Introduction:

This Flask-based REST API provides functionality for managing log files. It allows users to:

- Count distinct queries based on date.
- Add new log entries.
- Delete specific log entries that is kept as data_prefix in the code(both date and full timestamp).

Features:

GET Requests:

- o Endpoint: /queries/count/<date_prefix>
- Description: Returns the count of distinct queries in the log file that match the provided date prefix. Wrks both just dates or full timestamp: YYYY-MM-DD or YYYY-MM-DD HH:MM:SS.
- o Example: curl -X GET http://127.0.0.1:5000/queries/count/2024-09-13 or http://127.0.0.1:5000/queries/count/2024-09-13%2012:45:00

POST Requests:

- o Endpoint: /queries/count/<date_prefix>
- o Description: Adds a new log entry to the log file.
- Payload Example: // IN POWER SHELL- since the curl does not support
 post request method on windows i used Invoke-RestMethod
 PS C:\Users\FatPinguin> \$headers = @{"ContentType"="application/json"}
 >> \$body = '{"timestamp": "2024-09-13 12:45:00", "query": "search
 term 1"}'
 >>
 - >> Invoke-RestMethod -Uri http://127.0.0.1:5000/queries/count/2024 Method POST -Headers \$headers -Body \$body
 - ** this is a template that i prepared so that it would be easy for me to edit and create specific post requests. Thats why i am using header and body.

DELETE Requests:

- o Endpoint: /queries/count/<date_prefix>
- Description: Deletes log entries that match the provided date prefix. Supports both date and full timestamp prefixes.
- Example: curl -X DELETE http://127.0.0.1:5000/queries/count/2024-09-13

Efficiency Choices:

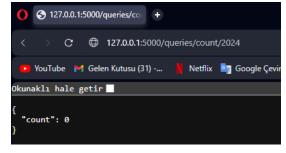
1. lru_cache:

This cache decorator is used to avoid reading the log file multiple times when querying for the same date_prefix. In code i used the line "@lru_cache(maxsize=4)" because initially there is only 4 different days in .tsv file as in 2015-08-01/04.

2. File Parsing with startswith:

This would ensure that the code will be able to filter log entries with both full timestamps and date prefixes using the startswith method,

Here is how the features work with example case and images: we want to search for the log "2024-09-13 12:45:00 search term 1". First thing we do is to create a get request after starting the flask server. I used http://127.0.0.1:5000/queries/count/2024 it is a get request i don't have to use curl on cmd. I can simply execute this on the browser. And i get count: 0 , since the .tsv file doesn't have any logs that starts with 2024.



Then i want to add a log that starts with 2024. For example one of the examples from assignment mail:

2024-09-13 12:45:00 search term 1

Then i need to use windows power shell in order to use Invoke-RestMethod to cereate a post request.

```
Windows PowerShell

PS C:\Users\FatPinguin> $headers = @{"Content-Type"="application/json"}

>> $body = '{"timestamp": "2024-09-13 12:45:00", "query": "search term 1"}'

>> Invoke-RestMethod -Uri http://127.0.0.1:5000/queries/count/2024 -Method POST -Headers $headers -Body $body

message
------
New log entry added!

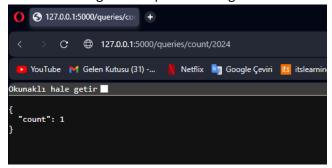
PS C:\Users\FatPinguin>
```

The command that i use to create post request:

```
"$headers = @{"Content-Type"="application/json"}
$body = '{"timestamp": "2024-09-13 12:45:00", "query": "search term 1"}'
```

Invoke-RestMethod -Uri http://127.0.0.1:5000/queries/count/2024 -Method POST Headers \$headers -Body \$body"

After "adding" the specific log file we create the get request again:



Now we can see the count is 1. Lets check the tsv file:

```
e main.py

    ■ hn_logs.tsv >
     *.tsv files are supported in other JetBrains IDEs
    ⚠ The file is too large: 133.99 MB. Read-only mode.
                                                                                                          wzrwzrwww.poriniob.comwzryiew_video.pnpwaryiewkeywadi90790937i
2015-08-04 05:52:06 chef
2015-08-04 05:52:08 jakeaustwick.me
2015-08-04 05:52:10 subscription
2015-08-04 \ 05:52:11 \ http://34%2F%2Fwww.callapple.org%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannouncing-apple-iigs-system-6-0-2%2Fsoftware%2Fannoun
2015-08-04 05:52:11 http%3A%2F%2Fwebboard.yenta4.com%2Ftopic%2F116168
2015-08-04 05:52:12 C%252B%252B
2015-08-04 05:52:14 http%3A%2F%2Fwww.cheap-sim.com%2F565%2F
2015-08-04 05:52:16 http%3A%2F%2Fwww.wenxuecity.com%2Fnews%2F2015%2F08%2F03%2F4459822.html
2015-08-04 05:52:16 CMO
2015-08-04 05:52:16 avocarrot
 2024-09-13 12:45:00 search term 1
```

If we try to delete the specific logs that starts with a specific date or full timestamp we can use something like this:

curl -X DELETE http://127.0.0.1:5000/queries/count/2024-09-13

0r

curl -X DELETE http://127.0.0.1:5000/queries/count/2024-09-13%2012:45:00

Since there is no " "(space) in curl commands we identify it with "%20" in timestamps.