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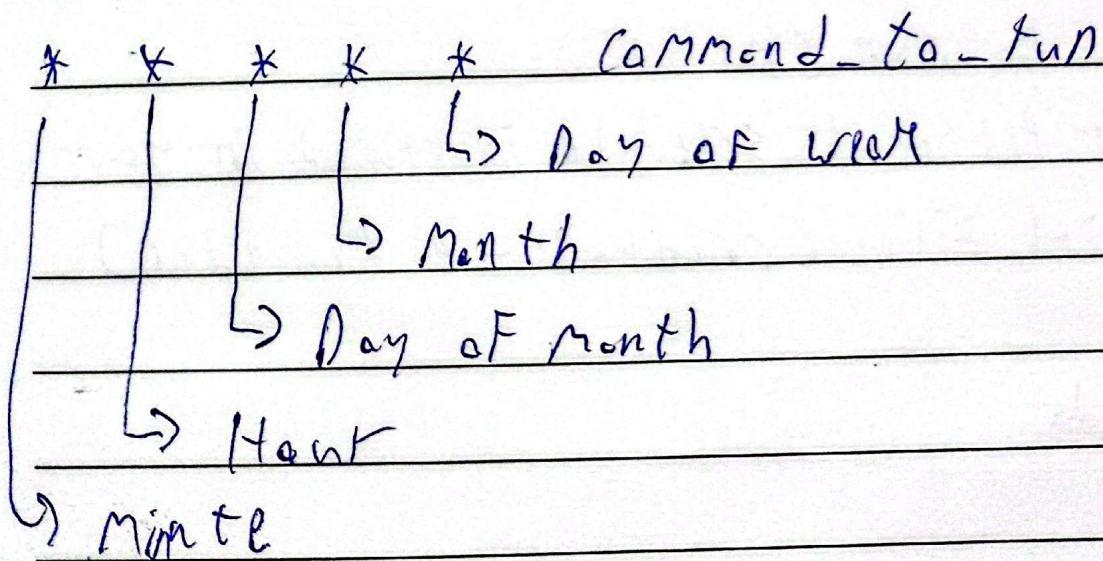


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Open-Ended Questions Log 6

1 - How does cron scheduling work? Show a cron tab entry to run a script every 5 minutes

• cron uses a Five-Field Format to define the schedule:



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Each Field can be:

- A specific number (e.g. 5)
- A wildCard * (Meaning "every")
- A range (e.g. 1-5)
- A step (e.g. */5 means "every 5 units")

to run a script every 5 minutes

↳ */5 * * * command

2 - Why do we need log rotation? Show an example logrotate config for temp.log

Log rotation is very important to prevents disk exhaustion → large logs can fill up storage quickly

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it also improve reliability → smaller logs is easier to inspect and debug
you can also keep recent logs and archive & delete old ones

Ex: in /etc/logrotate.d/tem1

/home/william/int-logger/logs/
temp.log {

size 1M

rotate 5

compress

missingok

notifempty

copytruncate 3

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3- Explain the diff between a virtual machine and a container. Must containers use the same OS as the host? Why or why not?

VM Vs Containers:

| Feature | (VM) | Container |
|----------------|---|-------------------------------------|
| isolation | Full includes its own OS and runs host OS | Lightweight shares host OS kernel |
| Resource usage | Heavy needs Full OS | Efficient - only app + dependencies |
| Startup time | Slow | Fast |

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(C & M)

Container

| | | |
|----------|------------------|---------------|
| Security | Shared isolation | Less isolated |
| | isolation | |

- yes they have to use the same OS
 - * Linux containers runs on Linux host
 - * windows containers runs on windows host
- Bec they rely on the host's kernel

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→ Which actions in this Project combine?

Multiple Linux concepts? How does this apply to real IoT systems?

1. Sensor Script (Python) + File I/O
+ Background Processing

Ex: Python3 -m .. /scripts/sensor-scripts
.py >> temp.log &

2. Process Monitoring + File Descriptor

Ex: ps aux | grep Python3

or ls -l /proc/8398/FD

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3. Log rotation + archiving + scheduling

We used logrotate to manage retention

We used SCP and rsync for archiving

We used cron for scheduling

In real life systems the continuous data generation demands automated logging and rotation to avoid storage issues. Background processes must be monitored also logs should be archived and transferred in a secure way also using Access Control is very important and most of the work should be automated especially on limited hardware like a pi