Labs 13–15 Summary: Prometheus, Grafana, and End-to-End Integration

Z5008 Big Data Lab · Even Semester 2026 · Dr. Innocent Nyalala

1. Observability with Prometheus and Grafana

Production pipelines expose pull-based `/metrics` endpoints recording throughput counters, queue-lag gauges, and latency summaries (p_{50}, p_{95}, p_{99}). Grafana dashboards visualize SLA compliance alongside automated threshold alerts.

2. End-to-End Capstone Integration

A complete Z5008 platform connects Kafka ingestion, Bronze-Silver-Gold Lakehouse tables, Airflow batch orchestration, MLflow-tracked predictions, and live Prometheus telemetry in one reproducible Docker Compose stack.