

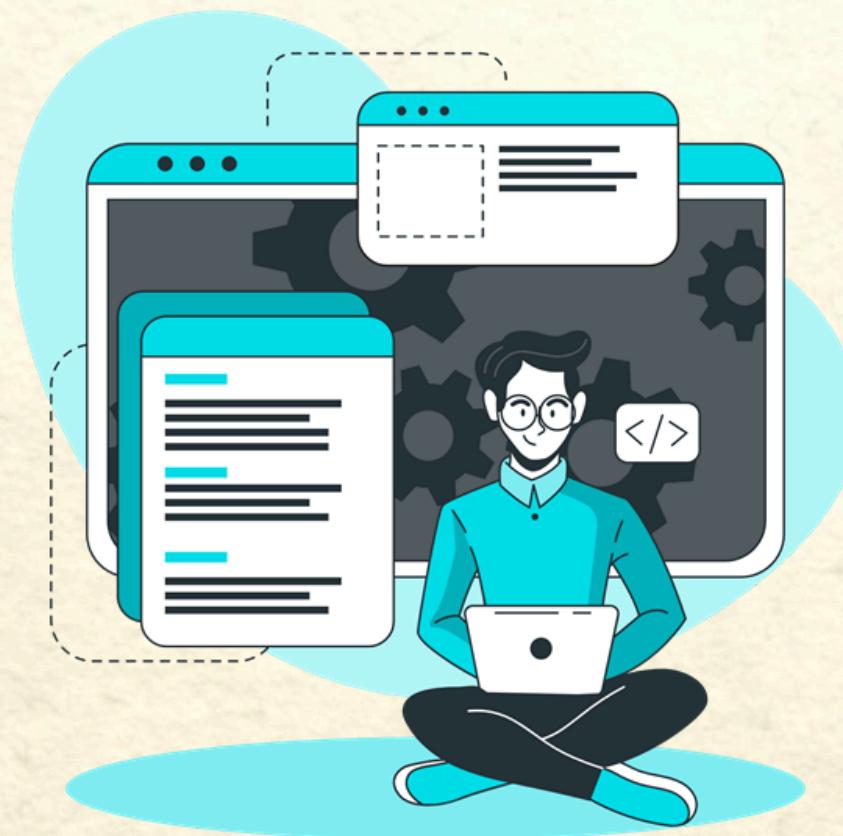
# مکتب شریف

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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

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## 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
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#### 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)

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## 🧠 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

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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 مدل ارسال کنید
  - نام فایل ارسالی خود را به این صورت قرار دهید : Name\_hw1\_maktab137
- Mahdi\_Zolfaghari\_hw1\_maktab137
- در صورتی که تمرین شامل چند فایل یا فolder میباشد حتما آن را در قالب یک فایل فشرده شده تجمعی کنید.