1. GET /logs:

   Should return all log entries in a structured format (e.g., JSON).

   Should support optional query parameters for filtering:

127.0.0.1:8000/logs

Pretty-print ☐

{"total":4,"limit":100,"offset":0,"items":[{"id":"0e3338fb-d931-5f10-9a6b-e12c34b293d0","timestamp":"2025-05-07T10:00:00","level":"INFO","component":"UserAuth","message":"User 'john.doe' logged in successfully.","source_file":"sample.log","line_number":1},{"id":"c7a7cc83-6225-536e-9d9e-ff8ae7ddef19","timestamp":"2025-05-07T10:00:15","level":"WARNING","component":"GeoIP","message":"Could not resolve IP address '192.168.1.100'.","source_file":"sample.log","line_number":2},{"id":"cd8e1e09-bfc7-5cb0-b718-cbd52c6f098f","timestamp":"2025-05-07T10:00:20","level":"ERROR","component":"Payment","message":"Transaction failed for user 'jane.doe'.","source_file":"sample.log","line_number":3},{"id":"c7eab6f9-b244-5cfd-aa04-9084a0647327","timestamp":"2025-05-07T10:00:25","level":"INFO","component":"UserAuth","message":"User 'alice.smith' logged out.","source_file":"sample.log","line_number":4}]}

127.0.0.1:8000/logs?level=ERROR&start_time=2025-05-07%2010:00:00

Pretty-print ☐

{"total":1,"limit":100,"offset":0,"items":[{"id":"cd8e1e09-bfc7-5cb0-b718-cbd52c6f098f","timestamp":"2025-05-07T10:00:20","level":"ERROR","component":"Payment","message":"Transaction failed for user 'jane.doe'.","source_file":"sample.log","line_number":3}]}

2. GET /logs/stats:

   Should return statistics about the log data, including:

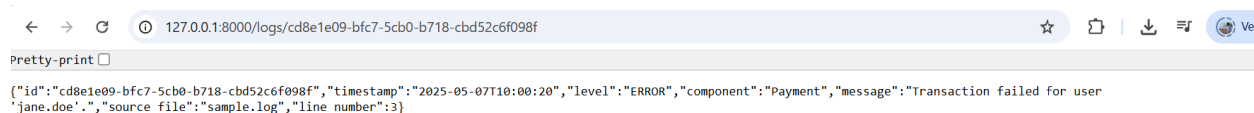   Total number of log entries.

   Counts of log entries per level.

   Counts of log entries per component.

127.0.0.1:8000/logs/stats

Pretty-print ☐

{"total_entries":4,"by_level":{"INFO":2,"WARNING":1,"ERROR":1},"by_component":{"UserAuth":2,"GeoIP":1,"Payment":1}}

3. GET /logs/{log_id}:

   Should return a specific log entry based on a unique `log_id`. You'll need to generate unique IDs for each log entry as you parse the files.

127.0.0.1:8000/logs/cd8e1e09-bfc7-5cb0-b718-cbd52c6f098f

Pretty-print ☐

{"id":"cd8e1e09-bfc7-5cb0-b718-cbd52c6f098f","timestamp":"2025-05-07T10:00:20","level":"ERROR","component":"Payment","message":"Transaction failed for user 'jane.doe'.","source_file":"sample.log","line_number":3}