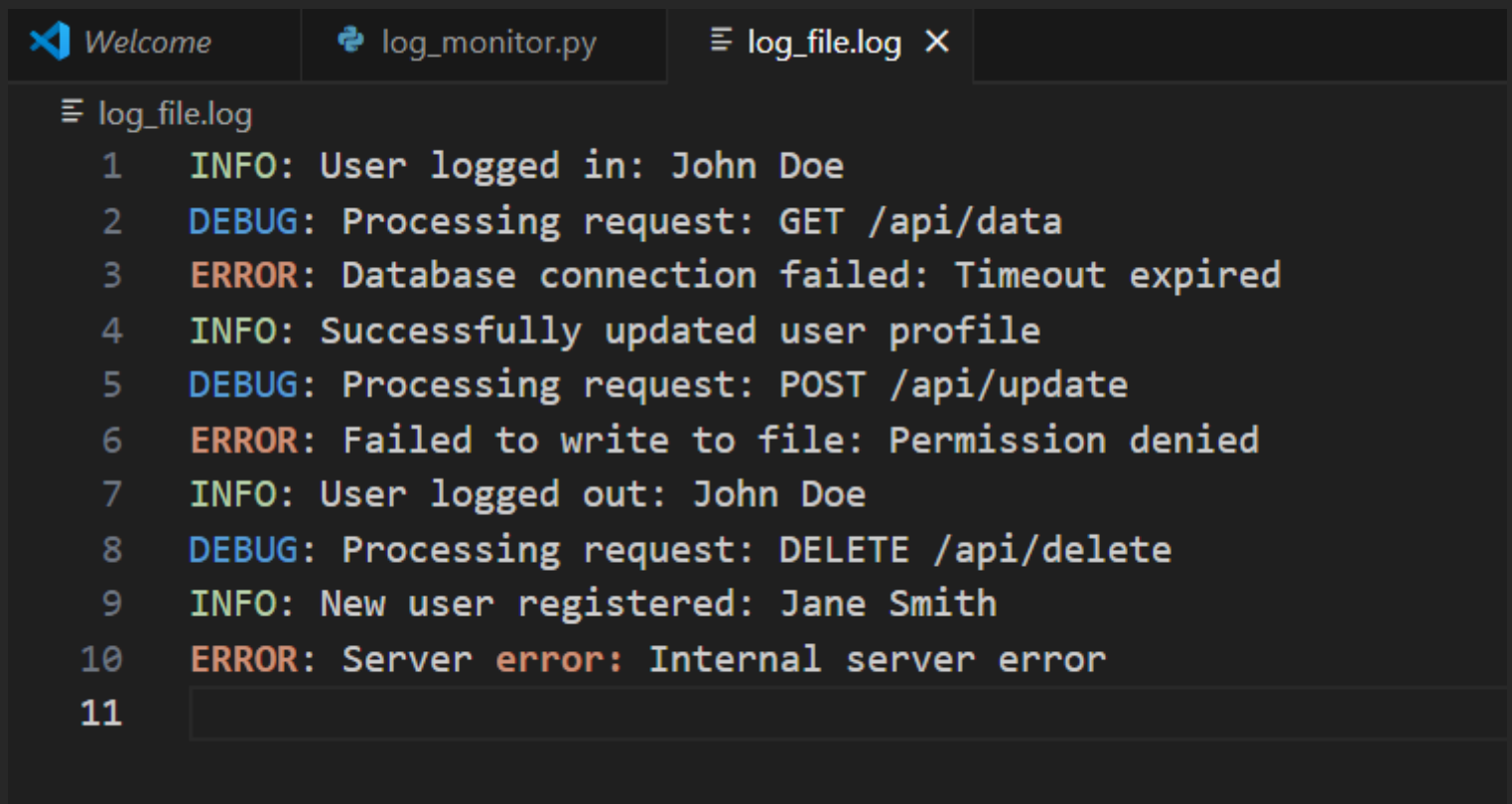# DevOps Internship Assignment

Tasks:

1) Log File Monitoring:

● Write a script that continuously monitors a specified log file for new entries.

● Use tail or similar commands to track and display new log entries in real time.

