

TaskBoard

Goal

Design and implement a containerized distributed system with load balancing and failover using two backend service instances.

Tech Stack

- Frontend: React (Vite)
- Backend: Node.js (Express)
- Authentication: JWT
- Database: PostgreSQL
- Load Balancer: Nginx
- Containerization: Docker Compose

System Architecture

- Nginx distributes traffic to two backend instances
- Backends are stateless and use JWT authentication
- PostgreSQL provides persistent storage

Features

- User registration
- User login
- Create tasks
- View tasks
- Mark tasks complete

Distributed System Properties

- Multiple backend instances
- Stateless services
- Failover supported
- Load balancing via Nginx

Load Testing Plan

- Use k6 to test a JWT-protected endpoint
- Measure throughput and latency
- Analyze bottlenecks

Repository

<https://gitlab.ost.ch/leon.kuenzli/taskboard>