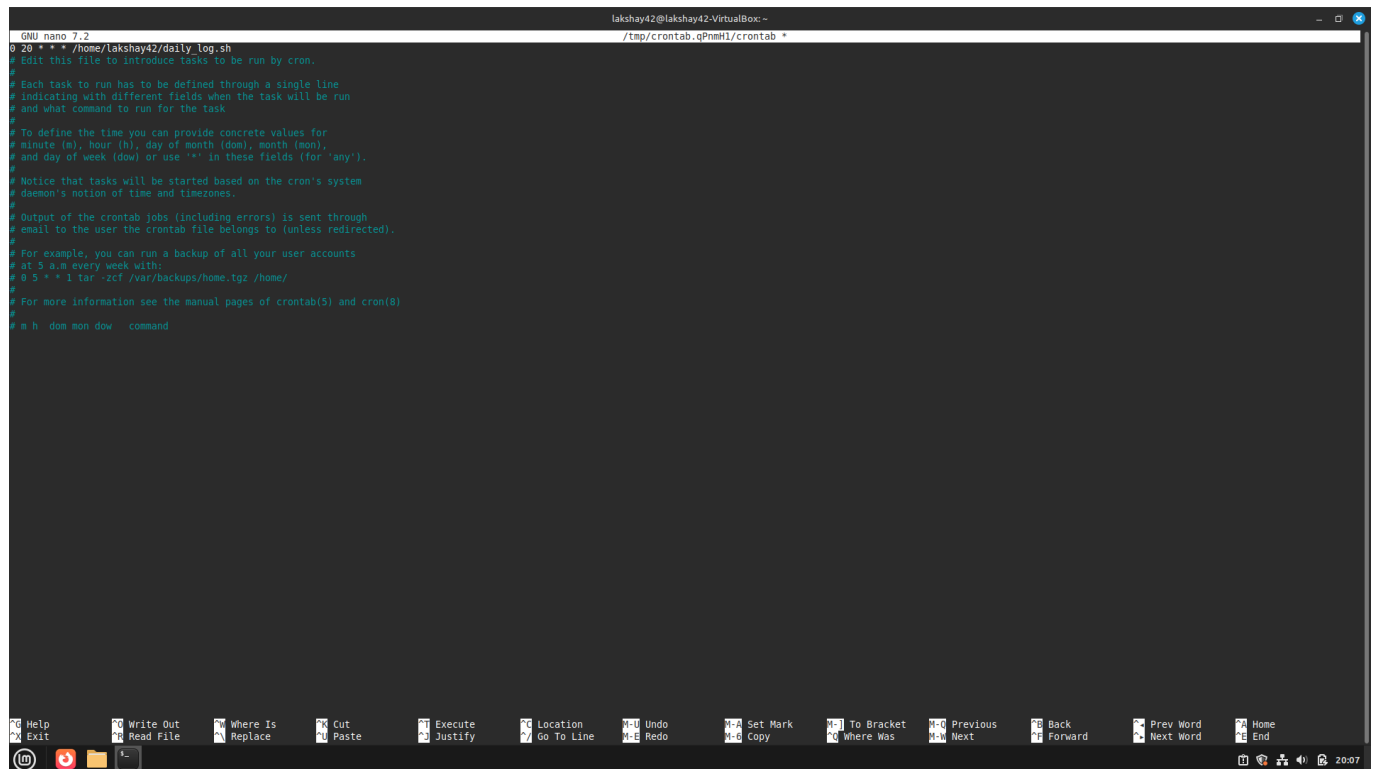
```
0 20 * * * /home/lakshay42/daily_log.sh
```

This runs the script.

