

# PROJECT PHASES

## Phase 0 – Planning & Repo Setup (1–2 days)

- Repo creation, naming, folder structure
  - README + architecture diagram
  - Initial Docker Compose / local dev environment
  - TimescaleDB/Postgres setup with basic schema
- Time:** 1–2 days
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## Phase 1 – Ingest Service MVP (3–5 days)

- Scaffold ASP.NET Core Web API project for IngestService
  - Implement /v1/ingest/metrics endpoint
  - Batch inserts to TimescaleDB
  - Basic validation + DTOs
  - Dockerfile for local development
  - Test ingest workflow with Postman / curl
- Time:** 3–5 days
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## Phase 2 – Query Service MVP (2–4 days)

- Scaffold QueryService (ASP.NET Core Web API)
  - Implement endpoints: /v1/query/metrics, /v1/query/series
  - Aggregation queries (using TimescaleDB continuous aggregates)
  - Connect to dashboard (React) with sample data
- Time:** 2–4 days
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## Phase 3 – Alerting Service MVP (2–4 days)

- Scaffold AlertingService (ASP.NET Core Web API + background worker)
  - Create alert rule model + evaluator
  - Trigger alerts for sample metrics
  - Store alert history in Postgres
  - Optional: send notifications via webhook/email
- Time:** 2–4 days

#### **Phase 4 – Auth & Metadata Service (1–2 days)**

- Scaffold AuthService (JWT + API keys)
  - Implement RBAC for endpoints
  - Users / API keys stored in Postgres
  - Connect other services to verify authentication
- Time:** 1–2 days
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#### **Phase 5 – Scaling & DevOps Integration (3–5 days)**

- Dockerize all services
  - CI/CD pipelines: GitHub Actions / Azure DevOps
  - Kubernetes manifests / Helm charts
  - Connection pooling (pgbouncer), configuration via environment variables
  - Implement batching, retries, health checks, liveness/readiness probes
- Time:** 3–5 days
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#### **Phase 6 – Observability & Testing (2–3 days)**

- OpenTelemetry traces & Prometheus metrics for platform
  - Unit tests + integration tests (Docker Compose / Testcontainers)
  - Load testing (k6 / Vegeta)
  - Log structured logging (Serilog / Elasticsearch optional)
- Time:** 2–3 days
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#### **Phase 7 – Optional Logs & Full-Text Search (3–5 days)**

- Add Elasticsearch or ClickHouse for logs
  - Implement /v1/ingest/logs endpoint + batched writes
  - Implement log search endpoints for dashboard
  - Retention policies + compression / archiving to S3
- Time:** 3–5 days
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#### **Phase 8 – Final Polish / Portfolio Prep (2 days)**

- Update README with architecture diagrams, screenshots
  - Add example data & scripts for quick demo
  - CI/CD fully integrated & tested
  - Prepare GitHub repo for showcase
- Time:** 2 days