

Final Project Report

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Demonstration Guide

Installation Steps

1. Install Docker and Docker Compose.
2. Clone the repository.
3. Create a root .env with at least:
 - FINNHUB_API_KEY=\$YOUR_KEY
 - INFLUXDB_USERNAME, INFLUXDB_PASSWORD (8–72 chars), INFLUXDB_ADMIN_TOKEN
4. Ensure ports 4000, 8001, 8800, 3000, 8086, 7077, 8080 are free.

Run the Containers (Exact Commands)

- Build and start: `docker compose up --build`
- Stop: `docker compose down`
- Rebuild a single service (example backend): `docker compose build backend`

Run the CRUD Application

- Backend FastAPI: <http://localhost:4000> (Swagger UI at /docs).
- Frontend dashboard: <http://localhost:8800>.
- Key endpoints:
 - GET /portfolio — list all trades.
 - POST /trades — create (e.g., {"symbol": "AAPL", "shares": 5, "buy_price": 180}).
 - PUT /trades/{symbol} — update buy price (e.g., {"new_price": 185}).
 - DELETE /trades/{symbol} — delete/sell a trade.
- Finnhub quote API: <http://localhost:8001/quote/{symbol}> (uses FINNHUB_API_KEY).
- Grafana (optional dashboards): <http://localhost:3000>.

Reproduce the Custom Example

1. Start services: `docker compose up --build`.
2. Create a trade:

```
curl -X POST http://localhost:4000/trades \
-H "Content-Type: application/json" \
-d '{"symbol": "AAPL", "shares": 5, "buy_price": 180}'
```

3. Update it:

```
curl -X PUT http://localhost:4000/trades/AAPL \
-H "Content-Type: application/json" \
-d '{"new_price": 185}'
```

4. Delete it:

```
curl -X DELETE http://localhost:4000/trades/AAPL
```

5. Verify via GET /portfolio or refresh the frontend dashboard.