

# Final Project Report

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## Demonstration Guide

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### 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.