

Complex Systems and DevOps: Deliverable 2

Date: November 25, 2024

Course Details

Course Name: Complex Systems and DevOps **Course Code:** 62582
Semester: Fall 2024

Team Members

Name	Student Number
Christoffer Fink	<i>s205449</i>
Kasper Falch Skov	<i>s205429</i>
Johan Søgaard Jørgensen	<i>s224324</i>
Henrik Lynggaard Skindhøj	<i>s205464</i>
Kevin Wang Højgaard	<i>s195166</i>
Sebastian Halfdan Lauridsen	<i>s215769</i>

Link to GitHub Project

Table of Contents

1. Introduction
 - Project Scope and Objectives
 - Problem Statement and Solution Overview
 - Methodology
- I. Analysis
 2. Domain Analysis
 - User Stories and Requirements
 - System Architecture Overview
 - Technical Stack Selection
 - Security Requirements
 3. Technical Foundation
 - Framework Selection Rationale
 - Development Environment Setup
 - Project Structure
- II. Implementation and DevOps Practices

4. Backend Development
 - Quarkus Framework Implementation
 - REST API Design with Siren Hypermedia
 - Database Integration
 - Business Logic Implementation
 - Security Implementation
 - JWT Authentication
 - Backend Security Measures
 - Testing Strategy
 - JUnit Implementation
 - REST-assured Testing
 - OpenAPI Documentation
 5. Frontend Development
 - React Application Structure
 - TypeScript Integration
 - Vite Build Tool Implementation
 - State Management
 - Component Architecture
 - Security Features
 - Token Security Implementation
 - Package Management
 6. DevOps Implementation
 - Version Control Practices
 - Git Workflow
 - GitHub Integration
 - Continuous Integration/Continuous Deployment
 - GitHub Actions Configuration
 - Build Server Setup
 - Testing Pipeline
 - Containerization
 - Docker Implementation
 - Container Registry
 - Cloud Deployment
 - Google Cloud Setup
 - Netlify Frontend Deployment
 - Monitoring and Maintenance
 7. Conclusion
 - Project Outcomes
 - Future Improvements
 - Lessons Learned
-