● Implement a mechanism to stop the monitoring loop

Implementation:

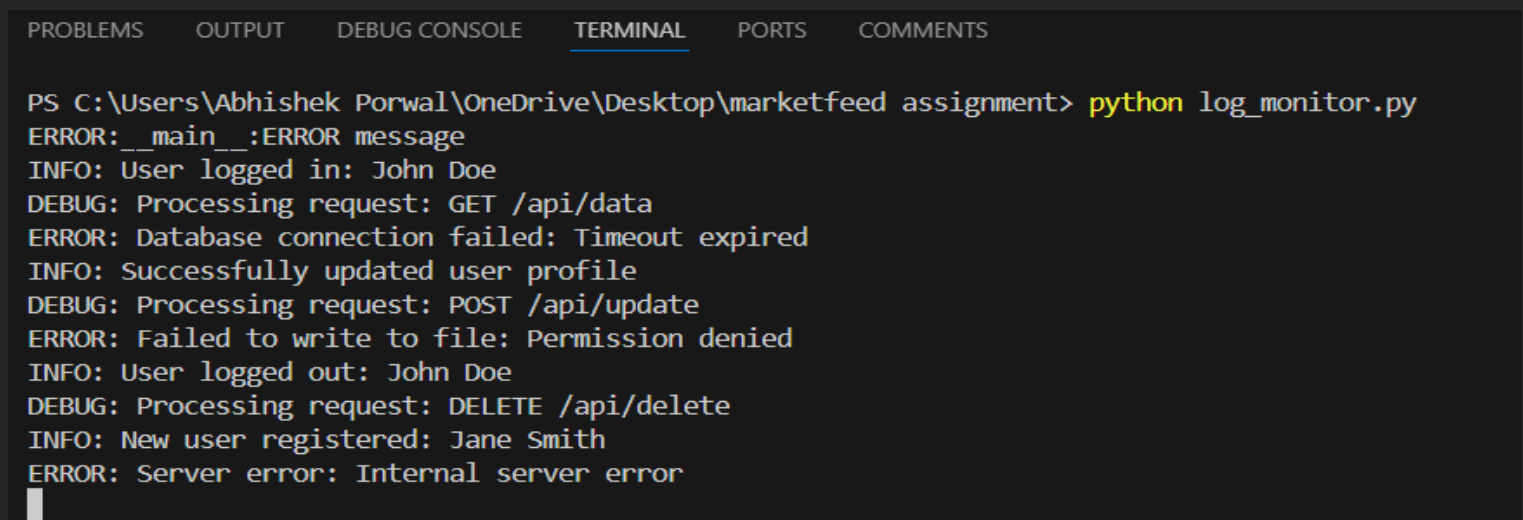✓ This task is implemented using **log_monitor.py and log_file.log** present in the git repository.

1. Initially log file:

```
log_file.log
   1    INFO: User logged in: John Doe
   2    DEBUG: Processing request: GET /api/data
   3    ERROR: Database connection failed: Timeout expired
   4    INFO: Successfully updated user profile
   5    DEBUG: Processing request: POST /api/update
   6    ERROR: Failed to write to file: Permission denied
   7    INFO: User logged out: John Doe
   8    DEBUG: Processing request: DELETE /api/delete
   9    INFO: New user registered: Jane Smith
  10    ERROR: Server error: Internal server error
  11
```

2. On terminal we run : **python log_monitor.py**

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS    COMMENTS

PS C:\Users\Abhishek Porwal\OneDrive\Desktop\marketfeed assignment> python log_monitor.py
ERROR:__main__:ERROR message
INFO: User logged in: John Doe
DEBUG: Processing request: GET /api/data
ERROR: Database connection failed: Timeout expired
INFO: Successfully updated user profile
DEBUG: Processing request: POST /api/update
ERROR: Failed to write to file: Permission denied
INFO: User logged out: John Doe
DEBUG: Processing request: DELETE /api/delete
INFO: New user registered: Jane Smith
ERROR: Server error: Internal server error
```

3. Made changes to the log file changes are reflected in the terminal:

```
log_file.log ●    log_analysis.py

log_file.log
 1    INFO: User logged in: John Doe
 2    DEBUG: Processing request: GET /api/data
 3    ERROR: Database connection failed: Timeout expired
 4    INFO: Successfully updated user profile
 5    DEBUG: Processing request: POST /api/update
 6    ERROR: Failed to write to file: Permission denied
 7    INFO: User logged out: John Doe
 8    DEBUG: Processing request: DELETE /api/delete
 9    INFO: New user registered: Jane Smith
10    ERROR: Server error: Internal server error
11    Abhishek Porwal is monitoring
```

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS    COMMENTS

PS C:\Users\Abhishek Porwal\OneDrive\Desktop\marketfeed assignment> python log_monitor.py
INFO:__main__:INFO message
INFO: User logged in: John Doe
DEBUG: Processing request: GET /api/data
ERROR: Database connection failed: Timeout expired
INFO: Successfully updated user profile
DEBUG: Processing request: POST /api/update
ERROR: Failed to write to file: Permission denied
INFO: User logged out: John Doe
DEBUG: Processing request: DELETE /api/delete
INFO: New user registered: Jane Smith
ERROR: Server error: Internal server error
Abhishek Porwal is monitoring

Logging interrupted. Exiting.
PS C:\Users\Abhishek Porwal\OneDrive\Desktop\marketfeed assignment> ▯
```

Hence, we implemented Monitoring.

