

مکتب شریف

اولین بوتکمپ آموزشی - استخدامی ایران



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مکتب 137





Project Description

Your task is to build a Log Analysis & Automation Toolkit used by a DevOps team to analyze server logs, extract useful information, and automate routine operations.

The project must include:

- Python CLI (argparse)
- Regex pattern extraction
- Bash scripting for automation

✓ Feature 1 – Python CLI Tool (Argparse)

Create **logmaster.py** with the following commands:

1. **scan** – Scan a log file

```
python logmaster.py scan --file access.log --ip
```

```
python logmaster.py scan --file access.log --url
```

```
python logmaster.py scan --file access.log --errors
```

Flags:

- **--ip** → extract all IPs (regex)
- **--url** → extract all URLs
- **--errors** → detect HTTP errors (4xx, 5xx)
- **--count** → print count of occurrences
- **--export output.txt** → save results to file

2. **stats** — Generate statistics

```
python logmaster.py stats --file access.log
```

Output:

- unique IP count
 - most requested endpoint
 - error rate
 - average response size
-

3. **clean** — Clean logs

```
python logmaster.py clean --file logs.txt --remove-ip
```

Regex-based cleaning:

- remove all IPs
- mask emails
- remove timestamps

- extract only **/api/** requests
-

4. **monitor** – Live log tailing

`python logmaster.py monitor --file server.log --contains ERROR`

Should:

- follow the log file like **tail -f**
- print only lines matching regex

(Hint: Use file seek + loop)

Regex Requirements

You must write regex patterns for:

- ✓ IP addresses
 - ✓ Email masking
 - ✓ Timestamps
 - ✓ HTTP requests
 - ✓ URLs
 - ✓ 4xx and 5xx error codes
-

Bash Script Automation

Create a Bash script `auto_logs.sh`:

Must support:

1. Automatic daily log backup
 2. Archive logs that are older than 7 days
 3. Trigger the Python tool:
 - run `logmaster.py scan --errors daily`
 - save summary to `/var/log/logmaster/report.txt`
 4. Check disk usage:
 - if > 90%, print WARNING: Low disk space
-

You can find real log files in `/var/log*` , hug linux tight :)

نکات :

- مهلت ارسال تمرین تا پایان روز چهارشنبه 5 / 09 / 1404 است
- پاسخ تمرین را در سامانه مودل ارسال کنید
- نام فایل ارسالی خود را به این صورت قرار دهید : Name_hw1_maktab137
- به عنوان مثال Mahdi_Zolfaghari_hw1_maktab137
- در صورتی که تمرین شامل چند فایل یا فولدر میباشد حتما آن را در قالب یک فایل فشرده شده تجميع کنید.