## Cron Format Reminder:

```
m h dom mon dow command
```

## Cron Screenshot:

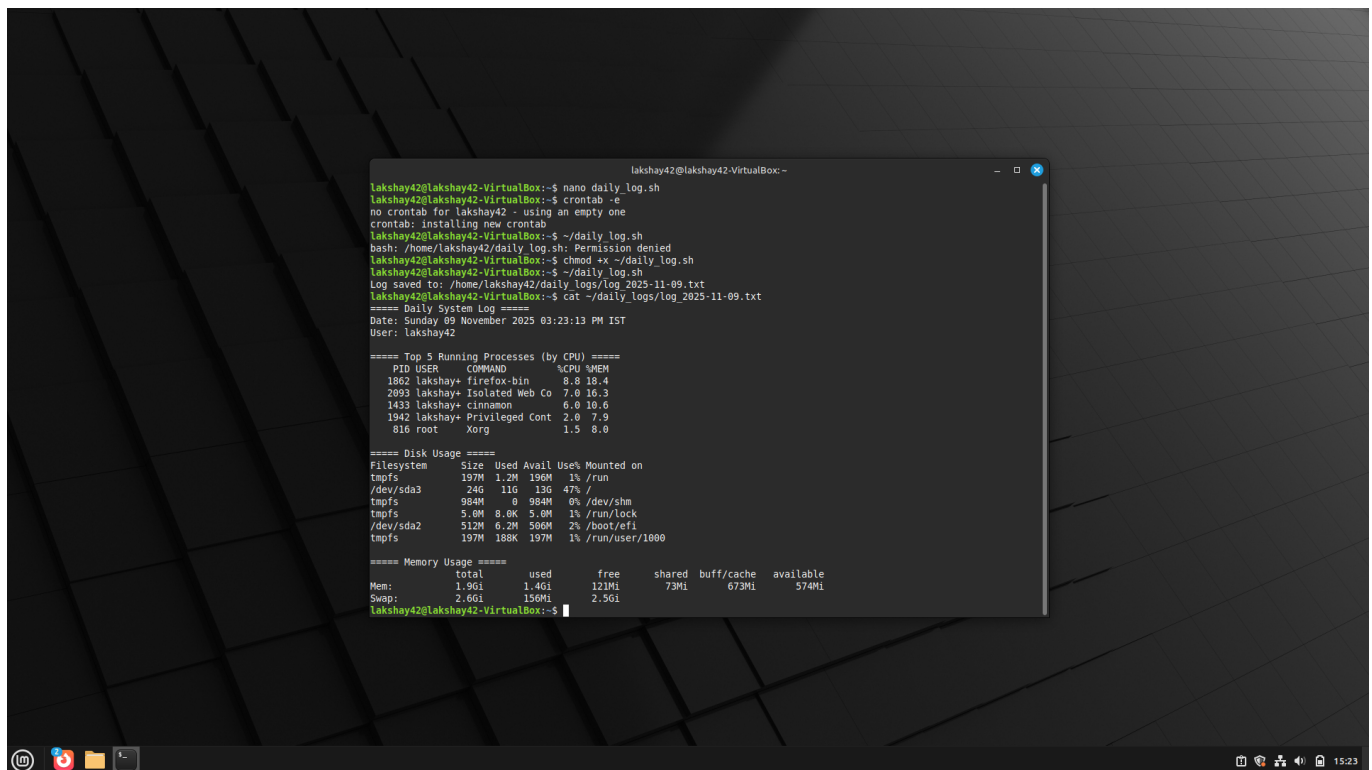


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## Final Output

The script successfully:

- Creates a new log file daily
- Shows running processes, memory usage, disk usage
- Deletes old logs (older than 7 days)
- Runs automatically via cron



```

lakshay42@lakshay42-VirtualBox: ~
lakshay42@lakshay42-VirtualBox:~$ nano daily_log.sh
lakshay42@lakshay42-VirtualBox:~$ crontab -e
no crontab for lakshay42 - using an empty one
crontab: installing new crontab
lakshay42@lakshay42-VirtualBox:~$ ~/daily_log.sh
bash: ~/daily_log.sh: Permission denied
lakshay42@lakshay42-VirtualBox:~$ chmod +x ~/daily_log.sh
lakshay42@lakshay42-VirtualBox:~$ ~/daily_log.sh
Log saved to: /home/lakshay42/daily_logs/log_2025-11-09.txt
lakshay42@lakshay42-VirtualBox:~$ cat ~/daily_logs/log_2025-11-09.txt
===== Daily System Log =====
Date: Sunday 09 November 2025 03:23:13 PM IST
User: lakshay42

===== Top 5 Running Processes (by CPU) =====
  PID USER      COMMAND      %CPU %MEM
 1862 lakshay+  firefox-bin    8.8 18.4
 2093 lakshay+  Isolated Web Co  7.0 16.3
 1433 lakshay+  cinnamon      6.0 10.6
 1942 lakshay+  Privileged Cont  2.0  7.9
   816 root      Xorg          1.5  8.0

===== Disk Usage =====
Filesystem      Size  Used Avail Use% Mounted on
tmpfs            197M  1.2M  196M   1% /run
/dev/sda3        24G   11G   13G   47% /
tmpfs            984M    0   984M   0% /dev/shm
tmpfs            5.0M  8.0K  5.0M   1% /run/lock
/dev/sda2        512M  6.2M  506M   2% /boot/efi
tmpfs            197M  188K  197M   1% /run/user/1000

===== Memory Usage =====
              total    used      free   shared  buff/cache   available
Mem:          1.9Gi    1.4Gi    121Mi    73Mi    673Mi    574Mi
Swap:         2.6Gi    150Mi    2.5Gi

```

## Conclusion

This experiment demonstrates automation using shell scripting and cron. The daily log script efficiently captures system information and maintains a clean log directory by removing older log files. Cron ensures the script runs consistently without manual intervention.