**Week 3 Report — Data Layer & Scanning**

**Lightweight System Resource Monitor**
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### 1. Async Data Retrieval

- Added fetch_system_data() async function.

- Integrated with Command::perform so CPU and memory stats update every second without blocking the UI.

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### 2. Unit Test

- Wrote #[tokio::test] to check fetch_system_data() returns valid values.

```
PS C:\Users\USER\Desktop\Rust Projects\final_project> cargo test
   Compiling final_project v0.1.0 (C:\Users\USER\Desktop\Rust Projects\final_project)
    Finished `test` profile [unoptimized + debuginfo] target(s) in 2.71s
     Running unittests src\main.rs (target\debug\deps\final_project-7a42de12def9af34.exe)

running 1 test
test tests::test_fetch_system_data_returns_values ... ok

test result: ok. 1 passed; 0 failed; 0 ignored; 0 measured; 0 filtered out; finished in 0.29s
```

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### 3. Logging

- Integrated log + env_logger.

- Logs CPU and memory usage each refresh cycle.

```
[2025-10-08T03:11:16Z INFO  final_project] CPU: 68.3%, Memory: 12649357312/16890322944
[2025-10-08T03:11:17Z INFO  final_project] CPU: 93.6%, Memory: 12626608128/16890322944
[2025-10-08T03:11:18Z INFO  final_project] CPU: 75.8%, Memory: 12619644928/16890322944
[2025-10-08T03:11:19Z INFO  final_project] CPU: 66.8%, Memory: 12616466432/16890322944
[2025-10-08T03:11:20Z INFO  final_project] CPU: 75.1%, Memory: 12605325312/16890322944
[2025-10-08T03:11:21Z INFO  final_project] CPU: 86.6%, Memory: 12593500160/16890322944
[2025-10-08T03:11:22Z INFO  final_project] CPU: 78.8%, Memory: 12583563264/16890322944
[2025-10-08T03:11:24Z INFO  final_project] CPU: 91.8%, Memory: 12558184448/16890322944
[2025-10-08T03:11:24Z INFO  final_project] CPU: 88.5%, Memory: 12565782528/16890322944
```

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