

NGINX Log Anomaly Dashboard

What's the problem?

Every time someone visits a website, the server logs what happens – what page was created, by who, when and whether the request succeeded or failed. These logs can tell us a lot, especially when something goes wrong.

Your job is to build a **dashboard web app** that reads NGINX access logs and displays useful information, such as strange or unexpected behavior — like errors happening too fast, or someone making way too many requests.

Example server log:

```
20.171.207.17 - - [17/Apr/2025:05:10:56 +0100] "GET /music/ HTTP/2.0" 200 10353 "-"
"Mozilla/5.0 AppleWebKit/537.36 (KHTML, like Gecko; compatible; GPTBot/1.2;
+https://openai.com/gptbot)"
```

Server log explained:

20.171.207.17: Client IP Address

[17/Apr/2025:05:10:56 +0100]: Timestamp. The date and time of the request, including the time zone (+0100).

"GET /music/ HTTP/2.0": GET is the HTTP method. /music/ is the path requested. HTTP/2.0 is the protocol version used.

200: HTTP status code. 200 means success — the page loaded normally.

10353: Size of the response in bytes (how much data was sent back).

"Mozilla/5.0 AppleWebKit/537.36 (KHTML, like Gecko; compatible; GPTBot/1.2; +<https://openai.com/gptbot>)": The **User-Agent** string: tells you what browser, bot, or tool made the request. In this case, it's **OpenAI's GPTBot** — an automated tool, not a human browser.

Your mission:

Build a webtool that:

1. Reads NGINX access logs
2. Finds and highlights weird patterns in the data
3. Shows useful stats and charts in a clean dashboard

Dashboard features:

You have freedom in the development of the dashboard. It can include features like:

- Organize the data to be **easy to read and interpret**
- **Interactive filters** (e.g., by time, IP address, status code)
- Display your findings using **charts, tables, or graphs**
- **Export/download a summary report**
- Make the interface **clean, clear, and useful**
- Think about user experience: if someone were debugging a real issue, would your dashboard help?

Parse and analyze logs

- Understand the structure of a NGINX access log (hint: each line tells you the time, IP, requested URL, status code, etc.)
- Break it down to show:
 - What methods were used (GET, POST)
 - What URLs were requested
 - What response codes appeared (200, 404, etc.)
 - Which IPs were most active

Detect anomalies

- Look for things like:
 - Sudden bursts of errors
 - One IP sending way more requests than usual

- Unusual behavior compared to the average baseline

Bonus ideas

- Show locations of IPs on a map
- Use color-coding to highlight anomalies
- + Anything else you can come up with!

Hints:

- Logs are just text files – start by reading them line by line
- Use any language you are comfortable with
- Keep your project modular — parsing, analyzing, and visualizing can be separate parts

While your dashboard should be able to parse logs, detect basic anomalies, and show helpful summaries, the rest is up to you.

We care about:

- **Functionality** (does it work?)
- **Clarity** (is it easy to use?)
- **Creativity** (did you think beyond the obvious?)

Don't be afraid to add your own twist — maybe it's a cool visualization, a smart way to group data, or even a quirky feature that makes debugging fun.

Surprise us. Impress us. Most of all, make something you're proud of.

Good luck, and happy hacking!