Code Explanation:

1) Logger Setup:
   ➢ Sets up logging to record messages at different levels like "INFO", "DEBUG", and "ERROR".
2) Logging and Monitoring Loop:
   ➢ Runs a loop endlessly.
   ➢ In each iteration, randomly picks a logging level ("INFO", "DEBUG", or "ERROR").
   ➢ Logs a message at that level and monitors a log file for changes.
3) Monitoring Log File Function:
   ➢ Continuously checks for changes in the log file.
   ➢ If there's a new line added to the log file, it prints it out.
4) Keyboard Interrupt Handling:
   ➢ Gracefully handles the interruption caused by pressing Ctrl+C.
   ➢ Stops the logging and monitoring loop when interrupted.

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2) Log Analysis:

● Enhance the script to perform basic analysis on log entries.

● Count occurrences of specific keywords or patterns (e.g., error messages, HTTP status code).

● Generate summary reports (e.g., top error message)

 Implementation:

   ✓ This task is implemented using **log_analysis.py and log_file.log** present in the git repository.

1) Initially log file:

```
≡ log_file.log ×      ⬢ log_analysis.py

≡ log_file.log
    1    INFO: User logged in: AP
    2    DEBUG: Processing request: GET /api/data
    3    ERROR: Database connection failed: Timeout expired
    4    INFO: Successfully updated user profile
    5    DEBUG: Processing request: POST /api/update
    6    ERROR: Failed to write to file: Permission denied
    7    INFO: User logged out: AP
    8    INFO: New user registered: asdfghjkl
    9    ERROR: Server error: Internal server error
```

2. On terminal we run : **python log_analysis.py** we will get the monitoring and summary report as well.

```
PS C:\Users\Abhishek Porwal\OneDrive\Desktop\marketfeed assignment> python log_analysis.py
DEBUG:__main__:DEBUG message
INFO: User logged in: AP
ERROR:__main__:ERROR message
DEBUG: Processing request: GET /api/data
DEBUG:__main__:DEBUG message
ERROR: Database connection failed: Timeout expired

Error Summary:
ERROR: Database connection failed: Timeout expired: 1 occurrences

DEBUG:__main__:DEBUG message
INFO: Successfully updated user profile

Error Summary:
ERROR: Database connection failed: Timeout expired: 1 occurrences

DEBUG:__main__:DEBUG message
DEBUG: Processing request: POST /api/update

Error Summary:
ERROR: Database connection failed: Timeout expired: 1 occurrences
```

```
ERROR:__main__:ERROR message
ERROR: Failed to write to file: Permission denied

Error Summary:
ERROR: Database connection failed: Timeout expired: 1 occurrences
ERROR: Failed to write to file: Permission denied: 1 occurrences

DEBUG:__main__:DEBUG message
INFO: User logged out: AP

Error Summary:
ERROR: Database connection failed: Timeout expired: 1 occurrences
ERROR: Failed to write to file: Permission denied: 1 occurrences

DEBUG:__main__:DEBUG message
INFO: New user registered: asdfghjkl

Error Summary:
ERROR: Database connection failed: Timeout expired: 1 occurrences
ERROR: Failed to write to file: Permission denied: 1 occurrences

ERROR:__main__:ERROR message
ERROR: Server error: Internal server error

Error Summary:
ERROR: Database connection failed: Timeout expired: 1 occurrences
ERROR: Failed to write to file: Permission denied: 1 occurrences
ERROR: Server error: Internal server error: 1 occurrences

DEBUG:__main__:DEBUG message

Logging interrupted. Exiting.
PS C:\Users\Abhishek Porwal\OneDrive\Desktop\marketfeed assignment> |
```

Hence, we implemented Analysis.

Code Explanation:

1) Logger Setup:
   ➢ Sets up logging to record messages at different levels like "INFO", "DEBUG", and "ERROR".
2) Monitoring Log File Function (monitor_log_file()):
   ➢ Constantly watches a log file for new messages.
   ➢ Counts how many times "ERROR" messages appear.
3) Main Loop Function (main()):
   ➢ Writes random log messages.
   ➢ Checks the log file for updates.
   ➢ If an "ERROR" message is found, it counts it and reports how many times it occurred.
4) Keyboard Interrupt Handling:
   ➢ Gracefully handles the interruption caused by pressing Ctrl+C.
   ➢ Stops the monitoring loop when interrupted.